GENERAL PLAN UPDATE 2035
DRAFT ENVIRONMENTAL IMPACT REPORT

CITY OF SELMA
SCH #2008081082

September 2009

Quad Knopf

General Plan Update 2035

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September 2009

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Introduction

Under the California Environmental Quality Act (CEQA), when discretionary projects are undertaken by public agencies, an Environmental Impact Report (EIR) is required if the Lead Agency determines that the project may cause a significant environmental impact. This was concluded by the Initial Study prepared and published for this project in August 2008 (Appendix A). Comments received during the public review of the Initial Study and Notice of Preparation follow the Initial Study in Appendix A. The purpose of an EIR is to provide full disclosure of the potentially significant environmental effects of the project to the public and their decision-makers and explore means to mitigate (i.e., reduce, avoid, or eliminate) those impacts through special mitigation measures or alternatives to the project. CEQA intends the preparation of an EIR to be a public process that provides meaningful opportunities for public input with regard to potential environmental effects.

The project evaluated in this EIR involves the adoption of a General Plan Update for the City of Selma. The proposed SOI (2020) includes approximately 9,898 acres and the Planning Area includes approximately 15,183 acres, and contains residential, agricultural, commercial, mixed use, public/quasi-public, and industrial land uses.

It is the intent of the Executive Summary to provide the reader with a clear and simple description of the proposed project and its potential environmental impacts. Section 15123 of the CEQA Guidelines requires that the summary identify each significant impact, and recommend mitigation measures and alternatives that would minimize or avoid potential significant impacts. The summary is also required to identify areas of controversy known to the lead agency, including issues raised by agencies and the public, and issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. This section focuses on the major areas of the proposed project that are important to decision-makers and utilizes non-technical language to promote understanding.

This EIR will be used as a Program EIR. Further environmental review may be required for specific activities resulting from the General Plan Update's adoption. Section 15168 of the CEQA Guidelines defines a Program EIR as:

> An EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:
>
> 1) Geographically,
>
> 2) As logical parts in the chain of contemplated actions,
>
> 3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or

4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Project Description

The proposed project is an update of the City of Selma's General Plan ("Plan Update"). California state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (§65300). The General Plan Update includes revised policies and standards for the Noise, Safety, Open Space, Conservation and Recreation, Circulation, Land Use, and the Public Services and Facilities Elements. The Housing Element will be updated separately from this General Plan Update. The Housing Element has been reformatted only for the Plan Update. The expansion of urban land use designations, contained within the Planning Area, define the limits for extending City services and infrastructure so as to accommodate new development anticipated within the 2007-2035 time-frame of the General Plan. Policies in the proposed General Plan limit leap-frog development and provide for an orderly transition from rural to urban land uses. The Planning Area for the update surrounds the City of Selma and is generally bounded by South Avenue to the north, Academy Avenue to the east, Caruthers Avenue to the south, and ½ mile west of Temperance Avenue to the west. Figures 2-1 and 2-2 show the regional location, the existing City limits, SOI and Planning Area. A full project description is provided in Chapter 2.

Project Objective

The overall objective of the Plan Update is to provide direction for future development within the City throughout the planning period. The Plan Update will allow the City to comply with State general plan law, which requires a jurisdiction to periodically update its general plan to reflect current and projected development conditions. Specific project objectives include the following:

1. Achievement of the General Plan goals and objectives, as noted in each element thereof.

2. Provide for moderate, planned growth, which is in conformance with community objectives.

3. Maintain a compact and contiguous form of development.

4. Develop a set of internally consistent development policies, and eliminate any inconsistencies between existing planning policies and regulations.

5. Provide for employment opportunities and a diverse local economy.

6. Provide for high quality City services and delivery that is responsive to the citizens.

7. Provide a variety of housing types to meet the needs of all Selma residents.

Potential Areas of Controversy and Issues to be Resolved

Under CEQA, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise and objects of historic and aesthetic significance.

The General Plan Update has the potential to generate environmental impacts in a number of areas that could be significant:

- Agriculture: Potential loss of Important Farmland.
- Air Quality: Increase in air emissions in an area designated non-attainment.
- Biological Resources: Potential loss of special status species and/or habitat.
- Cultural Resources: Potential change in the significance of a historic or archaeological resource.
- Hydrology and Water Quality Impacts: Potential for water quality, groundwater and drainage impacts.
- Land Use and Planning: Potential conflict with an adopted plan.
- Noise: Potential increase in temporary or permanent noise levels.
- Population and Housing: Increase in population and housing growth either directly or indirectly.
- Public Services: Potential adverse physical impacts from new government facilities.
- Transportation/Traffic: Potential increase in traffic levels and deterioration of LOS in relation to the existing traffic load and capacity of the street system.
- Utilities/Service Systems: Potential significant environmental impacts from new or expanded water, sewer and storm drainage facilities.
- Global Climate Change: Implementation of the proposed General Plan Update would contribute to greenhouse gas emissions resulting in world-wide global climate change.
- Cumulative Impacts: Potential cumulative impacts associated with the resource areas above.

Alternatives to the Proposed Project

Section 15126.6 of the State CEQA Guidelines requires the EIR to describe a reasonable range of alternatives to the project or to the location of the project which would reduce or avoid significant impacts, and which could feasibly accomplish the basic objectives of the project, and to evaluate the comparative merits of the alternatives. Alternatives that would reduce or avoid significant impacts represent environmentally superior alternatives to the proposed project. However, if the environmentally superior alternative is the “no project” alternative, the EIR must also identify an environmentally superior alterative among the other alternatives.

The EIR evaluates the following alternatives:

- **Existing General Plan Alternative (No Project) –** Under this alternative, the 2035 General Plan would not be adopted, and the existing 1997 City of Selma General Plan would remain in effect.

- **Reduced Growth Alternative –** Under this alternative, slightly less new development would be allowed in comparison with the General Plan Update and growth would be restricted to a slightly smaller area within the Planning Area boundary. This alternative was considered feasible because the City could grow at a slower pace than expected.

- **Concentrated Growth Alternative –** The Concentrated Growth Alternative assumes the same number of residential units in 2035 as the proposed Plan Update, as well as the same goals, objectives, and policies. However, under the Concentrated Growth Alternative, the density of residential development would increase to reduce the amount of land needed to provide the same growth capacity proposed by the Plan Update. Under the Concentrated Growth Alternative some Low and Medium Low Density Residential areas in the city limits and SOI would be designated as High and Medium High Density Residential. Additional High and Medium High Density Residential uses would be focused around the intersections of Dinuba and McCall, Dinuba and Highland, and just east of the hospital south of Rose. As a result, more of the land in the Planning Area would be left in a “Reserve” land use designation or in agricultural use.

As shown in Chapter 4, Alternatives, the Reduced Growth Alternative has the least environmental impact and is therefore the environmentally superior alternative.

UNAVOIDABLE SIGNIFICANT IMPACTS

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Significant unavoidable impacts were identified in the areas of agricultural resources, air quality, hydrology/water quality, public services and utilities/service systems. These impacts are identified in Table ES-1 as “Significant and Unavoidable” in the “Level of Significance after Mitigation” column.

Summary of Impacts and Mitigation Measures

Section 15123(b)(1) of the *CEQA Guidelines* provides that this summary shall identify each significant effect with proposed mitigation measures that would reduce or avoid that effect. This information is summarized in Table ES-1, “Summary of Potential Impacts, Proposed Mitigation Measures and Level of Significance”. With the exception of agriculture, air quality, public services (uncertainties of electricity and natural gas), and utilities/service systems (adequate wastewater treatment capacity), and global climate change, all identified impacts are either less than significant in relation to identified significance threshold levels, can be mitigated to a less than significant level through recommended mitigation measures, or will require second-tier environmental analysis when a specific project is proposed.

The reader should take note that Table ES-1 contains only a summary of identified impacts and mitigation measures for quick reference. Chapter Three should be consulted for the full text of impacts and mitigation measures.

The Draft EIR has analyzed cumulative impacts and found that there will be significant cumulative impacts on agricultural resources, air quality, public services (uncertainty of electricity and natural gas), transportation/traffic, utilities and service systems (wastewater), and global climate change regardless of implementation of feasible mitigation measures.

Table ES-1
Summary of Potential Impacts, Proposed Mitigation Measures, and Level of Significance

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
3.1 Aesthetics					
3.1.3.1	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Less Than Significant	3.1.3.1	Modify Policy 1.33c as follows: Exterior lighting for projects shall be shielded to prevent line of sight visibility of the light source from abutting property planned for single-family residential. The City Site Plan Review process shall require development projects to ensure that no more than 0.25 footcandles of errant light impacts adjacent properties. The Planning Official shall require a photometric analysis of projects where necessary to demonstrate compliance with this requirement.	Less Than Significant
3.2 Agriculture					
3.2.3.1	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use	Significant and Unavoidable	3.2.3.1	The City will encourage property owners outside the City limits but within the SOI to maintain their land in agricultural production until the land is converted to urban uses through the following means. a. The City will work cooperatively with land trusts and other non-profit organizations to preserve agricultural land outside of the SOI and not planned for urbanization in the General Plan through the use of Conservation Easements. b. The City will use its urban boundaries and growth phasing policies to delay the conversion of agricultural lands. c. The City will encourage the use of Williamson Act contracts in the area outside of the SOI. d. The City will provide adequate buffering for agricultural land uses to minimize the operational impacts to farmers.	Significant and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				The City will encourage infill projects and those that are substantially contiguous to existing development.	
3.2.3.2	Conflict with existing zoning for agricultural use, or a Williamson Act contract	Significant and Unavoidable	3.2.3.2	When Williamson Act Contract cancellations are proposed outside of the SOI the City will use one of the following means to provide agricultural protection to other farmland to offset the loss of farmland protected by Williamson Act Contracts: a) Conservation easements shall be acquired through a “1240 Land Exchange” Ag Conservation Easement program pursuant to Government Code 51282 and Public Resources Code 10251 as a component of the proposed Agricultural Preserve Cancellation; or b) The City shall require the contribution of a mitigation fee to a regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The amount of the contribution shall be sufficient to provide protection to an equivalent area of land. Regardless of the method employed, lands selected for conservation shall be outside of the SOI adopted by LAFCo.	Significant and Unavoidable
3.2.3.3	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use	Potentially Significant		No mitigations are available to reduce this impact to a less than significant level. This impact would remain a significant and unavoidable.	Significant and Unavoidable
3.3 Air Quality					
3.3.3.1	Conflict with or obstruct implementation of the applicable air quality plan or result in a cumulatively considerable net	Significant and Cumulative	3.3.3.1	The following BACT (Best Available Control Technology) measures are recommended for all new development as a result of the Plan Update (when applicable):	Significant, Cumulative, and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
	increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors):			▪ Trees shall be carefully selected and located to protect building(s) from energy consuming environmental conditions, and to shade paved areas. Trees should be selected to shade at least 50% of the paved area within 10 years of planting. ▪ If transit service is available to a project site, improvements should be made to encourage its use. If transit service is not currently available, but is planned for the area in the future, easements should be reserved to provide for future improvements such as bus turnouts, loading areas, route signs and shade structures. ▪ Sidewalks and bikeways should be installed throughout as much of any project as possible and should be connected to any nearby existing and planned open space areas, parks, schools, residential areas, commercial areas, etc., to encourage walking and bicycling. ▪ Projects should use LEED recommended energy features to the extent practicable and feasible. Examples include (but are not limited to): - Increased energy efficiency (above California Title 24 Requirements) - Energy efficient widows (double pane and/or Low-E) - Use Low and No-VOC coatings and paints. - High-albedo (reflecting) roofing material. - Cool Paving. "Heat islands" created by this and similar projects contribute to the reduced air quality in	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				the valley by heating ozone precursors. - Radiant heat barrier. - Energy efficient lighting, appliances, heating and cooling systems. - Install solar water-heating system(s) - Install photovoltaic cells - Install geothermal heat pump system(s) - Programmable thermostat(s) for all heating and cooling systems - Awnings or other shading mechanism for windows - Porch, patio and walkway overhangs - Ceiling fans, whole house fans - Utilize passive solar cooling and heating designs (e.g. natural convection, thermal flywheels) - Utilize daylighting (natural lighting) systems such as skylights, light shelves, interior transom windows etc. - Electrical outlets around the exterior of the unit(s) to encourage use of electric landscape maintenance equipment - Bicycle parking facilities for patrons and employees in a covered secure area. Bike storage should be located	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				within 50’ of the project’s entrance. Construct paths to connect the development to nearby bikeways or sidewalks. - On-site employee cafeterias or eating areas. - Low or non-polluting landscape maintenance equipment (e.g. electric lawn mowers, reel mowers, leaf vacuums, electric trimmers and edger's, etc.) - Pre-wire the unit(s) with high speed modem connections/DSL and extra phone lines - Natural gas fireplaces (instead of wood-burning fireplaces or heaters) - Natural gas lines (if available) and electrical outlets in backyard or patio areas to encourage the use of gas and/or electric barbecues - Low or non-polluting incentives items should be provided with each residential unit (such items could include electric lawn mowers, reel mowers, leaf vacuums, gas or electric barbecues, etc.) - Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site	
3.3.3.2	Expose sensitive receptors to substantial pollutant concentrations	Potentially Significant	3.3.3.2	The City shall require a CO “hot spot” analysis for any roadways or intersections that are projected to exceed the thresholds in the GAMAQI.	Less Than Significant
3.3.3.3	Violate any air quality standard or contribute substantially to an existing or projected air quality	Significant	3.3.3.3a	For any phase of construction in which an area greater than 22 acres will be disturbed on any one day, the project developer(s) shall implement the following measures:	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
	violation			1. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. 2. Traffic speeds on unpaved roads shall be no greater than 15 mph. 3. Install wind breaks at windward side(s) of construction areas.	
		Significant	3.3.3.3b	To reduce emissions and thus reduce cumulative impacts, the following measures shall be implemented: 1. Basic fugitive dust control measures are required for all construction sites by SJVAPCD Regulation VIII. 2. The idling time of all construction equipment used in the plan area shall not exceed ten minutes (when applicable). 3. The hours of operation of heavy-duty equipment shall be minimized (when applicable). 4. All equipment shall be properly tuned and maintained in accord with manufacturer's specifications (when applicable). 5. When feasible, alternative fueled or electrical construction equipment shall be used at the project site. 6. The minimum practical engine size for construction equipment shall be used (when applicable). 7. When feasible, electric carts or other smaller equipment shall be used at the project site.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				8. Gasoline-powered equipment shall be equipped with catalytic converters (when applicable).	
3.3.3.4	Create objectionable odors affecting a substantial number of people	Less Than Significant		No mitigation measures are required.	
3.4 Biological Resources					
3.4.3.1	Potential Project Impacts To Protected Special-Status Plant Species:	Potentially Significant	3.4.3.1	**Mitigation for Protected Special-Status Plant Species:** Surveys for sensitive plant habitat shall be conducted prior to construction activities or, for annually emerging plants, during the preceding flowering season. If appropriate habitat for sensitive plants is absent from the project site then no further mitigation is needed. If appropriate habitat for sensitive plants exists in the project area then surveys for sensitive plants shall be conducted within 14 to 30 days before vegetation removal or, for annually emerging plants, during the preceding flowering season, site grading, or the start of construction in fallow agricultural areas, riparian areas, designated wetlands and along irrigation ditches and canals. Surveys and avoidance are only needed in areas adjacent to construction activities to avoid existing resources that might otherwise be subject to unnecessary removal or degradation. Avoidance buffer areas of 50 feet will be established around special status plants. This 50-foot distance may be reduced if avoidance of a 50-foot area is not possible and if a monitoring biologist so agrees. Avoidance buffers will be maintained until construction activities have been completed, and then will be removed. Each proposed project will be designed to avoid impacts to populations of protected special-status plant species. Impacts to protected special-status plant species will be avoided wherever possible. Populations of special-status plant species found during surveys will be protected by a conservation easement as open space. Prior to the issuance of a grading permit that would	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				result in activities affecting special-status plant species populations in development areas of the site, the on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve in perpetuity these populations of protected special-status plant species. Management will include the protection of the population from human foot traffic and off road vehicles. Where avoidance is not possible, the project applicant will purchase protected special-status plant species credits from a Conservation Bank. The project applicant will pay the market rate for protected special-status plant species credits at a ratio to be determined after consultation with the California Department of Fish and Game and the United States Fish and Wildlife Service from a conservation bank whose service area includes Fresno and/or Madera County.	
3.4.3.2	Potential Project Impacts To Vernal Pool, Vernal Pool Tadpole And Conservancy Fairy Shrimp:	Potentially Significant	3.4.3.2a	Surveys to locate wetlands and ephemeral pools shall be conducted prior to the initiation of construction related activities within 150 feet of a wetland or its upland tributary. If no wetlands or ephemeral pools are located on a construction site, no additional mitigation is warranted. If wetlands or ephemeral pools are located on a project site, then additional specific surveys for fairy shrimp must be conducted. Surveys methods shall follow those outlined in the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods* (USFWS 1996).	Less Than Significant
		Potentially Significant	3.4.3.2b	Proposed projects shall be setback to avoid impacts to populations of vernal pool and conservancy fairy shrimp species by avoidance of all wetlands, ephemeral pools, and buffer areas consisting of 100 feet from the edges of wetlands and ephemeral pools. Populations of vernal pool and conservancy fairy shrimp species avoided will be protected by a conservation easement as	Less Than Significant

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				open space. The on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve these populations in perpetuity. The area of vernal pool fairy shrimp habitat to be protected within designated on-site open space will be at a ratio of 5 acres of protected vernal pool habitat for each acre of such habitat directly or permanently disturbed by grading and construction associated with the development of the project. Management will include the protection of the population from human foot traffic and off road vehicles.	
		Potentially Significant	3.4.3.2c	The designated open space will provide buffers to foot and off-road vehicle traffic between developed areas of the project site and ephemeral pools of 100 to 450 feet.	Less Than Significant
		Potentially Significant	3.4.3.2d	Prior to issuance of a grading permit for the development area, a management plan will be prepared for the undisturbed open space of the site. Elements of this management plan will include the following: 1) the Project will be designed to ensure that winter stormwater runoff into open space areas of the development area will mimic pre-project conditions. Upon project completion, surface and subsurface flows of runoff to preserved vernal pools will be roughly equivalent to pre-project conditions; 2) all runoff originating in developed areas of the site will pass through retention basins, bio-filtration swales, or both, which will act together as stormwater filters such that water quality will not be significantly reduced from pre-project conditions; 3) irrigation runoff from landscaped areas will be routed away from vernal pool habitats during the summer and fall to ensure that the hydrology of these habitats mimics pre-project conditions; 4) a management plan will be developed and implemented to control the proliferation of non-native annuals in grassland and vernal pool habitats of the on-site open space areas, and to control the build-up of flammable thatch; 5) access to the open space areas will be controlled in order to minimize impact to vernal pools and other habitats, and to ensure that	Less Than Significant

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				cattle are confined to the open space areas when grazing is permitted. This management plan will be submitted to the USFWS for review and approval.	
		Potentially Significant	3.4.3.2e	Prior to the issuance of a grading permit the project applicant will compensate for the loss of vernal pool habitat through the creation/restoration of additional vernal pool habitat at a ratio of one acre of creation/restoration for each acre of such habitat directly and permanently disturbed by grading and construction associated with the project development. Creation/restoration of vernal pool habitat will be accomplished by one or a combination of the following two mitigation alternatives: 1. Off-Site Creation/Restoration. The project applicant will conserve through acquisition or conservation easement off-site lands suitable for vernal pool creation/restoration in Fresno or Madera County. Such lands will be located south of the Fresno River, and will consist of the following characteristics: natural undisturbed native wetlands and habitat suitable for threatened and endangered plant and animal species will be absent (i.e., these lands will have been previously disturbed by farming, or some other intensive human use); vernal pools once occurred on these lands naturally; the underlying hardpan layer is still intact; and the natural topography has not been eliminated through land leveling. Topographic depressions will be created/restored on these lands according to a "mitigation and monitoring plan" prepared by a qualified biologist. The depressions will hold water for approximately three months of every year. When full, the depth of the filled pools will vary from 6 to 18 inches. The depressions will be revegetated with vernal pool species native to the area; soil collected from existing pools in the region will be distributed on the bottoms of the constructed pools in order to enhance the prospects for establishing vernal pool fairy shrimp populations. Efforts to establish fairy shrimp	Less Than Significant

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<tr><th>Impact Number</th><th>Impact</th><th>Level of Significance Before Mitigation</th><th>Mitigation Number</th><th>Mitigation Measure</th><th>Level of Significance After Mitigation</th></tr>
<tr><td></td><td></td><td></td><td></td><td>populations in the constructed pools will only occur after receiving formal authorization to do so from the USFWS, as required by law. The components of this mitigation and monitoring plan will be consistent with standard USACE guidelines.

2. Purchase of Vernal Pool Creation/Restoration Credits from a Conservation Bank. The project applicant will pay the market rate for Vernal Pool Creation/Restoration Credits at the stipulated 1:1 ratio from a Conservation Bank whose service area includes Fresno and or Merced County.</td><td></td></tr>
<tr><td>3.4.3.3</td><td>Potential Project Impacts to the San Joaquin Kit Fox</td><td>Potentially Significant</td><td>3.4.3.3</td><td>Mitigation for the San Joaquin Kit Fox: Because San Joaquin kit foxes could be transient foragers in the Planning Area and may den on the project sites designated for development, the Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance (USFWS 1999) shall be followed in fallow agricultural and urban areas and along the banks of canals and irrigation ditches. The measures that are listed below have been excerpted from those guidelines and will protect San Joaquin kit foxes.

▪ Pre-construction surveys should be conducted in development zones no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones should be placed in accordance with USFWS Recommendations using the following:

Potential Den — 50 foot radius
Known Den — 100 foot radius
Natal Den — Contact U.S. Fish and Wildlife Service for</td><td>Less Than Significant</td></tr>
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Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				guidance Atypical 50 foot radius ▪ If dens must be removed, they should be appropriately monitored and excavated by a trained wildlife biologist. Replacement dens would be required. Destruction of natal dens and other “known” kit fox dens should not occur until authorized by USFWS. ▪ Project-related vehicles should observe an appropriate speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when San Joaquin kit foxes are most active. Nighttime construction should be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit foxes. The area within any such fence should be determined to be uninhabited by San Joaquin kit foxes prior to initiation of construction. Off-road traffic outside of designated project areas should be prohibited. ▪ To prevent inadvertent entrapment of San Joaquin kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. ▪ San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for San Joaquin kit	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of a biologist, the pipe may be moved once to remove it from the path of construction activity, until the animal has escaped. ▪ All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction or project site. ▪ No firearms should be allowed on the project site. ▪ To prevent harassment, mortality of San Joaquin kit foxes, or destruction of dens by dogs or cats, no pets should be permitted on the project site. ▪ A representative should be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox, or who finds a dead, injured or entrapped individual. The representative's name and telephone number should be provided to the USFWS and CDFG. ▪ In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice. ▪ Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox should immediately report the incident to their representative. This representative should contact the CDFG immediately in the case of a dead, injured or	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist. ▪ The Sacramento Fish and Wildlife Office and CDFG should be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification should include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.	
3.4.3.4	Potential Project Impacts to the California Tiger Salamander and the Western Spadefoot	Potentially Significant	3.4.3.4a	Surveys for potential breeding habitat of California tiger salamanders and western spadefoot toads shall be conducted in fallow agricultural fields, vacant lots, along roadsides and within other areas that contain disturbed grassland habitats. Breeding habitat for California tiger salamanders and western spadefoot toads consists of ephemeral pools, roadside ditches and other temporary water pools that lack predators (e.g. mosquito fish). Surveys for suitable breeding pools are best conducted during the wet season, October through April. If suitable breeding pools are not found, no other mitigation measures are warranted.	Less Than Significant
		Potentially Significant	3.4.3.4b	If suitable ephemeral pools are found to occur on a project site, then specific surveys for California tiger salamanders and western spadefoot toads will be conducted. Survey methods will follow standard guidelines *(Interim guidance on Site Assessment and field surveys for determining presence or a negative finding of the California tiger salamander*, 2003). If surveys determine that no California tiger salamanders or spadefoot toads are present, then no additional mitigation	Less Than Significant

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				measures are warranted. If presence is confirmed, then those pools and a buffer area around those pools shall be protected. The avoidance areas will be protected by a conservation easement as open space. The area of habitat to be avoided and protected will be a minimum of 5 acres in size, will include all pools present on the site, and will include a buffer area of a minimum of 1,000 feet from the edge of the vernal pool. Habitat within the protected site, including the buffer area will be managed and restored. Prior to the issuance of a grading permit that would result in activities affecting California tiger salamanders and western spadefoot populations in development areas of the site, the on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve these populations in perpetuity. Management will include the protection of the population from human foot traffic and off road vehicles.	
		Potentially Significant	3.4.3.4c	If avoidance, conservation, and management are not practical, then off-site habitat acquisition or purchase of conservation credits will suffice. Off site acquisition will be at a ratio of 5 acres purchased for each acre impacted. Prior to issuance of a grading permit for all or any portion of the project site, the project applicant will preserve grassland habitats suitable for California tiger salamander (CTS) aestivation under conservation easement at a minimum ratio of five acres of habitat preservation for every acre of such habitat directly or permanently disturbed by project grading and construction. Preservation of off-site habitat will be in Fresno and/or Madera Counties, or at a conservation bank which includes the project site within its area of influence. Additionally, appropriate permits for take of the CTS must be obtained from the United States Fish and Wildlife Service.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
3.4.3.5	Potential Project Impacts to Swainson's Hawks	Potentially Significant	3.4.3.5	The California Department of Fish and Game has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the California Department of Fish and Game's recommendations for mitigation and protection of Swainson's hawks, surveys shall be conducted for a half-mile radius around all project activities within riparian and agricultural areas, and shall be completed for at least the two survey periods immediately prior to a project's initiation (defined as the time a grading permit is issued). The guidelines provide specific recommendations regarding the number of surveys based on when the project is scheduled to begin and the time of year the surveys are conducted. If Swainson's hawks are found to be nesting on or in the immediate vicinity of a project site, consultation with the California Department of Fish and Game and compensation for the loss of foraging habitat will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization shall be determined. The California Department of Fish and Game has prepared a *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG 1994) (hereinafter referred to as the Mitigation Guidelines) that prescribes avoidance and mitigation for impacts to Swainson's hawk nesting and foraging habitats. The Mitigation Guidelines require applicants to replace any impacted Swainson's hawk nesting and/or foraging habitat with other suitable Swainson's hawk nesting/foraging habitat. Mitigation required would include a 1:1 impact to replacement ratio.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				The Mitigation Guidelines state that acceptable mitigation to offset impacts to Swainson's hawk foraging habitat can be met by Fee Title acquisition of Swainson's hawk habitat, or by acquisition of the right to record a conservation easement over lands that can be managed for this hawk species. Any land acquired through Fee Title would have to be donated to a suitable conservation organization for management. In addition to providing Habitat Management Lands, the applicant would be assessed a management fee for the long-term management of the Habitat Management Lands by a suitable conservation organization.	
3.4.3.6	Potential Project Impacts to Burrowing Owls	Potentially Significant	3.4.3.6a	A survey shall be conducted for ground nesting raptors, including burrowing owls for each project site that occurs within potential habitat. The survey shall be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's October 17, 1995 *Staff Report on Burrowing Owl Mitigation* in fallow agricultural areas, raised agricultural berms, canals, irrigation ditches and roadside berms. Preconstruction surveys of the development area shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the habitat is converted to non-habitat (e.g., graded and developed).	Less Than Significant
		Potentially Significant	3.4.3.6b	If burrowing owls are identified onsite or within the area of influence of the project site (within 1,000 feet of the project site), an upland mitigation area for burrowing owls shall be established either on or offsite. The mitigation site must be determined to be suitable by a qualified biologist. The size of the required mitigation site will be based on the number of	Less Than Significant

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				burrowing owls observed on the project site, with a minimum of 6.5 acres preserved per pair of owls or single owl observed using the site. The number of owls for which mitigation is required shall be based on the combined results of the protocol-level survey and the preconstruction surveys (i.e., if two pairs of owls are observed on the project site during the protocol-level survey, the mitigation requirement shall be 2 x 6.5 = 13 acres provided that no more than two pairs of owls are observed during the preconstruction survey; if three pairs of owls are observed during the preconstruction survey, then the mitigation requirement shall be 3 x 6.5 = 19.5 acres). Two natural or artificial nest burrows will be provided on the mitigation site for each burrow in the project area that will be rendered biologically unstable. Monitoring will occur on a weekly basis to prevent re-colonization in construction areas of the project site. This plan must be approved by the California Department of Fish and Game.	
		Potentially Significant	3.4.3.6c	If burrowing owls are present in the development area during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 500-foot buffer would be required between the nest site(s) (i.e., the active burrow(s)) and any earth-moving activity or other disturbance in the development area. This 500-foot buffer could be removed once it is determined by a qualified biologist that the young have fledged. Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified biologist. If burrowing owls are present in the non-breeding season and must be passively relocated from the project site, as approved by the California Department of Fish and Game, passive relocation shall not commence until October 1st and must be completed by February 1st. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move and to	Less Than Significant

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				ensure that the owls are not reoccupying the development area. A report detailing the results of the relocation and subsequent monitoring will be submitted to the California Department of Fish and Game within two months of the relocation.	
		Potentially Significant	3.4.3.6d	If an upland mitigation site is designated for burrowing owls, it shall be approved as a suitable burrowing owl mitigation property by the California Department of Fish and Game. The preserved area shall be preserved in perpetuity as wildlife habitat via recordation of a conservation easement that designates the California Department of Fish and Game, or any other qualified conservation organization as the Grantee of the easement.	Less Than Significant
		Potentially Significant	3.4.3.6e	If a conservation easement is established over burrowing owl habitat, an endowment to cover the management of the mitigation area and implementation of the mitigation and monitoring plan shall be provided by the project applicant to the Grantee of the Conservation Easement within six months of breaking ground on the project site.	Less Than Significant
3.4.3.7	Potential Project Impacts to Valley Elderberry Longhorn Beetles	Potentially Significant	3.4.3.7	**Mitigation to Protect Valley Elderberry Longhorn Beetles:** To protect potential elderberry longhorn beetle habitat, the following will be implemented: ▪ Prior to ground disturbance at a project site, a survey of the project site shall be conducted for elderberry bushes. Surveys shall be conducted according to the *Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999). ▪ Each elderberry bush that has stems 1 inch or greater in diameter and that is within 100 feet of any proposed construction activity will be inspected for Valley elderberry longhorn beetles prior to initiation of construction.	Less Than Significant

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				▪ For those bushes in which the beetle does not occur, construction within the 100 foot buffer area will be allowed, provided that: - A letter of concurrence is obtained from the United States Fish and Wildlife Service authorizing construction within the buffer area. - A biologist is present on-site during construction within the 100-foot buffer area to monitor construction activities and ensure that there are no impacts to the elderberry bushes. - Restoration of habitat within the 100-foot buffer area will occur once construction is complete, except in those instances where permanent facilities are constructed. The applicant must provide a written description to the USFWS of how the buffer areas are to be restored, protected, and maintained after construction is completed. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing shall occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment). - All areas to be avoided during construction activities shall be fenced and flagged. In areas where encroachment on the 100-foot buffer has been approved by the Service, providing a minimum setback of at least 20 feet from the dripline of each elderberry plant is required. - Erect signs every 50 feet along the edge of the avoidance area with the following information: "This	

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				area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction. - A qualified biologist shall conduct a training program for all construction contractors that will be working on the project to inform workers of the need to avoid damaging elderberry plants and the possible penalties for not complying with these requirements. The training program must include information on the status of the beetle and the need to protect its elderberry host plant. - No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant shall be used in the buffer areas, or within 100 feet of any elderberry plant. ▪ For each bush in which the Valley elderberry longhorn beetle is found, the 100-foot buffer area shall be observed during the activity period of the Valley elderberry longhorn beetle (from April to July). Construction activities may occur within the 100 foot buffer area during other periods provided the mitigation measures outlined above are implemented and restoration within the buffer area is completed by beetle emergence (April). ▪ If a construction project will result in the elimination of one or more elderberry bushes, consultation with the United States Fish and Wildlife Service shall be initiated and appropriate approvals for take of elderberry bushes will be	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				obtained. Approvals for the take of elderberry bushes may require compensation for the loss of elderberry bushes through the purchase of conservation credits in an approved conservation bank or the establishment of a conservation area and the transplant of elderberry bushes, the planting of additional elderberry bush seedlings, and the planting of additional native species. Monitoring and management of the conservation area may also be required.	
3.4.3.8	Potential Project Impacts to Nesting Raptors (Evaluation Criteria A and provisions of the CDFG Code)	Potentially Significant	3.4.3.8	**Mitigation to Protect Nesting Raptors:** The typical breeding period for raptors is March 1 to September 1. If construction commences between March 1 and September 1, surveys will be conducted 30 days prior to the start of construction for the project. If construction begins from September 2 to February 28 nest surveys will not be required because this is outside the typical breeding period of raptors. The raptor nesting surveys shall include examination of all trees and shrubs on the project site and within a 1,000-foot area of influence surrounding the site. If nesting raptors are identified during the surveys on the project site, a 300-foot radius buffer around the nest tree or shrub must be fenced with bright orange construction fencing. This 300-foot buffer may be reduced in size if a qualified biologist determines through monitoring that the nesting raptors are acclimated to people and disturbance, and otherwise would not be adversely affected by construction activities. Under no circumstances shall the buffer be reduced to less than a radius of 200 feet. If the nest site is on an adjacent property, the portion of the buffer that occurs on the project site shall be fenced with orange construction fencing. When construction buffers are reduced in size, the biologist shall monitor distress levels of the nesting birds while the birds nest and construction persists. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the biologist shall have the right to re-implement the full 300-foot buffer.	Less Than Significant

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				No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by early July. Regardless, the resource agencies consider 1 September to be the end of the nesting period unless otherwise determined by a qualified biologist. Once raptors have completed nesting, and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can be terminated.	
3.4.3.9	Potential Project Impacts to Migratory Birds (Evaluation Criteria A and the Migratory Bird Treaty Act)	Potentially Significant	3.4.3.9	**Mitigation for Migratory Birds:** To avoid impacts to common and special-status nesting birds protected pursuant to the Migratory Bird Treat Act and California Department of Fish and Game Codes §3503, §3503.5, and §3800, a survey for nesting birds shall be conducted prior to commencing with construction work if construction work would commence between March 15th and August 31st. If special-status birds are identified nesting on the project site or within a 150-foot area of influence, then a 150-foot non-disturbance radius around the nest must be fenced and avoided by construction activities. This fencing requirement shall not replace or be constructed in lieu of fencing discussed above for impacts to nesting raptors. No construction or earth-moving activity shall occur within this 150-foot buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date may be earlier or later, and would have to be determined by a qualified biologist. Similarly, the qualified biologist could modify the size of the buffer based upon site conditions and the bird's apparent acclimation to human activities. If common (non-special-status) passerine birds (perching birds such as northern mockingbirds) are identified nesting in any tree	Less Than Significant

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				or shrub proposed for removal, tree removal shall be postponed until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by this date that are sufficient for young to avoid project construction zones. Unless otherwise prescribed for special-status bird species, upon completion of nesting no further protection or mitigation measures would be warranted for nesting birds. The mitigation measure shall be implemented by the project applicant and the construction contractor.	
3.4.3.10	Impacts to Riparian Habitat or Other Sensitive Natural Communities (Evaluation Criteria B and the Oak Woodland Protection Act)	Potentially Significant	3.4.3.10	**Mitigation for Riparian Habitat or Other Sensitive Natural Communities:** Each project site with the potential to contain Great Valley Mixed Riparian Forest or Northern Claypan Vernal Pools (those sites adjacent to irrigation canals or other wetlands and those that include fallow agricultural lands, agricultural lands that have not been deep-ripped, or those which include disturbance to the shoulder of a paved roadway) shall be inspected for the presence of these natural communities. If these communities are absent from the project site, no mitigation is warranted. If however, one or more of these communities are present, then the natural community shall be avoided. If avoidance is not possible, then compensation for their loss shall be mitigated at a ratio of 2 acres for each 1 acre of disturbance. Compensation shall be through the purchase of conservation credits from an existing conservation or mitigation bank that contains the project site within its service area. Alternatively, conservation may be accomplished through the protection and restoration of habitat at off site locations where a conservation agreement has been established and a long-term monitoring and restoration plan that has been approved by the California Department of Fish and Game has been placed in effect. Compensation/restoration within conserved lands shall be at a ratio of 2:1.	Less Than Significant

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				The removal or severe trimming of oak trees will be avoided to the greatest extent possible. If the removal of oak trees is necessary, then oak trees shall be replanted at a ratio of two trees replanted for every oak removed or killed. The replacement oaks shall be planted within an area in the Planning Area that has been designated as open space or within an area where a conservation easement exists. Planted oaks shall be monitored for a period of 5 years to monitor their survival. If an oak tree does not survive that period, a replacement shall be planted, which shall also be monitored for a period of 5 years. Alternatively, compensation for the loss of oaks may be accomplished through contributions of funds to the Oak Woodlands Conservation Fund (See Section 1363 of the Fish and Game Code).	
3.4.3.11	Impacts to Federally Protected Wetlands and Jurisdictional Waters (Evaluation Criteria C and the California State Porter-Cologne Act)	Potentially Significant	3.4.3.11	**Mitigation for Federally Protected Wetlands:** Prior to the issuance of a grading permit, each project site shall be inspected for the presence of wetlands by a qualified wetlands delineator. If wetlands do not occur on the site, no additional mitigation measures are warranted. However, if wetlands are present, then a wetland delineation will be conducted and a wetland delineation report will be prepared and submitted to the US Army Corps of Engineers (ACOE) and the State Water Quality Control Board for verification. If the wetlands that are present on the site fall within the jurisdiction of the ACOE or the State Water Quality Control Board, then those wetlands shall be avoided by construction activities. If the wetlands cannot be avoided, Compensation shall be provided by one of the following two alternatives: 1. Off-Site Creation/Restoration. The Project applicant will conserve through acquisition or conservation easement, off-site lands suitable for the creation/restoration of wetlands and other water bodies in Fresno or Madera County. Such lands will be located south of the Fresno River, and will have the following characteristics: natural undisturbed	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				native wetlands and habitat suitable for threatened and endangered plant and animal species will be absent (i.e., these lands will have been previously disturbed by farming, or some other intensive human use); native wetlands and/or other water bodies once occurred on these lands naturally; the soils and hydrology of these lands are suitable for the creation of naturally occurring wetlands and other water bodies; and the natural topography has not been eliminated through land leveling. Topographic depressions, swales and naturalistic drainage channels will be created/restored on these lands according to a "mitigation and monitoring plan" prepared by a qualified biologist. These engineered features must be inundated and/or experience soil saturation for a duration sufficient to naturally support hydrophytic vegetation native to wetlands of the region. All engineered wetlands and other water bodies will be revegetated with native hydrophytic species. The wetland creation/restoration plan prepared by the biologist will provide for long-term management of the mitigation site, mitigation objectives by which the success of the mitigation can be measured, and a monitoring plan for determining the success of the mitigation. The components of this mitigation and monitoring plan will be consistent with standard USACE guidelines. 2. Purchase of Wetland Creation Credits from a Conservation Bank. The Project applicant will pay the market rate for Wetland Creation Credits at a 1:1 ratio from a Conservation Bank whose service area includes Fresno and/or Madera County.	
3.4.3.12	Impacts to Fish or Wildlife Movement, Wildlife Corridors and Nursery Sites (Evaluation Criteria D)	Potentially Significant	3.4.3.12	**Mitigation for Impacts to Fish or Wildlife Movement, Wildlife Corridors, and Nursery Sites:** To protect breeding birds and active birds' nests, Mitigation Measures #3.4.3.8 and #3.4.3.9 will be implemented. No additional mitigation measures are warranted.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
3.4.3.13	Project Consistency with Local Policies or Ordinances Protecting Biological Resources (Evaluation Criteria E)	Less Than Significant		No mitigation measures are required.	
3.4.3.14	Impacts to Habitat Conservation Plans or Other Plan Conflict (Evaluation Criteria F)	Less Than Significant		No mitigation measures are required.	
3.5 Cultural Resources					
3.5.3.1	Cause a substantial adverse change in the significance of a historical resource as defined in, or pursuant to, §15064.5, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred	Potentially Significant	3.5.3.1a	All projects (as defined by CEQA Guidelines Section 15378(a) and Public Resources Code Section 21065) shall implement the following measures for cultural resources discovered during project implementation activities: 1. In the event that cultural or paleontological resources are encountered during project construction, all earth-moving activity within 50 feet of the find shall cease until the applicant retains the services of a qualified archaeologist or paleontologist. The archaeologist or paleontologist shall examine the findings, assess their significance, and offer recommendations for procedures deemed appropriate to either further investigate or mitigate adverse impacts on those cultural, paleontological or archaeological resources that have been encountered (e.g., excavate the significant resource) prior to re-commencement of construction in the affected area. 2. If human bone or bone of unknown origin is found during project construction, all work shall stop within 50 feet of the find and the County Coroner shall be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. The Native American Heritage Commission shall notify the person considered to be the	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				most likely descendant. The most likely descendant will work with the project applicant to develop a program for the re-interment of the human remains and any associated artifacts. No additional work shall take place within the immediate vicinity of the find until the identified appropriate actions have been completed. 3. Project personnel shall not collect or retain artifacts found at the site. Prehistoric resources may include, but would not be limited to: chert or obsidian flakes; projectile points; mortars and pestles; and dark friable soils containing shell, fragmentary bone, dietary debris, scorched rock, or human remains. Historic resources may include, but would not be limited to, stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits, including those in old wells and privies. 4. If development and/or modification of the historic structures reported by the Center for Archeological Research at CSU, Bakersfield is proposed, a historic analysis of such modification shall be made, including consultation with the State Historic Preservation Office. Historic features or elements that are considered to be significant shall be preserved. If such preservation is not feasible, mitigation shall include: ▪ Relocation of the structure to a location that is historically suitable; or ▪ Recordation of feature through archival photography and donation of artifacts to the local museum.	
		Potentially Significant	3.5.3.1b	The following policies shall be included in the Open Space, Conservation and Recreation Element of the proposed Plan Update to address cultural resources impacts in conjunction	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				with ultimate build-out of the City in accordance with the General Plan. Inclusion of these draft policies in the General Plan Update would further reduce this impact to a less than significant level. ▪ The City shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable. ▪ The City shall, within the limits of its authority and responsibility, maintain confidentiality regarding the locations of archeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts. ▪ The City shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or sites of cultural importance. ▪ The City shall support efforts of other organizations and agencies to preserve and enhance historic resources for educational and cultural purposes through maintenance and development of interpretive services and facilities at City recreational areas and other sites. ▪ The City shall develop and promote financial incentive	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				programs for historic preservation efforts.	
3.6 Geology/Soils					
3.6.3.1	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault or strong seismic ground shaking	Less Than Significant		No mitigation measures are required.	
3.6.3.2	Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property	Less Than Significant		No mitigation measures are required.	
3.7 Hazards and Hazardous Materials					
3.7.3.1	Result in a safety hazard for people living or working in the project area due to proximity to a private or public use airstrip	Less Than Significant		No mitigation measures are required.	
3.8 Hydrology and Water Quality					
3.8.3.1	Water Quality	Less Than Significant		No mitigation measures are required.	
3.8.3.2	Storm Water Drainage and Disposal	Potentially Significant	3.8.3.2	▪ The City shall provide storm drainage facilities, per the Storm Water Management Plan and CID regulations, with sufficient capacity to protect the public and private property from stormwater damage. The facilities will also be implemented in a manner that reduces public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required drainage improvements (i.e., drainage basins, etc.) and does not	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				provide a net increase in the quantity or water or contaminants currently entering the CID system from the site. *[New Policy – Draft EIR Analysis]*. ▪ During the development review process, the City shall not approve new development unless the following conditions are met: - The applicant can demonstrate that all necessary infrastructure to serve the project will be installed or adequately financed; - Infrastructure improvements are consistent with City infrastructure plans and applicable plans of affected agencies (i.e., CID); and - Infrastructure improvements incorporate a range of feasible measures that can be implemented to reduce public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required improvement. *[New Policy – Draft EIR Analysis]*.	
3.8.3.3	Groundwater Depletion	Less Than Significant	3.8.3.3	The City of Selma shall adhere to CID's Groundwater Mitigation and Banking Program as defined in the *Upper Kings Basin Integrated Regional Water Management Plan* (June 2007), which is available for review at the City of Selma. The CID program includes multiple recharge projects and facilities located on individual properties generally in the area east of SR 99. The program includes acquiring as many as 350 acres of land to develop direct recharge facilities (percolation ponds); development of necessary easements and rights of way; improvements to existing canal facilities and conveyance; development of secondary connector canals, pipelines, and related facilities; installation of measuring equipment; and	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				percolation of Kings River and other waters at the new facilities or existing recharge sites. The CID will develop, own, operate, and maintain the groundwater banking facilities and manage the banked groundwater on behalf of co-sponsors or subscribers in the bank. As an alternative to the above, the City shall develop, own, operate, and maintain groundwater recharge basins in the Plan Area.	
3.8.3.4	Potential Flooding and Dam Inundation Hazards	Potentially Significant	3.8.3.4a	The City shall revise Policy 4.22 to include the following, "The City shall maintain a list that may be included in the Emergency Services Plan, or may be maintained by the City's Public Works Department, of pubic agencies with which it cooperates, especially those with responsibility for flood protection. This list will include for each agency, the general responsibility of the agency and when it may be called upon for assistance.	Less Than Significant
		Potentially Significant	3.8.3.4b	The City shall revise Policy 4.16 , in compliance with Government Code §65302(g) to read, "The City shall evaluate areas within its Planning Area to identify areas of potential localized flood hazards using an official flood insurance rate map issued by the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program maps published by FEMA, information about flood hazards available from the U.S. Army Corps of Engineers, dam failure inundation maps available from the Office of Emergency Services, Awareness Floodplain Maps and 200-year flood plain maps available from the Department of Water Resources, historical data available from the City, County of Fresno, and any other sources as appropriate." Define "Essential Facilities" according to Government Code 65302(g)(A)(iv) to include hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
		Potentially Significant	3.8.3.4c	The City shall revise Policy 4.21 to include the statement, "Essential services, when feasible, shall be located outside of flood hazard zones, or construction methods and other methods to minimize damage from flood hazards identified, so that structural and operational integrity is maintained during flooding."	Less Than Significant
		Potentially Significant	3.8.3.4d	The City shall revise Policy 4.22 to include, "The emergency plan shall include a means for notifying residents of the need to evacuate because of a potentially severe hazard, such as fire, flooding, or dam inundation. This means of notification is to be implemented as soon as possible after a hazard has been recognized as having the potential to harm or destroy property or human life."	Less Than Significant
		Potentially Significant	3.8.3.4e	The City shall add a policy, "The City shall develop a program with criteria to determine when construction of essential public facilities and other critical facilities will be permitted in flood hazard zones or areas with other geologic hazards."	Less Than Significant
		Potentially Significant	3.8.3.4f	The City shall add a policy, "The City Shall develop and maintain relationships with local jurisdictions, water districts, state agencies, and federal agencies for the purposes of 1) providing information for the public, 2) utilizing current data (e.g., National Flood Insurance Program maps), and 3) determining appropriate regulatory requirements for development in high hazard areas. This policy can be fulfilled by maintaining the multi-jurisdictional hazard mitigation plan."	Less Than Significant
		Potentially Significant	3.8.3.4g	The City shall add a policy, "The County should review the floodplain improvement projects identified in the County Multi-Jurisdictional Hazard Mitigation Plan annually for progress and necessary revisions.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
		Potentially Significant	3.8.3.4h	The City shall add a flood safety objective to the General Plan Safety Element "Develop and maintain cooperative relationships and mutual aid agreements with jurisdictions and agencies in the region."	Less Than Significant
		Potentially Significant	3.8.3.4i	The City shall add a flood safety objective to the General Plan Safety Element "Limit future development in areas in areas with high flooding risk to open space, green belts, and other natural areas, recreational use or agricultural use. Maintain public safety and sustainable development in areas prone to risk of flooding."	Less Than Significant
3.9 Land Use and Planning					
3.9.3.1	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	Less Than Significant	3.9.3.1	Policy 1.95 should be modified as follows: Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall maintain an adequate supply of zoned residential land to meet 10 years of its Regional Housing Needs Allocation, a 10-year supply of zoned commercial land, and a 20-year supply of industrial land. The City shall amend the SOI, UDBs, annex areas, and redesignate "Reserve" lands within the Planning Area as necessary to maintain such supply.	
3.9.3.2	Conflict with any applicable Habitat or Natural Community Conservation Plan	Less Than Significant		No mitigation measures are required.	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
3.10 Mineral Resources (No Impacts)					
3.11 Noise					
3.11.3.1	Result in a substantial permanent, temporary or periodic increase in ambient noise levels in the project vicinity above standards established in the local general plan or noise ordinance, or applicable standards of other agencies	Less Than Significant	3.11.3.1	Policy 3.7 should be modified as follows: Policy 3.7 New Industrial, commercial or other noise-generating land uses (including roadways, railroads, and airports) shall be discouraged if resulting noise levels will exceed 65 dB DNL (or CNEL) at the boundary areas of planned or zoned noise-sensitive land uses unless effective noise mitigation is incorporated into the design of the new noise producing land use.	
3.11.3.2	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels	Less Than Significant		No mitigation measures are required.	
3.11.3.3	Construction Noise	Less Than Significant		No mitigation measures are required.	
3.12 Population and Housing					
3.12.3.1	Induce substantial population growth in an area, either directly or indirectly	No Impact		No mitigation measures are required.	
3.12.3.2	Employment and Job Growth	Potentially Significant	3.12.3.2	Policy 1.41 shall be amended as follows: Policy 1.41 The City shall monitor the availability of vacant lands for each commercial and industrial land use designation. When the amount of available commercial or office zoned land is less than 10 years supply, or where the supply of industrial zoned land is less than 20 years supply, the City shall initiate necessary applications, such as SOI,	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				UDB, zoning, annexation and other necessary amendments, to ensure an adequate supply of such land for development.	
3.13 Public Services					
3.13.3.1	Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives	Significant	3.13.3.1a	The City shall periodically study whether or not current development impact fees are adequate to offset the additional public-service costs of new development. If development fees are found to be inadequate then a development impact fee study should be prepared consistent with AB 1600 to identify appropriate development impact fees.	Less Than Significant
		Significant	3.13.3.1b	The City shall evaluate the fiscal impacts of new development and encourage a pattern of development that attracts targeted businesses and a stable labor force with provision and maintenance of a high level of urban services (including but not limited to water, sewer, fire stations, police stations, transportation, libraries, administrative, parks, community facilities, and utility infrastructure).	Less Than Significant
3.13.3.2	Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental	Significant	3.13.3.2a	Policy 1.97 should be modified as follows: Policy 1.97 The City shall consider the appropriateness of opening up lands designated as Reserve for development based upon the following factors: ▪ Availability of land for development within the UDB has become limited. This is defined as when the City's population, as measured	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
	impacts, in order to maintain acceptable service ratios, response times or other performance objectives			by the California Department of Finance, exceeds 40,000 individuals, or upon a determination that the supply of residential, commercial or industrial zoned lands is below the recommended level. ▪ Proximity of reserve lands to existing developed land (to minimize leapfrog development). ▪ Implications for overall community form and relationship to the existing community. ▪ Market feasibility of development in this area, including the expected rate of absorption. ▪ Infrastructure availability and impact to existing infrastructure and other public services. ▪ Consideration of circulation patterns and improvements. ▪ Implications of providing public services, including law enforcement and fire protection services.	
		Significant	3.13.3.2b	The City shall periodically study whether or not current development impact fees are adequate to offset the additional public-service costs of new development. If development fees are found to be inadequate then a development impact fee study should be prepared consistent with AB 1600 to identify appropriate development impact fees.	Less Than Significant

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
		Significant	3.13.3.2c	The City shall evaluate the fiscal impacts of new development and encourage a pattern of development that attracts targeted businesses and a stable labor force with provision and maintenance of a high level of urban services (including but not limited to water, sewer, fire stations, police stations, transportation, libraries, administrative, parks, community facilities, and utility infrastructure).	Less Than Significant
3.13.3.3	Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives	Less Than Significant		No mitigation measures are required.	
3.13.3.4	Result in substantial adverse physical impacts associated with the provision of new or physically altered electrical or natural gas facilities, need for new or physically altered electrical or natural gas facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives	Less Than Significant		No mitigation measures are required.	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
3.14 Recreation					
3.14.3.1	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated and/or include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment	Less Than Significant		No mitigation measures are required.	
3.15 Transportation/Traffic					
3.15.3.1	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system and/or exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways	Significant	3.15.3.1a	Table 3.15-5 through 3.15-7 indicates the recommended number of travel lanes for each of the road segments analyzed to keep traffic levels-of-service at the City's preferred LOS "C" or "D". Implementation of these projects will permit the City to manage its traffic volumes at Level "C" or "D" service.	Significant and Unavoidable
		Significant	3.15.3.1b	The City of Selma shall establish standard lane configurations at intersections, similar to those presented in Figure 3.15-8 through Figure 3.15-10. Dual left-turn lanes shall be considered at the following locations: ▪ Manning and DeWolf Avenues (westbound and northbound) ▪ Manning and McCall Avenues (all approaches) ▪ Dinuba and DeWolf Avenues (location depends upon	Significant and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				interchange configuration) ▪ Dinuba Avenue and Golden State Boulevard (all approaches) ▪ Dinuba and McCall Avenues (all approaches) ▪ Floral and Highland Avenues (eastbound and westbound) ▪ Floral Avenue and Whitson Street (northbound) ▪ Nebraska and Highland Avenues (all approaches) ▪ Mountain View and Highland Avenues (all approaches) ▪ Mountain View and McCall Avenues (all approaches) ▪ Mountain View Avenue and Golden State Boulevard (all approaches, or grade separation - see discussion below). The intersection of Mountain View Avenue and Golden State Boulevard is expected to require special treatment and further study for construction of a grade separation for the existing railroad tracks.	
		Significant	3.15.3.1c	The City of Selma shall implement the following modifications to the plan as required: ▪ Floral Avenue between Leonard and Dockery **Avenues** should be upgraded to a "Major Arterial"; ▪ **Mountain** View Avenue between Dockery and Bethel Avenues should be upgraded to a "Major Arterial"; ▪ The **alignments** of Dinuba Avenue and DeWolf Avenue should be modified adjacent to the proposed Dinuba Avenue interchange in accordance with the conceptual interchange layout drawing presented herein.	Significant and Unavoidable
		Significant	3.15.3.1d	The City of Selma shall implement the following freeway interchange improvements: ▪ **Dinuba Avenue and State Route 99.** The proposed interchange is a new connection to SR 99 and is spaced approximately 1.3 miles north of the existing Floral Avenue interchange and 1.3 miles south of the existing Manning	Significant and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				Avenue interchange. The proposed interchange and the proposed modification of the SR 43 alignment will provide an alternative to the Floral Avenue interchange. It is anticipated that an L-9 interchange configuration will provide acceptable operations. The special considerations in the design of this interchange will include realigning Dinuba Avenue and DeWolf Avenue to minimize the number of bridges that are to be constructed and to maximize the distance between the interchange and adjacent intersections. Also to be considered is the desirability of connecting SR 43 directly to the interchange, rather than connecting it to Dinuba Avenue west of the interchange as presented in the Circulation Plan. A conceptual interchange layout is presented in Figure 3.15-13, Conceptual Interchange Layout, Dinuba Avenue and State Route 99. The proposed interchange will require a substantial amount of additional study to gain approval from Caltrans and to determine the actual interchange design. More detailed studies are beyond the scope of this study and will require coordination between City staff and Caltrans staff. ▪ **Floral Avenue / Highland Avenue and State Route 99.** The Floral Avenue / Highland Avenue interchange with SR 99 was the subject of an interchange analysis report dated July 16, 2008 by Peters Engineering Group. The report presented several interchange alternatives to increase capacity and to accommodate development in the vicinity of the interchange. The results were discussed with Caltrans staff and the configuration illustrated in Figure 3.15-14 of the Draft EIR, Conceptual Interchange Layout, Floral Avenue/Highland Avenue and State Route 99, are considered to be a feasible improvement. Additional intersection analyses utilizing the 2035 General Plan traffic volumes are included in Appendix E of Appendix F and	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				indicate that the intersection of Floral Avenue and the southbound SR 99 ramps is expected to operate at substandard LOS. The intersection of Floral and Highland Avenues is also expected to operate at substandard LOS. To operate at acceptable LOS, the interchange would require a major reconstruction that would likely affect access to adjacent properties and may require additional right of way. ▪ **2nd Street and State Route 99.** The intersection analyses indicate that the interchange is expected to require signalization to operate at acceptable levels of service. It is not anticipated that significant physical modifications will be required. ▪ **Mountain View Avenue and State Route 99.** The Mountain View Avenue interchange with SR 99 is located adjacent to planned commercial areas and is expected to experience a significant increase in traffic volumes with implementation of the proposed General Plan. Caltrans District 6 staff recently have indicated that full cloverleaf interchanges are not preferable due to weaving issues, and that an L-9 interchange is the most likely to be constructed at this location. A conceptual interchange layout is presented in Figure 3.15-15, Conceptual Interchange Layout, Mountain View Avenue and State Route 99. The interchange design will need to include consideration of the adjacent intersection of Mountain View Avenue and Golden State Boulevard, including potential grade separations and connector roads. Freeway interchanges in the City of Selma are expected to require upgrades to accommodate the implementation of the General Plan. The proposed interchange will require a substantial amount of additional study to gain approval from Caltrans and to determine the actual interchange	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				design. Conceptual upgrades are discussed above; however, more detailed studies at each location will be required to implement.	
		Significant	3.15.3.1e	Several constrained intersections and road segments are expected to operate at substandard levels of service with implementation of the proposed General Plan, primarily because the intersections and the adjacent properties are already developed. Projects that directly impact these intersections shall incorporate trip and transportation demand reduction techniques to reduce the severity of this impact, including the following: ▪ Ridesharing programs for employees. ▪ Enhanced transit access. ▪ Enhanced bikeway access and storage. ▪ Employee shift changes that are not in the PM peak hour. The following locations are considered to be constrained: ▪ **Intersections:** - Floral Avenue and SR 99 Southbound Ramps (LOS E even with improvements); - Floral and Highland Avenues (LOS F even with improvements); - Floral Avenue and Whitson Street (LOS F); - Floral and McCall Avenues (LOS F); - Nebraska and Thompson Avenues (LOS E); - 2nd and Whitson Streets (LOS F). ▪ **Road Segments:** - Floral Avenue between Leonard and Dockery Avenues (LOS F if constructed as an "Arterial," not constrained	Significant and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				if converted to a "Major Arterial"; - Mountain View Avenue between Dockery and Bethel Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial"; - Nebraska Avenue between Highland Avenue and 2nd Street (LOS F); - McCall Avenue between Floral Avenue and Arrants Street (LOS F); - McCall Avenue between Whitson Street and approximately Blaine Avenue (LOS F); - Whitson Street between Thompson and Nebraska Avenues (LOS F); - 2nd Street between Nebraska and McCall Avenues (LOS F).	
		Significant	3.15.3.1f	The City of Selma shall implement a transportation impact fee to implement the Circulation Element. Impact fees for such facilities have been implemented by communities statewide are a recognized form of mitigating impacts and fairly apportioning the cost of needed facilities. Overall facility costs are estimated (and regularly updated), and compared to State, County, local and federal funding sources, with the unfunded balance allocated to new development. Each land use is allocated a share of the costs based on its proportional contribution to traffic generation (e.g., average daily trips or peak hour trips). As an alternative, and in the interim, individual projects shall mitigate such impacts through the dedication of right of way and the construction of facilities needed to support their	Significant and Unavoidable

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				"opening day" operations, and the cumulative buildout impact in the year 2035.	
		Significant	3.15.3.1g	Traffic studies should be performed to satisfy the requirements of the California Environmental Quality Act (CEQA) for all developments in the City of Selma. Traffic studies should be performed for all proposed General Plan Amendments, proposed specific plans, and projects expected to generate more than 100 PM peak hour trips. Future traffic studies should generally conform to the Caltrans *Guide for the Preparation of Traffic Impact Studies* and any guidelines established by the City. The studies should be performed to determine opening-day impacts of proposed projects. The studies should address queue lengths and (at a minimum) peak-hour traffic signals warrants in addition to LOS and provide appropriate mitigations. At the discretion of the City Engineer, a complete warrant study in accordance with the most recent edition of the California Manual on Uniform Traffic Control Devices may be required to evaluate the need for traffic signals.	Significant and Unavoidable
3.16 Utilities/Service Systems					
3.16.3.1	Exceed wastewater treatment requirements of the Regional Water Quality Control Board	Less Than Significant		No mitigation measures are required.	
3.16.3.2	Require the construction of new wastewater facilities or expansion of existing facilities, the construction of which would cause significant environmental effects	Significant		No additional feasible mitigation measures are currently available to reduce this impact to a less than significant level.	Significant and Unavoidable
3.16.3.3	Require the construction of new storm water drainage facilities or expansion of existing facilities,	Less Than Significant		No mitigation measures are required.	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
	the construction of which would cause significant environmental effects				
3.16.3.4	Require new or expanded water entitlements in order to ensure sufficient water supplies	Less Than Significant		No mitigation measures are required.	
3.16.3.5	Require the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effect	Less Than Significant		No mitigation measures are required.	
3.17 Global Climate Change					
3.17.3.1	Development of the Project could potentially result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change	Significant, Cumulatively Considerable and Unavoidable.	3.17.3.1	The City of Selma will require the following ▪ When approving new development, require truck idling to be restricted during construction. ▪ Require new development to implement the following design features, where feasible: 1. Recycling: ▪ Design locations for separate waste and recycling receptacles; ▪ Reuse and recycle construction and demolition waste; ▪ Recover by-product methane to generate electricity; and ▪ Provide education and publicity about reducing waste and available recycling services.	Significant, Cumulatively Considerable and Unavoidable.

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				2. Promote pedestrian, bicycle and transit modes of travel through informational programs and provision of amenities such as transit shelters, secure bicycle parking and attractive pedestrian pathways. 3. Large canopy trees should be carefully selected and located to protect building(s) from energy-consuming environmental conditions, and to shade 50% of paved areas within 10 years. Trees near structures act as insulators from weather, thereby decreasing energy requirements. Trees also store carbon. 4. Encourage mixed-use and higher-density development to reduce vehicle trips, promote alternatives to vehicle travel and promote efficient delivery of services and goods. Average residential density in significant new development areas should have a minimum average density of 6.8 dwelling units per acre.. 5. Address the "urban heat island" effect through such measures as requiring light-colored and reflective roofing materials and paint; light-colored roads and parking lots; shade trees in parking lots, and shade trees on the south and west sides of new or renovated buildings. 6. Transportation and motor vehicle emissions reduction ▪ Use low or zero-emission vehicles, including construction vehicles; ▪ Create car sharing programs; ▪ Create local “light vehicle” networks, such as neighborhood electric vehicle (NEV) systems; ▪ Provide shuttle service to public transit; ▪ During construction, post signs that restrict truck idling;	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				▪ Set specific limits on idling time for commercial vehicles, including delivery and construction vehicles; and ▪ Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where signals are installed, require the use of Light Emitting Diode (LED) traffic lights. 7. Water Use Efficiency ▪ Use of both potable and non-potable water to the maximum extent practicable; low flow appliances (i.e., toilets, dishwashers, shower heads, washing machines, etc.); automatic shut off valves for sinks in restrooms; drought resistant landscaping; "Save Water" signs near water faucets; ▪ Create water efficient landscapes; ▪ Use graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash facilities, and water from washing machines; and ▪ Provide education about water conservation and available programs and incentives. 8. Energy Efficiency ▪ Automated control system for heating/air conditioning and energy efficient appliances; ▪ Utilize lighting controls and energy efficient lighting in buildings; ▪ Use light colored roof materials to reflect heat; ▪ Take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use; ▪ Install solar panels on carports and over parking areas; ▪ Increase building energy efficiency percent	

Impact Number	Impact	Level of Significance Before Mitigation	Mitigation Number	Mitigation Measure	Level of Significance After Mitigation
				beyond Title 24 requirements. In addition, implement other green building design methods such as natural daylighting and on-site renewable electricity generation; and ▪ Require that projects use efficient lighting.	
3.17.3.2	Climate Change could potentially result in an impact on City of Selma water resources	Less Than Significant		No mitigation measures are required.	

CHAPTER ONE

INTRODUCTION

CHAPTER ONE - INTRODUCTION

1.1 Proposed Action

The proposed project is a comprehensive update to the City of Selma's General Plan ("Plan Update"). This Draft EIR was prepared to evaluate potentially significant environmental effects (also called "impacts") of the proposed project and of the alternatives to the project. This EIR was prepared in accordance with, and in fulfillment of the California Environmental Quality Act and the *Guidelines for the Implementation of the California Environmental Quality Act* (California Administrative Code [CAC], Title 14, Chapter 3 hereinafter called the *CEQA Guidelines).*

The Lead Agency responsible for the EIR is the City of Selma. Under CEQA, the Lead Agency is normally the public agency that has discretionary authority to approve the project. In this case, the body with such final authority to approve the project is the Selma City Council. Quad Knopf has prepared the EIR as a consultant to the City, and the City has reviewed according to CEQA.

Section 15121(a) of the *CEQA Guidelines* defines an EIR as an informational document that will:

> …inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

The adoption of new General Plan goals, objectives, policies and standards, a General Plan Background Report, and a General Plan Land Use and Circulation map are the actions that constitute the project for purposes of this EIR. As defined in Section 15378 of the *CEQA Guidelines*, a "project" is an action that "*…has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment ...*"

Under CEQA, generally, the City has the duty to mitigate or lessen the severity of environmental impacts associated with public and private projects that it has authority to approve or disapprove. Under Section 15091 of the *CEQA Guidelines*, the Lead Agency must make findings prior to approving the project. For each significant environmental effect identified in the EIR, the City must find that:

- Changes or alterations have been required in, or incorporated into, the project which avoid or lessen the significant environmental effects to a less than significant level as identified in the Final EIR; or,
- Such changes or alterations are desirable and recommended but are within the responsibility and jurisdiction of another public agency; or,
- That specific economic, legal, social, technological, or other considerations make infeasible further mitigation.

Section 15093 of the *CEQA Guidelines* requires the Lead Agency decision-makers to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against any unavoidable environmental risks when determining whether to approve the project. If, in the Lead Agency's opinion, the benefits of the project outweigh the unavoidable adverse environmental effects, the decision-makers may adopt a Statement of Overriding Considerations, finding that the environmental effects are considered acceptable or balanced with the social or economic benefits.

Section 15004 (b) of the *CEQA Guidelines* states that EIRs should be prepared as early as feasible in project planning to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment. Thus, the EIR must be completed and certified by the Lead Agency before the agency approves the project itself. The EIR provides an opportunity to change the project's design or adopt alternatives to mitigate any potential environmental impacts before project approval.

The Draft EIR will be subject to public review as required under Section 15087 of the *CEQA Guidelines*. CEQA requires that the Lead Agency consider input from other agencies, citizen groups, and individuals. This public process started with the workshops on the Plan Update, and included public review of alternative policies, as well as the public notice and comments associated with the Initial Study and Notice of Preparation. The public was given additional meaningful opportunity for comment on the EIR at the scoping meeting and further opportunities during the review period. Although CEQA does not explicitly require such a scoping meeting on the Draft EIR, the Lead Agency held a scoping meeting to receive comments during the NOP circulation period. A 45-day review period is customary for a project of this nature. Agencies and individuals will be asked to comment, orally or in writing, on Draft EIR contents.

Section 15132 of the *CEQA Guidelines* requires that each comment made during the public review period be responded to in writing, and that a Final EIR be prepared which includes those responses and any changes to the EIR. The Final EIR that will be considered for certification by the Lead Agency will consist of:

- The Draft EIR with any necessary revisions resulting from public and agency comments (in the form of an errata sheet).
- Comments on the Draft EIR.
- A list of individuals, organizations, or public agencies that commented on the Draft EIR.
- Lead Agency responses to the comments.
- A mitigation monitoring and reporting program.

As part of the Final EIR, the Lead Agency will adopt a Mitigation Monitoring and Reporting Program as required by Section 21081.6 of the Public Resources Code. The Mitigation Monitoring and Reporting Program is required to ensure that mitigation measures identified in the EIR are actually carried out and produce the desired results. The Mitigation Monitoring and Reporting Program names the public official or agency responsible for implementing each mitigation measure, the agency to whom implementation of the measure should be reported, and a timetable for implementation and monitoring. Mitigation Monitoring and Reporting Programs may include performance standards used to judge how effective a measure is in meeting its objectives and contingency plans that will take effect if performance standards are not achieved.

1.2 Methodology/Scope of EIR

The CEQA process began with a scoping meeting to determine the type and extent of environmental documentation necessary for the project and to provide an initial opportunity for public and agency input. This "scoping" included preparation of an Initial Study, distribution of a Notice of Preparation, and a public scoping meeting.

An Initial Study and Notice of Preparation ("Initial Study/NOP") was prepared and distributed in August 2008 (Appendix A), which included a checklist of anticipated impacts. All responsible and trustee agencies, as well as other interested agencies, citizen groups, and individuals, had 30 days to respond to the NOP. These responses helped determine the range of environmental issues that the EIR must address. The comments received on the Initial Study/NOP are also contained in Appendix A after the Initial Study/NOP. A scoping meeting was held on September 3, 2008.

Based in part on comments received on the Initial Study/NOP, minor changes were made to a few of the policies within the General Plan and to land use designations on the Land Use and Circulation map.

This Draft EIR evaluates the existing environmental setting within the Planning Area, analyzes potential impacts on those resources due to implementation of the proposed project, and identifies mitigation measures to reduce potentially significant impacts. The Initial Study/NOP considered the potential environmental effects of implementation of the proposed project on the following resources, and concluded the following:

- **Aesthetics:** Potentially significant impact for effects associated with light and glare. No potential impacts were found to scenic resources within a designated or eligible state scenic highway corridor, and there were less than significant impacts to scenic vistas, and the visual character or quality within the Planning Area.

- **Agriculture:** Potentially significant impacts were found for the conversion of prime farmland, unique farmland or farmland of statewide importance to a non-agricultural use. There is also potential for conflicts with a Williamson Act Contract which were formed for the purpose of farmland preservation.

- **Air Quality:** Potentially significant impacts were determined to exist related to obstruction of air quality plan objectives, violation of air quality standards, cumulative increases of criteria pollutants and for impacts to sensitive receptors. The potential for objectionable odors was found to be less than significant.

- **Biological Resources:** Potentially significant impacts were found for habitat modification, effects on wetlands, and movement of any native species. Less than significant impacts are expected for impacts to any sensitive natural community or conflict with a habitat conservation plan. There are no impacts associated with violation of local policies or ordinances adopted for the protection of biological resources.

- **Cultural Resources:** Potentially significant impacts were determined to exist for historical resources, and less than significant impacts will occur for impacts to archaeological or paleontological resources.

- **Geology/Soils:** Less than significant impacts will occur for hazards such as geologic faults, ground shaking, expansive soils or unstable soils, and less than significant impacts for impacts related to soil erosion or the loss of topsoil. No impacts are associated with ground failure, liquefaction, landslides, or soils capability.

- **Hazards and Hazardous Materials:** Less than significant impacts will occur related to creation of a hazard, hazardous emissions, location on a hazardous emissions site, exposing people and structures to wildland fires, and conflicting with a public airport or private airstrip. No impact for conflicts with an adopted emergency plan.

- **Hydrology and Water Quality:** Potentially significant impacts may occur related to violation of water quality standards or waste discharge requirements, depletion of groundwater and water quality degradation. Less than significant impacts will occur, with mitigation, for stormwater runoff, flooding, and dam or levee failure impacts. A less than significant impact will occur related to the alteration of existing drainage. No impact will occur from seiches, tsunamis, or mudflows.

- **Land Use and Planning:** Potentially significant impacts may occur related to conflicts with applicable plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect. Less than significant impacts will occur to applicable conservation plans, with project mitigations. The potential to physically divide the community was determined to be less than significant.

- **Mineral Resources:** No impact will occur from loss of availability of a known valuable mineral resource or to a locally important mineral resource recovery site.

- **Noise:** Potentially significant noise impacts may occur because of exceedance of noise level standards from groundborne noises, vehicular traffic and other sources. However, significant noise impacts will not occur from the operation of any local private or public airstrips.

- **Population and Housing:** There could be a potentially significant impact from the project due to direct or indirect growth inducement. No impact from displacement of housing or people will occur.

- **Public Services:** There are potentially significant impacts related to the provision of fire, police, schools and parks, and less than significant impacts to other public facilities.

- **Recreation:** Potentially significant recreation facility impacts may occur due to the construction of additional recreational facilities, and from the increased the use of existing parks.

- **Transportation/Traffic:** Potentially significant impacts may result from the increases in traffic caused by additional growth in the community, including substantial traffic volume increases on existing roads, and the potential for exceedance of adopted City levels of service for local roadways. Significant impacts are not projected to occur due to deficiencies in design that would result in roadway hazards, from inadequate emergency access, and from inadequate parking. No impacts will occur from possible changes in air traffic patterns, and no proposed policies were found to conflict with policies supporting alternative transportation.

- **Utilities/Service Systems:** Potentially significant impacts may occur related to the adequacy of water supply, adequacy of storm drainage facilities, and wastewater capacity. Less than significant impacts were found to occur related to landfill capacity and solid waste disposal in general.

- **Global Climate Change:** Potentially significant impacts will occur related to greenhouse gas emissions and global climate change, as well as climate change impacts to water supply.

- **Mandatory Findings of Significance:** Potentially significant impacts related to wildlife and cultural resources, cumulative impacts, substantial environmental effects, and achieving short-term environmental goals at the disadvantage of long-term environmental goals could occur with implementation of the proposed project.

The evaluation of each potentially significant impact enumerated above is presented on a resource-by-resource basis in Chapter Three. In addition to these discussions in each resource section, those impacts that cannot be mitigated to a level that is less than significant (and are therefore considered significant unavoidable adverse impacts) are discussed in Chapters Three and Six.

1.3 Organization of the EIR

Preceding this chapter is the Executive Summary. Section 15123 of the *CEQA Guidelines* states that an EIR "*shall contain a brief summary of the proposed actions and its consequences.… The summary shall identify each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect…areas of controversy known to the Lead Agency including issues raised by agencies and the public, and…issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.*" The Executive Summary of this Draft EIR contains Table ES-1, which summarizes all potentially significant impacts and recommended mitigation measures. This Draft EIR is organized into the following chapters:

- **Chapter One, Introduction,** states the nature of the project and informs the reader of the reason for preparing the EIR. It also explains the purposes of CEQA, briefly summarizes the CEQA process and organization of the EIR.

- **Chapter Two, Project Summary,** describes the location of the Project, the Project's objectives, Project Description and Setting, the subsequent permits and approvals required, the related implementing actions, the general environmental setting of the Project Area, and a brief discussion of relevant regulations and plans as they relate to the project.

- **Chapter Three**, **Setting, Impacts and Mitigation Measures,** details the environmental setting as it relates to each topical area described above (e.g., air quality, noise, traffic), identifies and evaluates potential impacts, including cumulative impacts, and proposes mitigation measures to reduce impacts to less than significant levels, where feasible. The format and content of this chapter are described as follows:

  INTRODUCTION

  Where applicable, a brief introduction is presented under each resource heading (e.g., Air Quality, Noise).

  REGULATORY AND PHYSICAL SETTING

  The Regulatory and Physical setting and conditions are briefly described.

  IMPACT EVALUATION CRITERIA

  Significance Thresholds

  The Thresholds of Significance are standards by which impacts are evaluated and determined to be "significant" or "less than significant". In the absence of local quantitative standards, qualitative thresholds contained in CEQA or the CEQA Guidelines were used.

  IMPACT ANALYSIS

  The Impacts section presents the analysis of whether there is an impact and whether it can be mitigated.

  Project Impacts and Mitigation Measures

  - **Impact # and Title:** Each identified environmental impact is numbered for reference in accord with the Chapter subsection (e.g., #3.4.1).

  - **Conclusion:** This is a statement of whether or not an identified impact is significant, or less than significant, before the application of any special mitigation measures.

  - **Mitigation Measure #:** Each mitigation measure is numbered in accord with its chapter subsection and correlated with the significant impact to which it applies.

  - **Effectiveness of Measure:** For significant impacts, a statement is made regarding whether the impact is mitigated to a less than significant level or, alternatively, whether the impact is only partially mitigated, immitigable, unavoidable, and/or irreversible, based on the Significance Thresholds.

The above format ensures that this EIR conforms to the standards for adequacy established in CEQA and the *CEQA Guidelines.* It is noteworthy in this regard that CEQA requires a well thought out, good faith effort when presenting the environmental impacts to decision makers. It requires that:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure.

- **Chapter Four, Evaluation of Alternatives,** describes and evaluates alternatives to the proposed project. The selection of these alternatives is guided by the unresolved environmental impacts of the project. Per requirements of Section 15126 of the *CEQA Guidelines,* the "no project" alternative must be considered to compare the environmental consequences of the project as proposed to the consequences of taking no action. The potential environmental impact of each alternative is compared to the environmental impact of the project as proposed.

- **Chapter Five, Cumulative Impacts,** provides an analysis of cumulative impacts.

- **Chapter Six, Other CEQA Requirements,** includes unavoidable significant environmental effects, significant irreversible environmental changes, growth-inducing impacts and a list of effects found not to be significant.

- **Chapter Seven, References & Persons Contacted**, includes the names of agencies or individuals contacted for information during EIR preparation.

- **Chapter Eight, Persons Who Prepared This EIR**, includes the names of the individuals who prepared the EIR document.

In addition to other material, the Appendices include the technical reports cited in the text, the Initial Study/NOP, and comments received in response to the Initial Study/NOP.

1.4 Environmental Review

The Draft EIR will be available for review by public and interested parties, agencies and organizations for a period of at least 45 days, as required by State law. Written comments on the Draft EIR are also encouraged for incorporation into the Final Environmental Impact Report and should be submitted to:

Mr. Gregory Martin
Associate Planner
City of Selma
1710 Tucker Street
Selma, CA 93662

Following the close of the public comment period, a Final EIR will be prepared to respond to all substantive comments regarding the Draft EIR. The Final EIR will be made available for public review prior to consideration of its certification by the City of Selma City Council. Once the City Council certifies the FEIR, it will also consider adoption of the Selma General Plan itself, which may be approved as drafted or modified, or denied.

CHAPTER TWO

PROJECT SUMMARY

CHAPTER TWO – PROJECT SUMMARY

2.1 Introduction

The City of Selma (City) is the Lead Agency for the preparation of this Environmental Impact Report (EIR) for the update of the City's General Plan ("Plan Update"). The Plan Update covers the planning period from 2009 to the year 2035, and will be utilized to guide the growth and development of Selma's Planning Area boundary.

A Summary of the Plan Update's Draft Goals, Objectives, Policies and Standards that will guide the growth and development of the community over the next 25 years, and which are the subject of this EIR, can be found in Appendix A of the Initial Study (see Appendix A of this Draft EIR).

2.2 Project Objectives

The overall objective of the Plan Update is to provide direction for future development within the City throughout the planning period (2009-2035). The Plan Update will allow the City to comply with State general plan law, which requires a jurisdiction to periodically update its general plan to reflect current and projected development conditions, and to accommodate growth in a manner that is consistent with city policies and preferences. Specific project objectives for the Plan Update include the following:

1. Achievement of the General Plan goals, objectives and policies, as noted in each element thereof.

2. Moderate, planned growth, which is in conformance with community objectives.

3. A compact and contiguous form of development.

4. Development of a set of internally consistent development policies.

5. Development of additional employment opportunities and a diversification of the local economy.

6. Provision of high quality City services and delivery that is responsive to the needs of Selma residents.

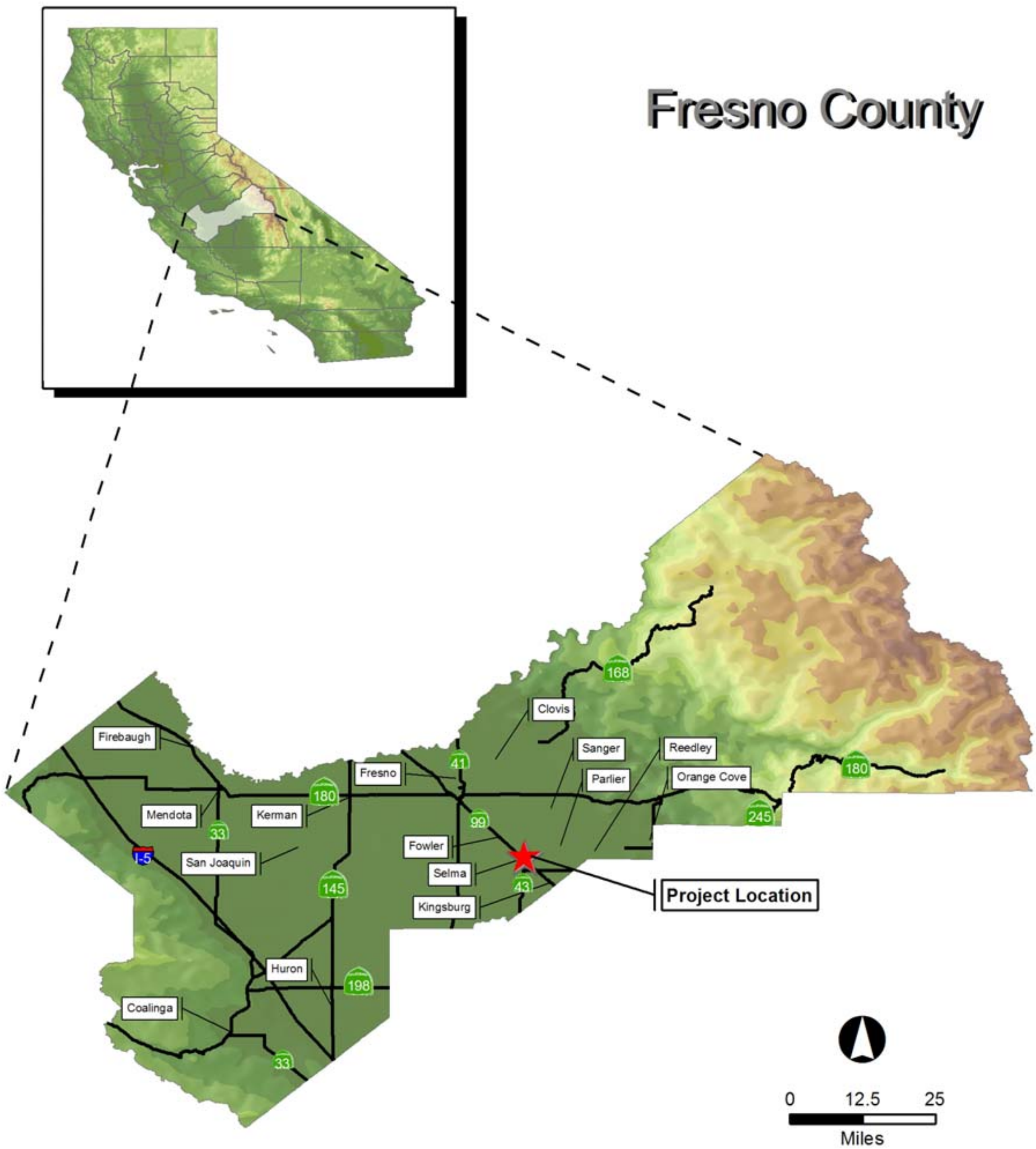
7. Development of Selma as a regional retail hub for Fresno County.

8. Provision of a wide variety of housing types to meet the needs of all Selma residents, and to promote local retail growth.

9. Development of adequate fiscal resources to meet community needs and reduce the tax burden on local residents.

2.3 Project Location

The City of Selma is located in south-central Fresno County, approximately 16 miles southeast of the City of Fresno and approximately 175 miles southeast of San Francisco. As shown in Figure 2-1, Selma is situated between the cities of Fowler to the north and Kingsburg to the south. State Route 99 and the Southern Pacific Railroad tracks pass through the center of the City in a northwest-southeast direction. State Route 43 terminates at Floral Avenue in Selma. Surrounding land uses primarily consist of agricultural uses and rural residential homes. Figure 2-2 shows Selma's existing City limits, Sphere of Influence ("SOI") and Planning Area.



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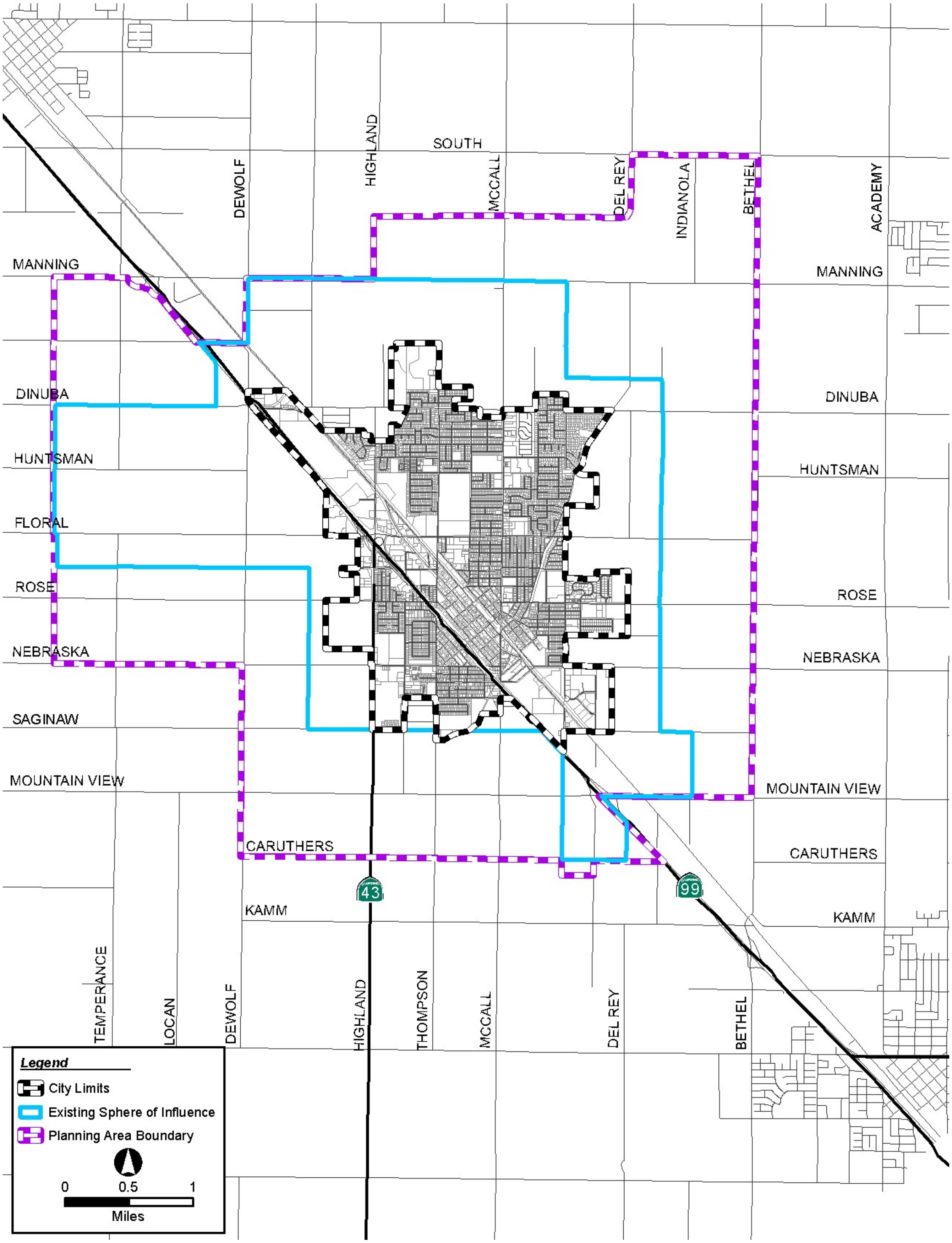
REGIONAL LOCATION

Figure 2 - 1



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SELMA CITY LIMITS, SOI AND PLANNING AREA

Figure 2 - 2

2.4 Project Setting

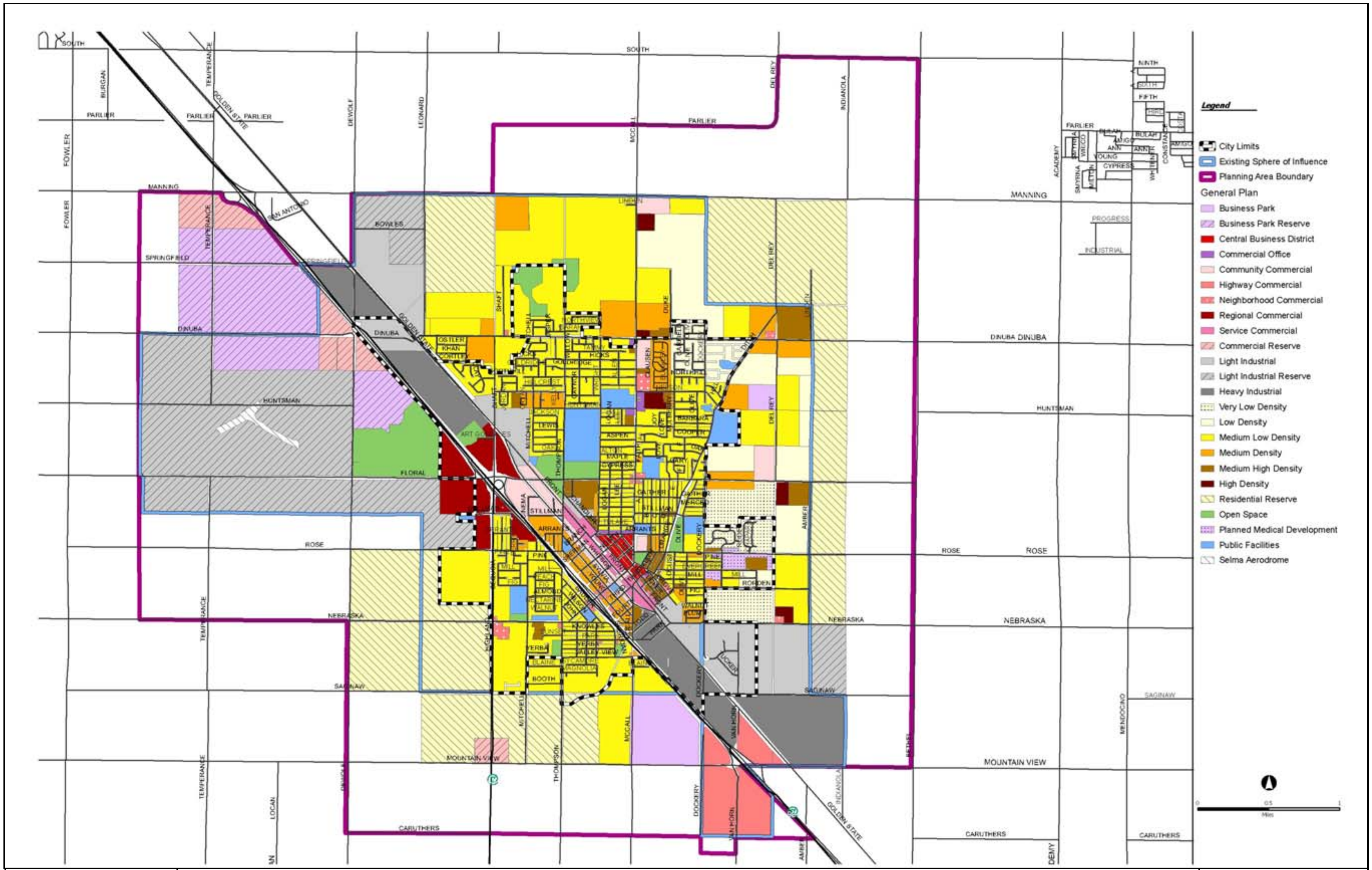
Selma's current population, according to the Department of Finance (DOF), is 23,301 persons as of January 1, 2009. Selma could reach approximately 64,600 persons by 2035 based on an average of 4% growth per year, or 50,250 persons at a 3% annual growth rate. This Plan Update would accommodate up to 94,237 persons, based on all residential land uses within the Proposed General Plan's Plan Area Boundary (using a DOF multiplier of 3.525 persons per house) and prescribes policies for the sequential development of the community from its current population level to that allowed by the Plan.

The current City limits contain 5.1 square miles (3,294 acres), of which approximately 1,900 acres is urbanized. The existing SOI encompasses 12.9 square miles (8,299 acres) and the Planning Area encompasses 23.7 square miles (15,183 acres). Neither the SOI nor Planning Area boundary is proposed to be immediately changed; however, it may become necessary to amend the SOI in the future as a result of Plan implementation. Table 2-1 shows the existing General Plan Land Use designations (by acreage) within the City and SOI. Figure 2-3 shows the existing General Plan Land Use map. As with most cities in the San Joaquin Valley, the single family home is the predominant residential unit in Selma.

Table 2-1
Existing General Plan Land Use Designations (in Acres)
City Limits and SOI

General Plan Land Use Category	City Limits	SOI
Residential-Very Low Density	52	201
Residential – Low Density	90	490
Residential – Medium Low Density	1,091	2,017
Residential – Medium Density	137	370
Residential – Medium High Density	78	135
Residential – High Density	11	45
Residential Reserve	6	442
Subtotal Residential	**1,465**	**3,700**
Business Park	1	236
Highway Commercial	5	201
Commercial – Central Business District	19	19
Commercial – Community	87	127
Commercial – Regional	116	155
Service Commercial	39	39
Commercial – Neighborhood	22	27
Commercial Office	10	11
Commercial Reserve	0	89
Subtotal Commercial	**299**	**904**
Light Industrial	240	481
Light Industrial Reserve	1	1,356
Heavy Industrial	205	496
Planned Medical Development	24	24
Selma Aerodome	0	22
Public Facilities	174	176
Open Space	112	283
Total (All Land Uses)	**2,520**	**7,442**

Source: Quad Knopf, Fresno County GIS.
Note: Right-of-way not included in land use totals.



Quad Knopf

EXISTING GENERAL PLAN LAND USE DESIGNATIONS

Figure
2 - 3

Physically, the Selma area is typical of the San Joaquin Valley. The terrain is relatively flat with elevation ranging from 295 feet to 300 feet. Outside of the developed areas, the dominant land use is agriculture.

The climate of the project area is typical of inland valleys in California, with hot dry summers and cool, mild winters. Daytime temperatures in the summer often exceed 100 degrees, with lows in the 60's. In winter, daytime temperatures are usually in the 50's, with lows around 35 degrees. Radiation (Tule) fog is common in the winter, and may persist for days. Winds are predominantly up-valley (from the north) in all seasons, but more so in the summer and spring months. Winds in the fall and winter are generally lighter and more variable in direction but generally blow towards the south and southeast.

Selma is located in the San Joaquin Valley Air Basin, which is defined by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi mountains to the south. The Air Basin is comprised of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties and the valley portion of Kern County, approximately 25,000 square miles. Because of the Valley's unique physical characteristics, its pollution potential is very high. Surrounding elevated terrain, in conjunction with temperature inversions, frequently restricts lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in summer are ideal conditions for the formation of photochemical oxidants, and the Valley becomes a frequent scene of photochemical pollution.

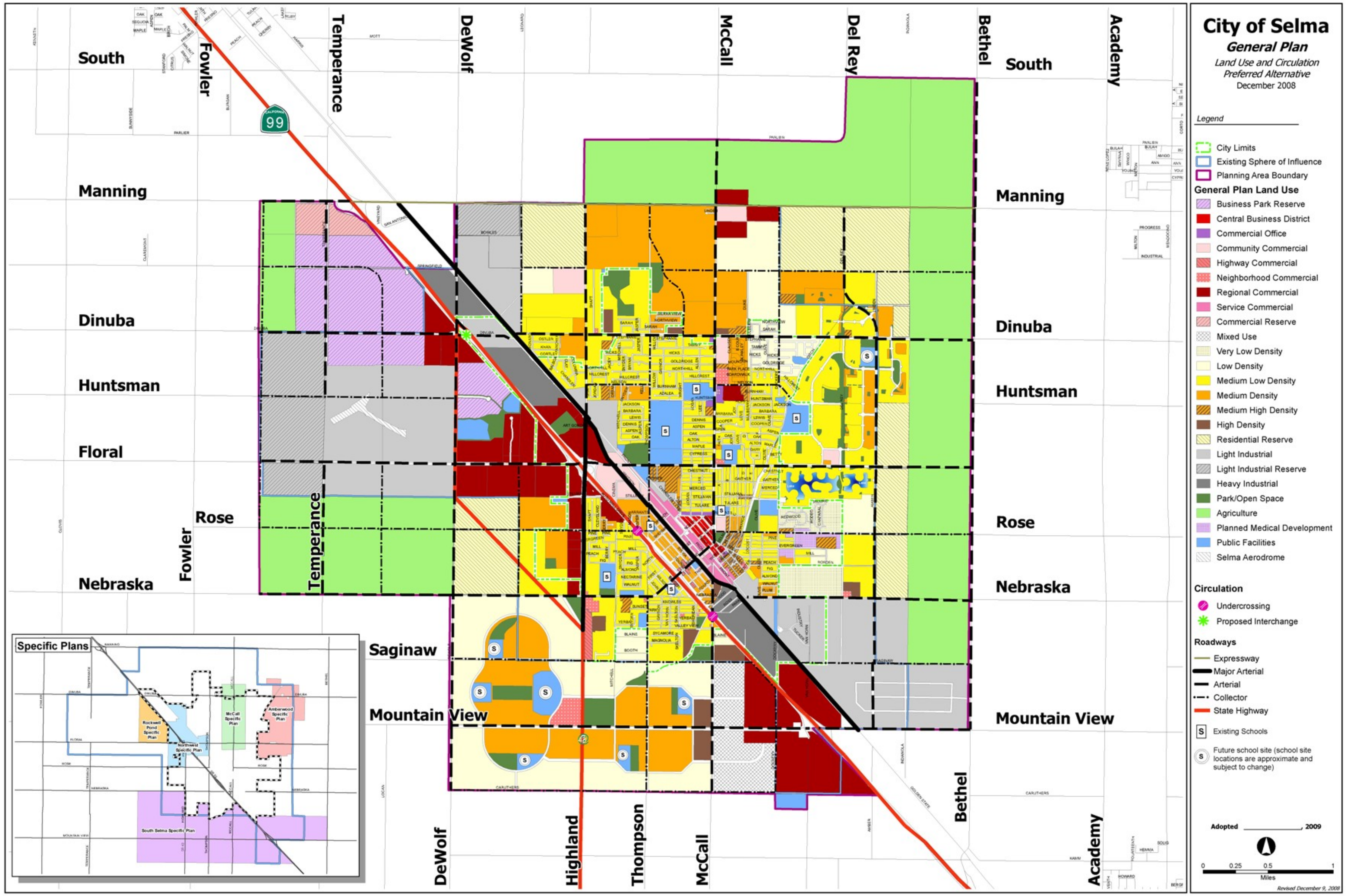
Air pollution transported form the San Francisco Bay and Sacramento areas is believed to account for 11 percent of measured ozone levels in Fresno, Tulare, Madera and Kings counties, with the balance coming from local agricultural, residential, commercial and industrial direct and indirect sources.

2.5 Project Description

The Plan Update includes Noise, Safety, Open Space, Conservation and Recreation, Circulation, Land Use, Public Services and Facilities, and Housing Elements. The existing Housing Element is only being reformatted for the Plan Update. The elements contain the written policies, objectives and standards and any associated diagrams. The Plan Update's maps and diagrams are graphic representations of those policies and standards.

Figure 2-4 shows the proposed Land Use and Circulation Diagram for the Plan Update. The expansion of urban land use designations, contained within the City's proposed SOI and Planning Area, define the limits for extending City services and infrastructure to accommodate new development anticipated within the 2007-2035 time-frame of the General Plan. Policies in the proposed General Plan limit leap-frog development and provide for an orderly transition from rural to urban land uses.

As shown in Table 2-2 the Plan Update results in a significant reallocation of urban land use designations, but only a modest (4.9%) increase in total urban General Plan land use designations. Significant additional commercial land is being added to capitalize on Selma's regional retail location, but residential reserve and industrial reserve designations are now being shifted to non-reserve status. A major thrust of the Plan Update is the integration of existing adopted and proposed Specific Plans in the community.



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PROPOSED LAND USE AND CIRCULATION DIAGRAM

Figure 2 - 4

Table 2-2
Existing & Proposed General Plan Land Use Comparison
Within City Limits, SOI and Planning Areas (Acres)

General Plan Land Use Category	Existing General Plan City Limits	Proposed General Plan City Limits	Existing General Plan SOI	Proposed General Plan SOI	Existing General Plan Plan Area	Proposed General Plan Plan Area
Community Commercial	87	74	127	113	127	113
Neighborhood Commercial	22	21	27	24	27	50
Regional Commercial	116	190	155	805	155	931
Service Commercial	39	39	39	39	39	39
Highway Commercial	5	19	201	19	202	19
Central Business District	19	19	19	19	19	19
Commercial Office	10	10	11	11	11	11
Commercial Reserve	N/A	0	89	0	185	69
Mixed Use[1]	N/A	N/A	N/A	1	N/A	193
Subtotal Commercial	**298**	**372**	**668**	**1,031**	**765**	**1,444**
High Density	11	31	45	62	45	100
Medium High Density	78	75	135	150	135	156
Medium Density	137	179	370	358	370	900
Medium Low Density	1,091	976	2,017	1,952	2,094	2,036
Low Density	90	97	490	194	491	786
Very Low Density	52	52	201	104	201	104
Residential Reserve	6	0	442	152	1,920	992
Subtotal Residential	**1,465**	**1,410**	**3,700**	**2,972**	**5,256**	**5,074**
Heavy Industrial	205	183	496	252	496	252
Light Industrial	240	240	481	1,286	481	1,498
Light Industrial Reserve	1	0	1,356	565	1,434	566
Business Park	1	0	24	0	169	0
Business Park Reserve	N/A	2	212	208	623	619
Subtotal Industrial	**447**	**425**	**2,569**	**2,311**	**3,203**	**2,935**
Planned Medical Development	24	24	24	24	24	24
Public Facilities	174	192	176	267	176	367
Selma Aerodrome	0	0	22	22	22	22
Park/Open Space[2]	112	99	283	215	283	344
Agriculture[1]	N/A	N/A	N/A	1	N/A	3,206
Total	**2,520**	**2,522**	**7,442**	**6,843**	**9,729**	**13,416**
Right-of-Way	774	772	857	1,456	N/A	N/A
Total With ROW	**3,294**	**3,294**	**8,299**	**8,299**	**N/A**	**N/A**

Source: Quad Knopf, Fresno County GIS
Note: Totals may be off due to rounding. [1]The Agriculture and Mixed Use land use designations are new to the Plan Update. [2]The Open Space designation has been changed to Park/Open Space for the Plan Update. ROW is estimated based on the total acreage of each boundary subtracted from the land use acreage totals (See Section 3.14 for a discussion on Park facilities).

During the Community Visioning Workshop held on August 29, 2007 many significant local issues were identified. Some of the issues raised and addressed in the General Plan have the potential to have a significant effect on the environment. Those issues are listed below, and will be discussed in detail in the EIR:

- Selma is currently seeing an increase in residential development, at both the entitlement and construction phases.
- There is a need for move-up and higher end housing, senior housing, and for more variety in housing.
- Selma has an ample supply of available industrial land, and future industrial development should be an expansion of the existing industrial areas.
- An agricultural buffer area between Selma and neighborhood communities should be provided.
- An alternative should be found to the use of block walls to buffer new residential neighborhoods.
- Selma currently has good traffic circulation, however, there are delays at railroad crossings, near schools and more bike lanes are needed. Freeway access is also limited.
- More recreation opportunities including bike/pedestrian paths are needed in all areas of the community.
- The community needs to have a complete range of goods and services in each neighborhood, including neighborhoods on each side of SR 99.

2.6 General Plan Element Update

The Plan Update consists of comprehensive updates to each of the seven state mandated elements--land use, circulation, housing, conservation, open space, safety, and noise--, as well as updates to the optional elements -- public services and facilities element and recreation. While the Housing Element is being updated separately, it is an integral part of the Plan Update.

Each element contains a set of goals, policies and standards. The goals provide a statement of purpose for achieving the community's future form and character while the policies and standards provide more specific direction for how the community's goals are to be achieved. The Plan Update also includes standards associated with many of the policies that define specific actions needed to implement policies. Each of the Plan Update elements is briefly described below.

LAND USE ELEMENT

The Land Use Element describes future land use in the City, SOI, and Planning Area and includes goals, policies and standards that will guide such development. Along with the Circulation Element, the Land Use Element is the heart of the Plan Update. The Land Use Diagram is a visual summary of the proposed location, extent and intensity of land uses. The proposed Land Use Diagram is illustrated in Figure 2-4. The following residential land use categories are proposed:

- **Very Low Density** (0-2.0 dwelling units per gross acre). This category is characterized by larger lot sizes ranging from a minimum of 12,000 square feet to a more typical 20,000 square feet. Typical zoning would be R-1-12.

- **Low Density** (1.0 to 4.0 dwelling units per gross acre). The intent of this classification is to provide locations for the construction of single-family homes. Zoning classifications under this Designation include R-1-9 and R-1-12 with 9,000 and 12,000 square foot lot minimums respectively.

- **Medium Low Density** (3.0 to 5.5 dwelling units per gross acre). This Designation allows for a transition of housing types between higher density development and conventional single-family developments. Typical zoning would be R-1-7 or R-1-9. This land use designation is representative of most existing single-family developments within the City. Minimum lot size is 7,000 square feet.

- **Medium Density** (4.5 to 9.0 dwelling units per gross acre). Small-lot, clustered development and low density multiple family development would be acceptable in this designation. To accommodate these types of development, typical zoning would be R-2, having a minimum lot size of 6,000 square feet with an additional 4,000 square feet for each additional unit on the same lot.

- **Medium High Density** (8.0 to 14.0 dwelling units per gross acre). This classification provides for lower intensity multiple family developments. Typical zoning would be R-3 with a minimum lot size of 20,000 square feet.

- **High Density** (13.0 to 19.0 dwelling units per gross acre). Notable apartment developments are provided within this designation. A new zone district, R-4, will be required to be developed in the zoning ordinance. R-4 zoning will have a minimum lot size of 30,000 square feet.

The following commercial and office land use designations are proposed:

- **Neighborhood Commercial:** 40% Lot Coverage. This designation includes convenience commercial and neighborhood shopping centers providing a range of necessary day-to-day retail goods and services serving a market area generally less than ½ mile around the site. Neighborhood commercial areas should be on a 1-5 acre site.

- **Commercial Office:** 40% Lot Coverage. This designation is intended for the exclusive development of non-retail business and professional offices. New sites should be a minimum of one acre or larger.

- **Community Commercial:** 60% Lot Coverage. This designation includes a variety of uses that serve the community and occasionally nearby rural areas and small cities. New Community Commercial development usually includes multiple anchor tenants such as grocery-drugstore combinations, as well as, smaller retail and service businesses. New Community Commercial designations should occupy sites ranging in size from 5-25 acres and be located at arterial intersections. Existing Community Commercial sites in the downtown or surrounding area could be as small as 6,000 square feet. However, new sites should require a minimum of five acres and a depth of 500 feet.

- **Central Business District:** 100% Lot Coverage. The Central Business District represents the historical business center of Selma. It is currently developed with a variety of retail stores, offices and parking lots. The Central Business District designation is designed to provide flexibility in the development of new uses within the downtown area, while maintaining the ambience of the area.

- **Planned Medical Development:** 40% Lot Coverage. The Planned Medical Development designation is designed to provide development opportunities for medical oriented offices and businesses in close proximity to the existing hospital. The clustering of medical related professional services will provide convenient access to the public and to the professionals who provide the services.

- **Regional Commercial:** 60% Lot Coverage. This designation is designed to provide development opportunities for those uses that attract customers from well outside the City of Selma. To fulfill the role as a regional commercial provider, such development must be close to major transportation links and contain sufficient area to provide adequate facilities and parking. Regional uses have anchor tenants with market areas generally covering at least a 15-mile radius such as larger durable good retail stores and vehicle sales.

- **Highway Commercial:** 70% Lot Coverage. This designation includes several types of uses distinguishable because of their service orientation to the highway traveler. Uses include hotels and motels, restaurants, service stations, truck stops, and associated uses. Highway Commercial designations are limited to the areas surrounding the interchanges with Highway 99.

- **Service Commercial:** 75% Lot Coverage. This designation includes a broad range of commercial activities that can include businesses with both retail and service components. Among these uses are: auto repair, service stations, building materials, warehousing, contractors, equipment yards and similar uses. Uses within this designation would usually be conducted entirely within a building, with outside storage screened from public view.

- **Mixed Use:** This designation will accommodate a wide variety of uses including: restaurants, commercial, medical offices/clinics, government, inns/hotels, and high density residential (10-20 du/ac). It may also include parks, recreational, and public facilities. This is a new land use designation for this Plan Update.

The following industrial and business parkland use designations are proposed:

- **Light Industrial:** 80% Lot Coverage. The Light Industrial designation provides development opportunities for those industrial uses that would not typically utilize major manufacturing processes. Lower intensity assembly, fabrication and food processing may be consistent with the land use designation.

- **Heavy Industrial:** 90% Lot Coverage. The heavy industrial designation is intended to allow for the development of facilities and businesses engaged in intense manufacturing and fabrication. Heavy industrial uses typically require large properties and may require access to rail and highway transportation for the receipt and shipment of materials.

- **Business Park:** 75% Lot Coverage. The Business Park designation is intended to provide for the development of campus type office developments that would utilize substantial landscaping and innovative architectural designs. Parking areas would typically be screened from the street and the sites would provide amenities for employees. Some commercial uses, such as restaurants and daycare, should be permitted to serve the employees.

The Public Facilities designation applies to all publicly owned facilities and those private facilities operated to serve the general public, except for parks and recreation facilities, which have their own land use designation. Public and private schools, city offices, cemetery, parking facilities, hospitals, museums, and library are the main uses within this category.

The Agriculture designation includes agricultural areas. The Park/Open Space designation includes parkland and other open space areas. The Selma Aerodrome designation includes the Selma Aerodrome and the land immediately surrounding the airport facility. The Plan Update also includes the following Reserve land use designations: Business Park Reserve, Commercial Reserve, Residential Reserve, and Light Industrial Reserve.

CIRCULATION ELEMENT

The transportation system affects the growth patterns, environment, and quality of life in Selma. Transportation planning is therefore a critical component of the Plan Update. This element contains direction for improving the operation of the City's circulation system in order to accommodate new growth in areas where public services are already available, and to reduce existing and projected traffic congestion and parking problems without relying on major, costly infrastructure projects. The proposed Circulation Element includes an integrated grid of arterials, collectors and minor collectors with connectivity throughout the City. The Circulation Element also includes policies for traffic calming and pedestrian/bike transportation. Smart Growth principles for transit- and pedestrian-oriented development are utilized to encourage mixed-use neighborhoods.

Additional features of the Plan Update which are to be included in the Circulation Element are street cross sections for major arterial, arterial, collector, minor collector/local roadways (reference Figure 2-1 in the Draft Policies document in Appendix A of Appendix A of this Draft EIR). The Element also includes a city-wide bike plan and designated truck routes. A proposed interchange is planned at Dinuba Avenue and SR 99 to provide access to the highway in the northern portion of Selma. Amber Avenue has been planned as an arterial rather than Del Rey, from Mountain View to just north of Dinuba Avenue. The SR 43 bypass from Highland Avenue to DeWolf Avenue has also been planned for and is shown in Figure 2-4.

OPEN SPACE, CONSERVATION AND RECREATION ELEMENT

The Open Space, Conservation and Recreation Element provides direction regarding the conservation, development, and utilization of natural resources. It focuses on water supply, water quality, air quality, flora and fauna, energy conservation and future parkland and open spaces. The element prescribes standards for neighborhood and community parks. Conservation, open space and recreation resources are also addressed in several other Plan Update elements because they have important linkages to community design, safety, and land use. An Air Quality section is in this Element and encourages alternative modes of transportation, energy conservation, appropriate mitigation in new development, and coordination with the San Joaquin Valley Air Pollution Control District. This air quality section complies with AB 170 that requires General Plans in the Central Valley to contain air quality policies.

NOISE ELEMENT

The Noise Element includes policies and standards to control and abate noise exposure, as required under the State of California's General Plan Guidelines. The fundamental goals of the Noise Element are: to provide sufficient information concerning the City so that noise may be effectively considered in the land use planning process; to develop strategies for abating excessive noise exposure through cost effective mitigation measures in combination with zoning, as appropriate to avoid incompatible land uses; to protect those existing areas where the noise environment is deemed acceptable and also those locations throughout the community deemed "noise sensitive"; to utilize the definition of the community noise environment in the form of CNEL or L_{dn} noise contours to help determine local compliance with the State Noise Insulation Standards; and to protect the quality of life in Selma by limiting intrusive noise.

SAFETY ELEMENT

The purpose of the Safety Element is to identify and describe the nature of potential hazards within the Planning Area, and to streamline the environmental review process by guiding new development in a manner that avoids hazards. Policies address seismic, flood, fire, hazardous materials, criminal, transportation, and emergency preparedness issues.

PUBLIC SERVICES AND FACILITIES ELEMENT

The purpose of the Public Services and Facilities Element is to ensure that sufficient levels of public services are provided as Selma develops. Working in conjunction with the Land Use Element; the Public Services and Facilities Element plans for the expansion and funding of public services and infrastructure to coincide with new development.

2.7 Intended Uses of the Program EIR

This programmatic EIR serves two primary purposes. First, it evaluates potential impacts of implementing the Plan Update and proposes mitigation measures, typically in the form of new or modified policies that reduce impacts to a less than significant level where possible. By integrating mitigation measures as Plan policies, where possible, the implementation of CEQA becomes part of the General Plan's implementation. This evaluation is needed to ensure compliance with CEQA. The City may choose to incorporate new mitigation measures proposed in this EIR into the draft Plan Update document to ensure that it is "self-mitigating."

Second, this EIR is intended to streamline the environmental review of new development projects in conformance with Section 15064 of the CEQA Guidelines. New projects will be evaluated for their consistency with this EIR. Where projects are consistent, further environmental review may be eliminated or streamlined. Projects found inconsistent may require additional environmental review. The most common types of projects for which this EIR will be used include development applications such as use permits, subdivision (tentative) maps, SOI amendments, annexation and prezoning, variances, rezoning, and/or public infrastructure or service improvements or programs.

Public agencies other than the City, including Responsible and Trustee Agencies (as defined under CEQA) may use this EIR during their review of the Plan Update. Although the City of Selma has primary project approval authority for the project, Responsible Agencies may also have some discretion over portions of the project and/or over projects proposed by public agencies or private interests that implement the Plan Update. The discretionary approval may include issuance of a permit or other required action. The following is a list of potential agencies that might use this EIR for such purposes.

- County of Fresno
- California Department of Transportation
- California Department of Fish and Game
- California Department of Conservation
- United States Army Corps of Engineers
- United States Fish and Wildlife Service
- California Regional Water Quality Control Board
- California Regional Water Pollution Control Agency
- San Joaquin Valley Air Pollution Control District

CHAPTER THREE

SETTING, IMPACTS AND MITIGATION MEASURES

CHAPTER THREE – SETTING, IMPACTS AND MITIGATION MEASURES

Introduction

This section addresses topics required by the *California Environmental Quality Act (CEQA)*. Each resource area (e.g., biological resources, air quality) includes a description of existing environmental or regulatory conditions for the proposed project in the Setting section. The Impacts and Mitigation Measures section addresses impacts specifically related to the project and includes feasible mitigation measures to reduce potentially significant impacts.

Identified mitigation measures, unless otherwise noted, are sufficient to reduce impacts to a less than significant level. When more than one mitigation measure is recommended for a specific impact, all the measures will be required to reduce the impact to a level of insignificance unless the word "or" or "alternatively" appears in the list of mitigation measures. Although not specifically required by *CEQA*, less than significant impacts have been discussed in certain instances. No mitigation is mandated by *CEQA* for less than significant impacts.

Each impact is briefly described ("headed") and numbered in bold lettering. Text then follows to provide discussion and analysis. At the end of the impacts discussion, mitigation measures are listed and numbered to correspond to the numbered impact. The summary table in the Executive Summary includes the same text heading and the mitigation measures.

Focus. The EIR and the discussions in this Chapter have been focused in accord with the scoping process provided for in *Public Resources Code 21080.4(a)* and *CEQA Guidelines 15082*, relying upon the Notice of Preparation circulated by the City and the responsible agency/trustee agency responses thereto. Discussion of *CEQA*-required topics not identified by this process as being at least "potentially significant" have been eliminated from further discussion, or been appropriately reduced to that essential for environmental analysis.

Determination of Significance. Under *CEQA*, a significant impact is defined as a substantial, adverse change in the environment *(Public Resources Code 21068)*. The guidelines implementing *CEQA* direct that this determination cannot be based on speculation, but must be based on "substantial evidence" such as facts, scientific projections, or expert opinion. The criteria for determining significance of a particular impact are identified prior to the impact discussion in each topical section, and are consistent with significance criteria set forth in *Appendix G* of the *CEQA Guidelines* as implemented by the City's criteria and procedures for the evaluation of projects.

REGULATORY AND PHYSICAL SETTING

In this EIR, reference will be made to the City of Selma General Plan, adopted in August of 1997, and the associated Environmental Impact Report (Resolution No. 97-48R). Such reference is made to avoid repetition of information contained in this readily available document. It is not, however, relied upon herein as a master or program EIR upon which this EIR is based as a supplement or subsequent document. This EIR is intended to be a separate, program-level, analysis of the 2035 Plan Update.

3.1 Aesthetics

INTRODUCTION

This section describes the visual and aesthetic resources of Selma and provides an evaluation of the effects the Plan Update would have on these resources. Impacts and changes involving light and glare, such as additional nighttime lighting, are also discussed in this section.

3.1.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no relevant Federal regulations pertaining to aesthetics.

STATE AND LOCAL

There are no relevant state regulations pertaining to aesthetics.

Selma has already adopted several regulations and guidelines to control the visual impact of new development on the visual character of the community as a whole. These include City zoning ordinances and two Specific Plans that provide policy guidance on the design of new public and private developments within their respective areas. This section provides background on the relevant City ordinances and the overall purpose and content of the two Specific Plans.

Selma Municipal Code

In addition to policies of the General Plan, provisions of the Selma Municipal Code regulate the form and character of development in the community. The Municipal Code includes the Zoning Ordinance and Building Regulations inclusive of provisions that regulate the appearance of new development through design and improvement standards. The Municipal Code is one of the primary regulatory documents that implements the goals and policies of the General Plan. State Law requires that the Municipal Code be consistent with the General Plan. Since the 2035 General Plan would amend and augment many of the existing policies of the 1997 General Plan, the Plan Update would call for the Municipal Code to be updated to reflect those changes (primarily the Zoning Ordinance). The Zoning Ordinance will be updated after the Plan Update is adopted.

City of Selma Zoning Ordinance

The Zoning Ordinance is an implementation tool of the General Plan and consists of the establishment of various districts within the City wherein the use of land and buildings, and spacing, placement, height and bulk of buildings and structures are regulated in a manner appropriate to the district in which they are located.

Site Plan Review

The purposes of site plan review are to enable the Planning Official to make a finding that the proposed development is in conformity with the intent and provisions of the Zoning Ordinance and to guide the Building Department in the issuance of building permits.

McCall Avenue and Northwest Specific Plans

The McCall Avenue Specific Plan was adopted in April, 1979 and the Northwest Specific Plan was adopted in March, 1982 (amended in 1984, 1986 and 1990). Figure 2-4 shows the location of each specific plan and the land uses within their boundaries. The major objectives of the McCall Avenue Specific Plan are as follows: to protect and enhance the existing, appropriate urban development within the Plan Area; and to encourage new urban development that (1) is harmonious with existing urban development, (2) reflects high standards of design, (3) is compatible with the City's major street system, (4) can be provided necessary urban services by the City and other service entities, and (5) conforms with the City's community-wide planning goals and policies.

The Northwest Specific Plan sets forth some of the same objectives and policies and was prepared in a similar format as the McCall Avenue Specific Plan with the following additional overall objectives: to encourage new urban development that is compatible with the theme established in the Pioneer Village Historical Museum site; and assure that Federal, State and local financial commitments will be supported by sound planning in the public interest.

General Plan Consistency

The Plan Update contains a number of policies that apply to aesthetic impacts. The specific policies listed below contained in the Land Use and Open Space, Conservation and Recreation Elements are designed to ensure that aesthetic impacts are minimized as development occurs in accordance with the Selma General Plan.

<u>Land Use Element</u>

Policy 1.22 Residential neighborhoods should be protected from encroachment of incompatible activities or land uses which may have a negative impact on the residential living environment.

Policy 1.23 New residential developments shall incorporate specific and unique design features into their projects to help promote a sense of ownership and place in a neighborhood. Proposed elevations and materials shall be compatible with adjacent or nearby neighborhoods. Design features shall include the physical appearance and materials used on a structure as well as the placement of structures within a development. Elevations and floor plans shall be reviewed and evaluated prior to approval of new residential developments.

Policy 1.24 In order to encourage the integration of neighborhood and community commercial uses into neighborhoods, designs should de-emphasize the usage of walls as buffers where they create barriers to pedestrian access. Continuous block walls shall be discouraged, and offsets and openings shall be encouraged, other types of uses, such as open space, may be utilized as buffers.

Policy 1.25 If walls are used, they shall be designed in a manner that incorporates a variety of materials and textures as well as landscaping. Wall design and materials shall be reviewed and evaluated at the time of approval of new residential developments.

Policy 1.33c Exterior area lighting for multi-family residential parking, carports, garages, access drives, and other recreation areas, shall be shielded to prevent line of sight visibility of the light source from abutting property planned for single-family residential.

Policy 1.39f The exterior materials and architecture shall be compatible with the surrounding neighborhood.

Policy 1.48 Commercial building height shall not exceed twice the distance to the nearest property line which is shared with property designated for residential uses.

Policy 1.49 A minimum of 20 feet of landscaping shall be required for all new commercial development adjacent to arterial streets, except in the CBD land use designation.

Policy 1.50 A minimum of 10 feet of landscaping shall be required for all new commercial development adjacent to collector and local streets, except in the CBD land use designation.

Policy 1.51 Parking areas shall be screened from adjacent streets in all new commercial developments by either landscaped berming, dense landscaping or low height walls.

Policy 1.52 All commercial outdoor storage areas shall be screened from adjacent public right-of-ways.

Policy 1.61c All new or substantially remodeled buildings should include architectural features consistent with the Selma Redevelopment Design Standards. Architectural features include covered walkways, canopies, and building facades which include variations in textures, materials and surface.

Policy 1.79 Industrial building height shall not exceed twice the distance to the nearest property line which is shared with property designated for residential uses.

Policy 1.81 A minimum of 20 feet of landscaping shall be required for all new industrial development adjacent to arterial streets.

Policy 1.82 A minimum 10-foot landscaped setback shall be required for all new industrial development adjacent to collector and local streets.

Policy 1.83 All outdoor storage areas shall be screened from adjacent public right-of-ways which are classified as arterial streets or larger by the Selma General Plan Circulation Element.

Policy 1.86 All industrial areas adjacent to Highway 99 shall be designed so that truck bays, trash areas, loading docks and other similar areas are screened from view from the highway.

Open Space, Conservation and Recreation Element

Policy 5.23 Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following where feasible:

- Encourage small neighborhood-serving commercial uses within or adjacent to residential neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhood schools; minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area;

Physical

The following describes the existing setting regarding aesthetic and visual resources in Selma.

VISUAL CHARACTER AND RESOURCES

The City of Selma has a small town look and feel with strong ties to its agricultural heritage and economy. The visual character of Selma is defined by its distinct neighborhoods and areas, gateways, its primary corridor SR 99, and its trees and landscaping. Each is described below.

Distinct Neighborhoods and Areas

Selma consists of distinct neighborhoods and areas, which often have different visual characteristics that not only reflect the predominate uses in an area, but also reflect the era in which the area was built. Selma can be characterized by six distinct visual categories:

- **Mature Residential Neighborhoods.** These older neighborhoods, mostly constructed during the 1940s through the 1970s, are laid out on a grid pattern and contain primarily single-family residences with mature trees and landscaping.

- **New Residential Neighborhoods.** These neighborhoods were developed since the 1980's and are generally located at the outer edges of the city. These neighborhoods have both curvilinear and grid street patterns with multiple cul-de-sacs and consist of housing stock of similar design and materials built by the same developer.

- **Downtown.** The downtown of Selma is a small grid of approximately 5 blocks by 7 blocks. The downtown contains a vibrant commercial core and the oldest residential neighborhood in Selma, both of which contain historic buildings.

- **Commercial Areas.** Commercial areas outside the downtown are limited to community and neighborhood commercial shopping centers spread throughout town, and regional commercial uses and the Selma Automall along SR 99 and SR 43.

- **Industrial Zones.** Selma's industrial zones are located in the northwest and southeast corners of town along SR 99. Existing businesses include a beef slaughterhouse, food processing, foundry and other manufacturing uses.

- **Rural and Suburban Transition Areas.** These transition areas include a mix of historic orchards, old barns and farmhouses, small parcels that are still being farmed, and yards housing cows, goats, chickens and similar barnyard animals. These picturesque, rural type areas recall the historic character of the Selma community.

State Route 99

California State Route 99 is the main travel way into and through Selma. Traffic from north and south goes through Selma in a northwest-southeast direction. The importance of SR 99 is that it provides many visitors and through travelers with a first, if sometimes only, impression of Selma. SR 99 is parallel to the Southern Pacific railroad line and contains a mix of industrial properties, underutilized properties and, as noted above, a mix of auto oriented service commercial and regional commercial uses. The freeway is elevated through Selma, thus its visual prominence is high.

Trees and Landscaping

Street trees and established larger trees in and around the city are important features of Selma's visual character. They also provide shade and cooling along residential streets during Selma's hot summers. The city's public parks also include larger landscaped areas with playing fields and shade trees.

Scenic Vistas

Scenic views from Selma, however subjective, include the Sierra Nevada Mountains to the east and coastal foothills to the west on clear days. Agricultural lands surround Selma in every direction and include row and tree crops.

State Scenic Highways

There are no official State-designated scenic routes in Selma's SOI or Planning Area. The major arterials through and adjacent to the city are its major entry corridors, and serve as the primary connections for residents and travelers to the wider region.

Light and Glare

Nighttime lighting is brighter within the urbanized portion of Selma when compared to the mostly undeveloped, surrounding agricultural lands. Major light sources include:

- Households and street lighting.
- Lighting from commercial and industrial uses, such as parking lot illumination.

- Motor vehicles on local streets and surrounding highways.

Current sources of glare are the sun or street lighting reflecting off of large expanses of concrete or reflective rooftops. Glass and other reflective surfaces can also be a source of glare.

3.1.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

Aesthetics concerns the appreciation of beauty or visual harmony. Aesthetics are therefore subjective and evaluation is difficult to quantify. The analysis of this subject is therefore restricted to potential impacts that are "demonstrable," that is, measurable.

According to Appendix G of the CEQA Guidelines, a project will normally be considered potentially significant if it will:

a) *Have a substantial adverse effect on a scenic vista.*

b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcropping, and buildings within a state scenic highway.*

c) *Substantially degrade the existing visual character or quality of the site and its surroundings.*

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

As discussed in Chapter One, the Initial Study found that the proposed project would not have a substantial adverse effect on a scenic vista, substantially damage scenic resources, or degrade the existing visual character or quality of the area. Therefore these issues are not discussed further in this Draft EIR.

3.1.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.1.3.1 – Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area: New development as a result of Plan Update implementation will result in new sources of substantial light and glare. The City already has policies to regulate aesthetic impacts. However, Policy 1.33c should be modified to establish quantitative standards for errant light impacts, and ensure that it applies to commercial, industrial, and other non-residential projects.

Conclusion: Additional urban development as a result of the proposed General Plan would result in an increased number of light sources within Selma, as well as the amount and locations of glare. The City will continue to implement regulations regarding light and glare through enforcement of adopted Building Regulations and the City Zoning Ordinance. Enforcement of these regulations and compliance with Plan Update Land Use Element Policy 1.33c and Open

Space Conservation and Recreation Element Policy 5.23 will reduce the potential impact related to light and glare to a **less than significant** level.

Mitigation Measure #3.1.3.1: Modify Policy 1.33c as follows:

Exterior lighting for projects shall be shielded to prevent line of sight visibility of the light source from abutting property planned for single-family residential. The City Site Plan Review process shall require development projects to ensure that no more than 0.25 footcandles of errant light impacts adjacent properties. The Planning Official shall require a photometric analysis of projects where necessary to demonstrate compliance with this requirement.

Effectiveness of Mitigation: Modification of Policy 1.33c will establish quantitative standards for errant light impacts, and ensure that this policy applies to commercial, industrial, and other non-residential projects and will reduce the potential impact related to light and glare to a **less than significant** level.

3.2 Agriculture

INTRODUCTION

This section describes agricultural resources in and around Selma and evaluates the potential adverse physical impacts of the proposed Plan Update on agricultural resources.

Agriculture is a major activity in the vicinity of Selma, throughout Fresno County and the Central Valley. Approximately 75 percent of Selma's Planning Area, some 11,508 acres, is designated Important Farmland; while not all of this land is under agricultural production, the majority is. Farmland also makes up most of the City's open space resources.

Fresno County is one of the most diverse and productive farming areas in the world and produces a wide variety of crops including: field crops, seed crops, vegetable crops, fruit and nut crops, nursery, livestock and poultry, apiary and pollination products, and industrial crops. Fresno County exceeded the four billion dollar-mark for the fourth consecutive year in 2006 with gross production value of $4.84 billion.

3.2.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

Farmland Protection Policy Act

The Farmland Protection Policy Act was passed into federal law as part of the Agriculture and Food Act of 1981 (Public Law 97-98). The Act was passed in response to the National Agricultural Land Study of 1980-1981 which found that millions of acres of farmland were being converted in the United States each year and a related report which found that much of this conversion was the result of programs funded by the federal Government. The intent of the Act is to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that – to the extent possible – federal programs are administered to be compatible with state and local units of government and private programs and policies to protect farmland.

STATE AND LOCAL

Fresno County General Plan and Zoning

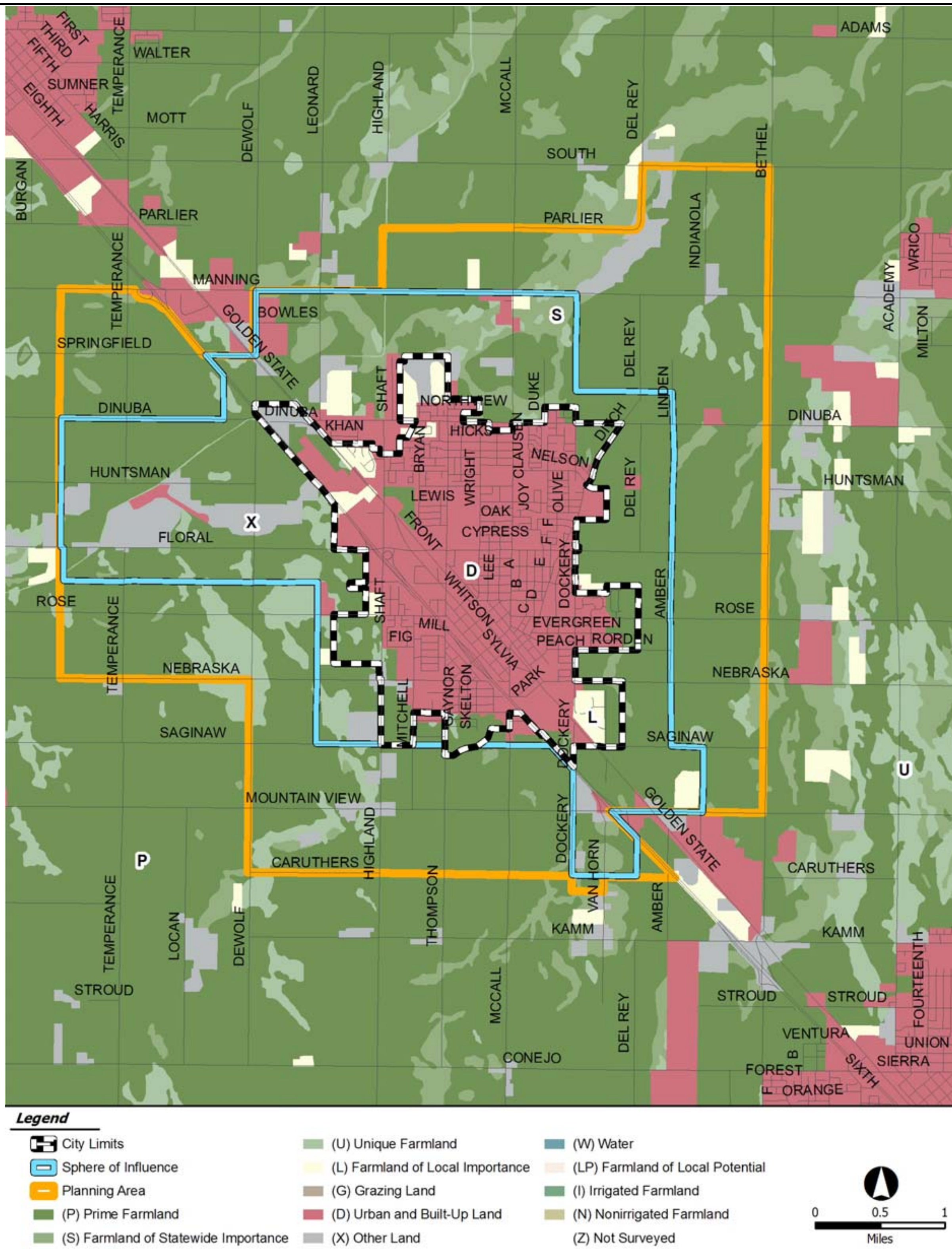
The Fresno County General Plan land use diagram indicates that land outside the Selma city limits is designated as Agriculture. Nearly all of the parcels outside the City limits and within the Planning Area are designated in the Fresno County General Plan as Agriculture. The Agriculture designation provides for continued agricultural uses and avoids incompatible urban uses. Limited development, such as dwelling units, commercial services and light industrial uses, may be allowed if compatible and related to agricultural activities. The Agriculture designated land around Selma is zoned Exclusive Agriculture (AE 20). The "AE" District is intended to be an exclusive district for agriculture and for those uses which are necessary and an integral part of the agricultural operation. This district is intended to protect the general welfare of the agricultural community from encroachments of non-related agricultural uses which by their nature would be injurious to the physical and economic well-being of the agricultural district.

Important Farmlands

The California Department of Conservation Farmland Mapping and Monitoring Program tracks the conversion of agricultural land to urban uses throughout the state, using classifications of important farmlands developed by the US Department of Agriculture Natural Resources Conservation Service (NRCS). The NRCS classifies farmland as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, according to soil type and the availability of irrigation. Definitions for each "important farmland" category are shown below. Important farmlands in and around the Selma Planning Area are shown in Figure 3.2-1. Table 3.2-1 lists the Important Farmland within Selma's SOI and Planning Area. The majority of farmland surrounding Selma is Prime Farmland followed by Unique Farmland.

Table 3.2-1
Important Farmland by Acreage, SOI & Planning Area

Important Farmland	Within SOI	Within Planning Area
Farmland of Local Importance	313	332
Farmland of Statewide Importance	477	864
Prime Farmland	3,733	9,399
Unique Farmland	335	914



Quad Knopf

IMPORTANT FARMLANDS

Figure 3.2-1

- **Prime Farmland.** Land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops within the last three years.

- **Farmland of Statewide Importance.** Land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years.

- **Unique Farmland.** Land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance that is currently used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes and cut flowers.

- **Farmland of Local Importance.** Land other than Prime Farmland, Farmland of Statewide Importance or Unique Farmland that is either currently producing crops or that has the capability of production. This land may be important to the local economy due to its productivity.

In addition to the farmland classifications noted previously, the California Department of Conservation describes three other categories, as follows:

- "Grazing Land" is land on which the existing vegetation is suited to the grazing of livestock.

- "Urban and Built-Up Land" is land that does not fall within an agricultural category and is occupied by structures with a density of at least one structure to one and one-half acres.

- "Other Land" is all other land that does not meet the criteria of any other category.

Williamson Act

The California Land Conservation Act (Williamson Act) was established in 1965 to protect agricultural lands from conversion to non-agricultural use. Owners of land placed under Williamson Act contract receive lower property tax rates, but must keep the land in agricultural production or related use during ten-year contracts that are automatically renewed each subsequent year (after the initial ten year period) unless a notice of non-renewal is filed.

If cancellation of a Williamson Act contract is proposed, notification must be submitted to the Department of Conservation when the County or City accepts the application as complete (Government Code Section 51284.1). The board or council must consider the Department's comments prior to approving a tentative cancellation. Required findings must be made by the council in order to approve tentative cancellation. Cancellation involving Farmland Security Zone (FSZ) contracts include additional requirements.

Pursuant to Government Code Section 51243, if a city annexes land under Williamson Act contract, the city must succeed to all rights, duties and powers of the county under the contract unless conditions in Section 51243.5 apply to give the city the option to not succeed to the contract. A Local Agency Formation Commission (LAFCo) must notify the Department within 10 days of a city's proposal to annex land under contract (Government Code Section 56753.5). A LAFCo must not approve a change to an SOI or annexation of contracted land to a city unless specified conditions apply (GC Sections 51296.3, 56749 and 56856.5).

Termination of a Williamson Act/FSZ contract by acquisition can only be accomplished by a public agency having the power of eminent domain for a public improvement. The Department must be notified in advance of any proposed public acquisition (Government Code Section 51290 – 51292), and specific findings must be made. The property must be acquired in accordance with eminent domain law by eminent domain or in lieu of eminent domain in order to void the contract (Section 51295). The public agency must consider the Department's comments prior to taking action on the acquisition. School districts are precluded from acquiring land under FSZ contract.

Fresno County LAFCo's objectives are to encourage the orderly formation of Local Governmental Agencies, to preserve agricultural land resources, and to discourage urban sprawl.

San Joaquin Valley Blueprint

The San Joaquin Valley Blueprint (Blueprint) is an unprecedented planning effort to improve the quality of life in the San Joaquin Valley. The Blueprint process is providing the eight counties of the San Joaquin Valley an opportunity to work together to develop better land use and transportation patterns by developing a regional plan that will be used to guide growth over the next four decades. Funding for this effort is being provided by grants received from the California Department of Business, Transportation and Housing and the San Joaquin Valley Air Pollution Control District.

Four Valley-wide scenarios were developed by UC Davis' Information Center for the Environment (ICE) in consideration of the preferred scenarios submitted by each of the eight counties and residents' input from throughout the Valley. Each of these scenarios is a projection of what the San Joaquin Valley will be like in 2050 if the region follows certain trends in land use patterns, transportation options, economic development and goods movement patterns, greenhouse gas emissions, agricultural land consumptions, and habitat protection. The four scenarios were described as:

- **Scenario A**. The "recent trends" scenario is an effort to portray a continuation of development patterns from the recent past forward into the future. Each county defined its own starting point and development trends. This scenario assumes that no additional protections for agriculture and environmental open space are implemented county by county. Average dwelling units per acre for new residential development is assumed to be 4.3 dwelling units per acre.

- **Scenario B.** The “locally combined” scenario is an assembly of scenarios created by each county to represent a desired new direction for the future. This scenario, like the “recent trends”, has unique inputs and target densities for each county. This scenario places a greater emphasis on protection of agricultural land and environmental resources. Average dwelling units per acre for new residential development is assumed to be 6.8 dwelling units per acre.

- **Scenario B+.** (Included based on direction from the San Joaquin Policy Council in December, 2008) Reflects the land use assumptions of Scenario B and provides more transportation infrastructure that cross county boundaries. Average dwelling units per acre for new residential development is assumed to be 6.8 dwelling units per acre.

- **Scenario C.** The “valley-wide hybrid” scenario is a unified projection of what the San Joaquin Valley might look like if all the counties chose more compact growth forms emphasizing safe, walkable, bikeable communities to accommodate significant transit opportunities and protect open space. New urban growth is encouraged to remain within existing spheres of influence or specifically selected planning areas. Average dwelling units per acre for new residential development is assumed to be 10 dwelling units per acre.

On April 1, 2009 the San Joaquin Valley Policy Council, a group comprised of two elected officials from each of the eight counties in the San Joaquin Valley, considered the four regional scenarios and adopted Scenario B+ as the policy scenario that should guide the San Joaquin Valley's future growth. This scenario will guide the Valley's local land use planning jurisdictions as they update their general plans. Growth within the San Joaquin Valley that follows this broad scenario will result in new residential growth that is more than 50% denser than recent growth trends. With local implementation, these policies will result in reduced impacts to the region's economy, environmental health, vehicle use, and natural resources, according to the Policy Council.

General Plan Consistency

The Plan Update contains a number of policies that apply to agricultural impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use and Open Space, Conservation and Recreation Elements are designed to ensure that agricultural impacts are minimized as development occurs. It is noteworthy that the City has augmented its land use policies with special urban boundary policies that preclude development more than a specified distance from existing development, an “infill” or “buildout” requirement prior to advancing to a subsequent Urban Development Boundary, and new quantitative criteria for converting Reserve or agricultural lands to urban land uses.

<u>Land Use Element</u>

Policy 1.1 The following agricultural land use category identifies land throughout the Planning Area that is intended primarily for agricultural uses.

Agriculture (AG) 0 to 0.05 Units Per Gross Acre.

This designation provides for agriculture and agriculturally–related uses with a 20-acre minimum lot size, and is generally applied to lands outside of urbanized areas or areas planned for future urbanization. Although lands designated Agriculture are not always under the direct control of the City of Selma, the agricultural designation of these lands is intended to express the City's preference that these areas remain in agricultural use and production.

Policy 1.2 In order to preserve them as a natural resource and provide a buffer between existing and future development in the City and neighboring cities, prime agricultural lands should not be designated for urban development to the extent feasible.

Policy 1.3 The premature conversion of productive agricultural lands to urban uses is discouraged. Steps to curb conversion of these lands include the use of Williamson Act contracts, Farmland Security Zone contracts, agricultural zoning, purchase/transfer of development rights and "right to farm" covenants.

Policy 1.7 Require a "right to farm" covenant to be recorded for all development adjacent to productive agricultural lands, in order to provide notice to future owners and protect the farming activities.

Policy 1.8 New development in the community shall be sequential, and contiguous to existing development, to ensure the orderly extension of municipal services and preservation of a free flowing circulation system.

Policy 1.9 While the City prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development greater than ½ mile from existing urban uses shall be discouraged. Such development shall be required to submit an analysis of the fiscal and service impacts the development would have upon the City.

Policy 1.11 Development of peninsulas of urban development into agricultural lands shall be discouraged.

Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall not develop or annex areas designated as "Reserve" within the Planning Area until additional land is needed.

Policy 1.100 The City shall discourage leapfrog development (defined as urban development more than ½ mile from existing urban development) and development of peninsulas extending into agricultural lands to avoid adverse effects on agricultural lands, and to avoid adverse effects on agricultural operations that contribute to premature conversion.

Policy 1.103 The City shall work with neighboring jurisdictions to prevent development on lands designated Reserve that would create potential inconsistencies with their future annexation into the City of Selma. When the development of lands designated Reserve becomes necessary for further growth of the City, the City will pursue their annexation and place them under a land use designation and zoning district appropriate to their intended use.

Policy 1.104 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas for a period of at least five years from the adoption of this general plan update.

Policy 1.105 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas until a minimum of 80 percent of all non-reserve property with the same general designation within the general plan boundaries have been developed or have approved development entitlements.

Open Space, Conservation and Recreation Element

Policy 5.8 Prime and uniquely productive agricultural land should be conserved through orderly expansion of the City.

Policy 5.9 To protect human health and safety from potential impacts due to agricultural spraying, dust, and traffic congestion, the City will encourage lower density development adjacent to land planned for long-term agricultural uses.

Policy 5.10 Agricultural lands which currently produce, or have the potential to produce, specialty crops for which the area is uniquely suited, should be protected from encroachment by urban uses.

Policy 5.11 Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operation and to prevent parcelization into rural residential or ranchette developments.

Policy 5.12 Work with regional partners/organizations to develop an agricultural land conservancy program. Encourage the application of new agricultural land preservation and conservancy programs outside of the City's SOI.

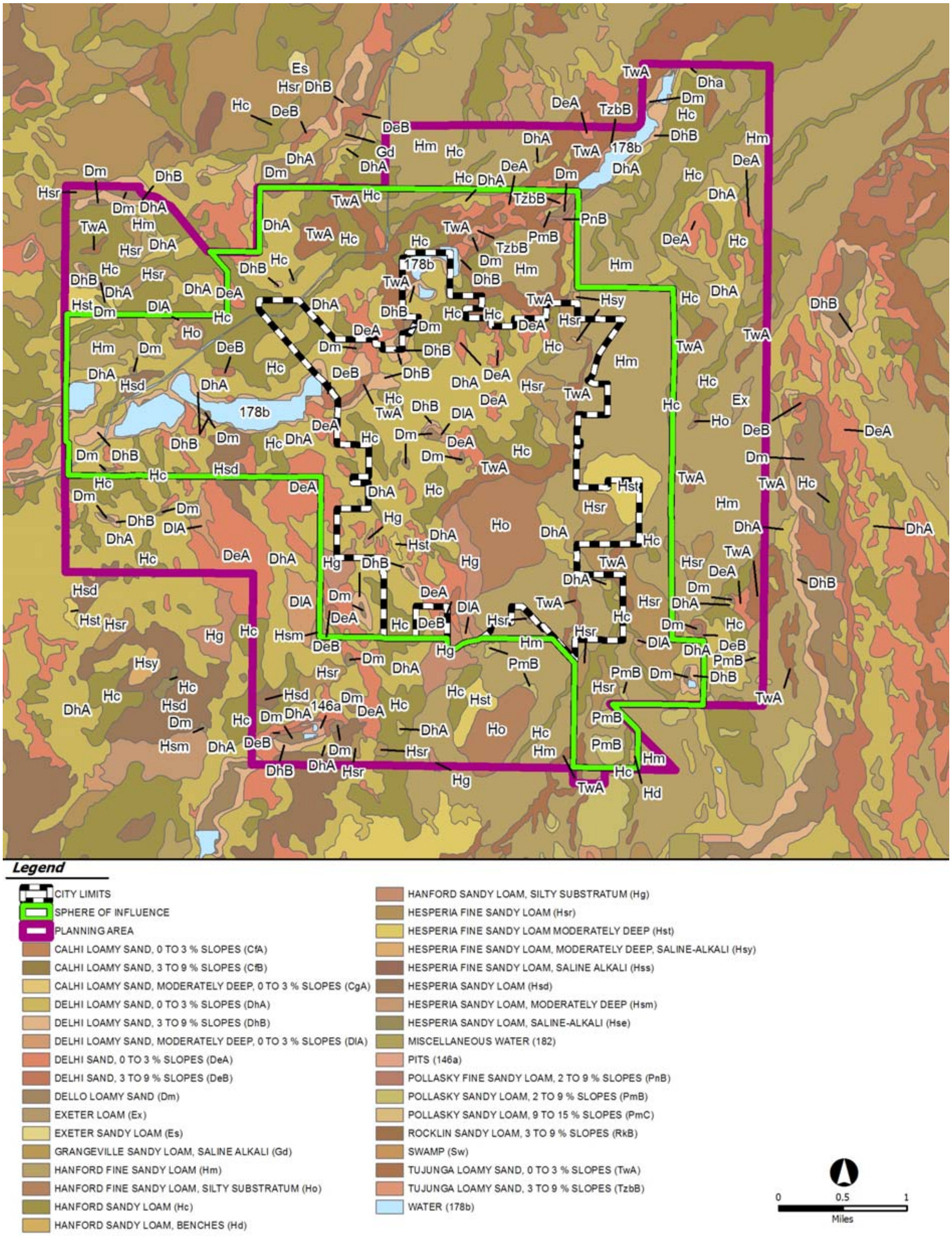
Physical

Fresno County, one of the most diverse and productive farming areas in the world, produces over 100 different crops, lumber, nursery stock, livestock, poultry and dairy products. Located in south-central Fresno County, the dominant land use around the City limits is agricultural. Single-family homes may occupy many parcels at rural densities and farm sheds and other ancillary structures are also present. There are currently approximately 4,858 acres of Important Farmland land in the SOI, and 11,509 acres of such land in the Planning Area.

According to the most current California Farmland Conversion Report (2002-2004), Fresno County had 26,270 acres of agricultural land converted to another use between 2002 and 2004. The report states that housing was the largest component of new urban acreage, with developments ranging from small infill sites to planned community units of 600 acres or more. Commercial uses (shopping, offices) and community facilities (schools, parks) occurred in concert with the residential developments.

According to the Plan Update Background Report, the soils in and around Selma are Class I or II. The NRCS has identified the soil types in the Planning Area as: Exeter Series, Grangeville Series, Dello Series, Hanford Series, Hesperia Series, Tujunga Series, Delhi Series and Pollasky Series (see Figure 3.2-2). Grangeville, Hanford, Hesperia, and Delhi Series are prime farmland soils when irrigated. Conversion of such soils to non-agricultural use would be considered a significant impact if they are in large enough blocks for an economic scale of farming.

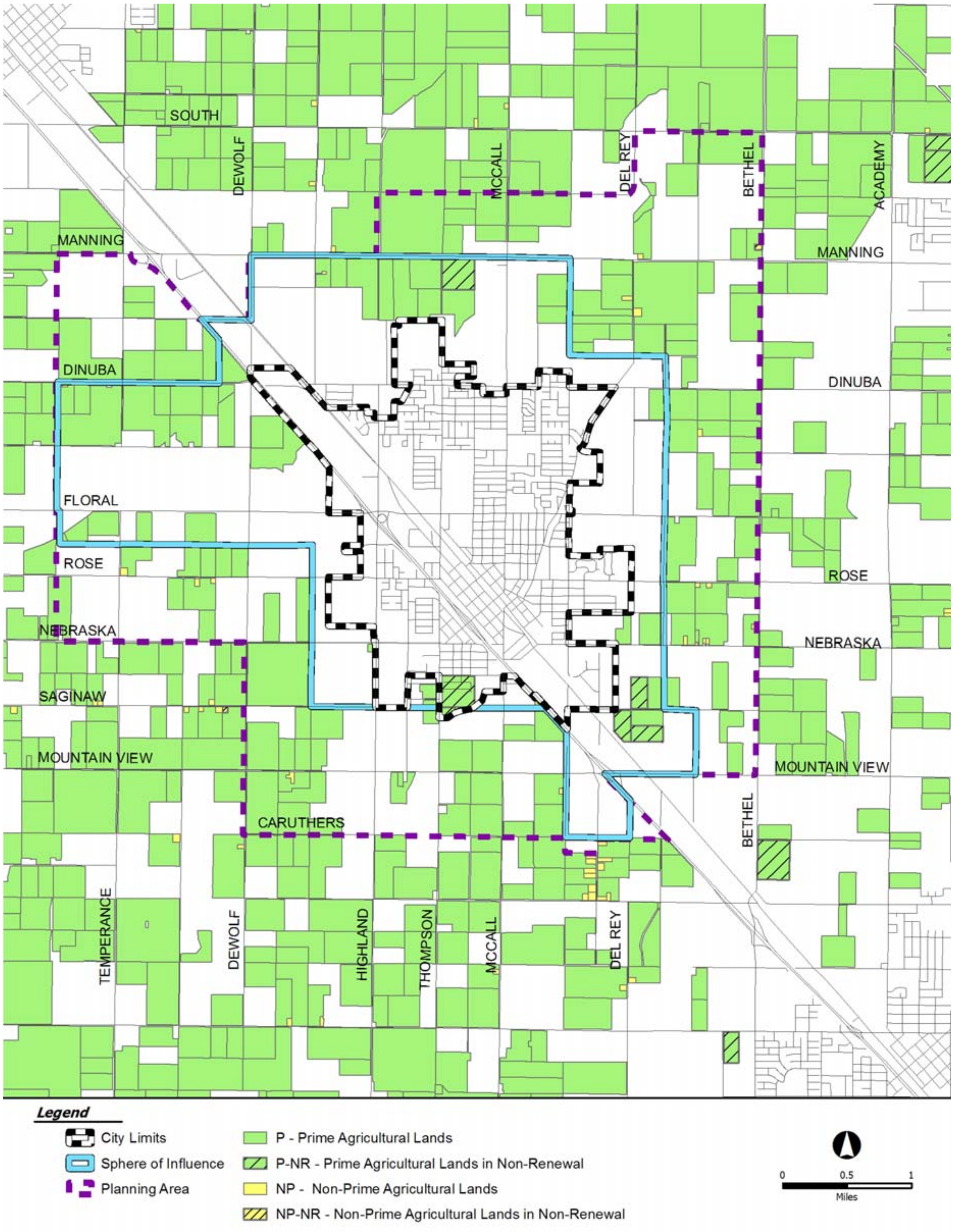
Within the existing SOI and Planning Area, there are approximately 1,218 and 4,561 acres respectively, currently held under Williamson Act contract (see Figure 3.2-3).



Quad Knopf

SOILS

Figure 3.2-2



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WILLIAMSON ACT PARCELS

Figure 3.2-3

3.2.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally be considered potentially significant if it will:

a) *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use; or,*

b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract; or,*

c) *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.*

The Initial Study found that the proposed project could potentially exceed the threshold of significance for all three evaluation criteria above; therefore, these issues are discussed as follows.

3.2.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.2.3.1 – Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use: The urban land use designations contained in the Plan Update would lead to the conversion of farmland to urban uses as the General Plan is implemented. The proposed General Plan contains a number of policies that provide for the long-term preservation and orderly conversion of farmland within the city's SOI and Planning Area.

All of the land within Selma's city limits is designated for urban uses in the proposed General Plan. The existing parcels in the city limits that are still being farmed would be converted to urban uses under the proposed Plan. In addition, implementation of the proposed General Plan would also eventually convert agricultural land in the SOI and Planning Area from farmland to urban uses. A total of 11,509 acres of Important Farmland would be converted to urban uses within the Planning Period as a result of the Plan Update. Figure 3.2-1 shows the distribution of Important Farmlands within the Selma Planning Area.

Policies 1.3, 1.7 through 1.9, 1.11, 1.95, 1.100, 1.103, through 1.105, and 5.8 through 5.12 of the proposed General Plan provide for the orderly conversion of farmland and the long-term preservation of farmland outside the SOI.

Conclusion: Since Selma is surrounded by Important Farmland, any growth and development would lead to the conversion of Important Farmland to urban uses. The impact is therefore a significant and unavoidable impact. Policies of the proposed General Plan, as shown above, will reduce the impacts associated with farmland conversion, however, the impact will remain

significant and unavoidable. The following mitigation measure will help reduce the impact but not to a less than significant level.

Mitigation Measure #3.2.3.1: The City will encourage property owners outside the City limits but within the SOI to maintain their land in agricultural production until the land is converted to urban uses through the following means.

a. The City will work cooperatively with land trusts and other non-profit organizations to preserve agricultural land outside of the SOI and not planned for urbanization in the General Plan through the use of Conservation Easements.

b. The City will use its urban boundaries and growth phasing policies to delay the conversion of agricultural lands.

c. The City will encourage the use of Williamson Act contracts in the area outside of the SOI.

d. The City will provide adequate buffering for agricultural land uses to minimize the operational impacts to farmers.

e. The City will encourage infill projects and those that are substantially contiguous to existing development.

Effectiveness of Mitigation: While the policies of the proposed General Plan, and mitigation measure above, would delay, reduce and partially offset the conversion of farmland, the conversion of prime farmland, unique farmland and farmland of statewide importance to urban uses as a result of implementation of the Plan Update would remain a **significant and unavoidable impact**. Additional policies or programs are not feasible or would not materially reduce the impacts below those resulting from the Plan Update or the mitigation measure herein based on the following:

- Agricultural mitigation fees or other methods are infeasible unless implemented on a region wide basis. Unless these programs are coordinated on at least the County level, different agencies may confound the development plans of other communities, preserve the wrong properties, or result in no actual mitigation if not implemented correctly. Further, there is no established mechanism for the acquisition and maintenance of agricultural easements in the County and their successful implementation would be speculative.

- Courts have opined that conservation easements or agricultural impact fees do not completely mitigate agricultural impacts because they do not create additional, offsetting agricultural lands. They simply ensure the longer-term operation of existing agricultural operations and the loss of agricultural lands is not reduced.

Impact #3.2.3.2 – Conflict with existing zoning for agricultural use, or a Williamson Act contract: The Plan Update will directly or indirectly conflict with existing Fresno County agricultural zoning and Williamson Act Contracts within the SOI and Planning Area. Adoption of the Plan Update will result in the conversion of existing agricultural areas for residential, commercial, industrial and public uses. These lands would be converted to urban uses only after they are annexed to the City. Therefore, although the proposed land use designations on these parcels conflict with the existing County designations and zoning, once they are annexed, the County designations would no longer apply and the conflict would be eliminated.

Policies 1.3, 1.7 through 1.9, 1.11, 1.95, 1.100, 1.103, through 1.105, and 5.8 through 5.12 of the proposed General Plan are designed to keep these lands in productive agricultural use until they are eventually annexed and developed.

The proposed General Plan designates agricultural land within the SOI and on Reserve lands outside the SOI to urban uses. As a result of these urban designations, owners of farmland under Williamson Act contracts may be motivated to file for non-renewal or early cancellation of their contracts in anticipation of developing their properties. The City should discourage cancellation of Williamson Act contracts outside of the SOI. Conversely, the City should encourage urbanization of all properties within the SOI to prevent the premature expansion of the SOI.

If Williamson Act contracts are proposed for cancellation after General Plan adoption, notification will have to be sent to the Department of Conservation (DOC) when the City determines that the application is complete. Then the City Council will have to consider the DOC's comments prior to approving a tentative cancellation. Additionally, required findings that are supported by substantial evidence must be made by the Council in order to approve a tentative cancellation.

Lands remaining under Williamson Act/FSZ contract within Selma's proposed SOI or its Planning Area after General Plan adoption shall only be used for agricultural uses consistent with the contract until such time as the contract is terminated or cancelled.

Policies 1.3 and 5.8 through 5.12 of the proposed General Plan encourage the use and continuation of Williamson Act contracts as an important way to preserve and avoid premature conversion of farmland.

Conclusion: Despite the temporary nature of this impact and the effect of the above listed policies, until the City annexes these lands, the conflict between urban land use designations under the proposed General Plan and existing County agricultural designations and zoning and the conflict between urban designations under the proposed General Plan and existing Williamson Act contracts would be a **significant and unavoidable** impact on agricultural resources. The following mitigation measure will help reduce the impact of General Plan implementation on Williamson Act contracted lands but not to a less than significant level.

Mitigation Measure #3.2.3.2: When Williamson Act Contract cancellations are proposed outside of the SOI the City will use one of the following means to provide agricultural protection to other farmland to offset the loss of farmland protected by Williamson Act Contracts:

a) Conservation easements shall be acquired through a "1240 Land Exchange" Ag Conservation Easement program pursuant to Government Code 51282 and Public Resources Code 10251 as a component of the proposed Agricultural Preserve Cancellation; or

b) The City shall require the contribution of a mitigation fee to a regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The amount of the contribution shall be sufficient to provide protection to an equivalent area of land.

Regardless of the method employed, lands selected for conservation shall be outside of the SOI adopted by LAFCo.

Effectiveness of Mitigation: While the policies of the proposed General Plan, and the above mitigation would reduce the severity of the impact, it would not add new agricultural land to the overall inventory, and there would still be a **significant and unavoidable** impact to existing Williamson Act contracts resulting from implementation of the proposed General Plan.

Impact #3.2.3.3 – Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use: The proposed General Plan could result in the development of potentially incompatible urban uses next to farms, creating circumstances that impair the productivity and profitability of agricultural operations, and could eventually lead farmers to take their land out of production. For example, increased vandalism, traffic, access difficulties and the introduction of domestic animals, can lower productivity, while new residents may complain about noise, dust and chemical use. Adjacent urban development could also drive up land values, increasing the property tax burden for farmland not protected by Williamson Act contracts.

Policies 5.8 through 5.12 of the proposed General Plan are designed to mitigate potential incompatibilities between agricultural and urban uses.

Conclusion: Despite these policies, potential incompatibilities between agricultural and urban uses under the proposed General Plan could contribute to conversion of farmland to non-agricultural use resulting in a **potentially significant** impact on agricultural resources.

Mitigation Measures: No mitigations are available to reduce this impact to a less than significant level. This impact would remain a **significant and unavoidable**.

3.3 Air Quality

INTRODUCTION

This section describes the impacts of the Plan Update on local and regional air quality, based on the assessment guidelines of the San Joaquin Valley Air Pollution Control District (SJVAPCD). This section describes existing air quality, construction-related impacts, direct and indirect emissions associated with the proposed General Plan, the local and regional impacts of these emissions, and mitigation measures warranted to reduce or eliminate any identified significant impacts.

3.3.1 REGULATORY AND PHYSICAL SETTING

Regulatory

Air quality is regulated by several agencies including the Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the SJVAPCD. Although EPA regulations cannot be superseded, both State and local regulations may be more stringent. In general, air quality evaluations are based upon air quality standards developed by the federal and State government and several State agencies. Emissions limitations are then imposed upon individual "direct" sources of air pollutants by local agencies, such as the SJVAPCD. Mobile sources of air pollutants are largely controlled through federal and State agencies, while most stationary sources are regulated by the SJVAPCD.

FEDERAL

Federal Clean Air Act

At the federal level, the EPA has been charged with implementing the Federal Clean Air Act (FCAA), which was enacted in 1963, and amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary National Ambient Air Quality Standards (NAAQS), which are shown in Table 3.3-1. The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP) to implement these standards. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies.

The EPA has responsibility to review all state SIPs to determine if their implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan in the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.3-1
Ambient Air Quality Standards and Designations

Pollutant	Average Time	California Standards[a] Concentration[c]	Federal Standards[b] Primary[c, d]
Ozone (O_3)	1 hour	0.09 ppm (180µg/m^3)	—
	8 hours	0.07 ppm (137 mg/m^3)	
			0.08 ppm (157 µg/m^3
Respirable Particulate Matter	24 hours	50 µg/m^3	150 µg/m^3
(PM_{10})	Annual arithmetic mean	20 µg/m^3	50 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 hours	65 µg/m^3	65 µg/m^3
	Annual arithmetic mean	12 µg/m^3	15 µg/m^3
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 µg/m^3)	9 ppm (10 mg/m^3)
	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)*	Annual arithmetic mean	—	0.053 ppm (100 µg/m^3)
	1 hour	0.25 ppm (470 µg/m^3)	—

Pollutant	Average Time	California Standards[a] Concentration[c]	Federal Standards[b] Primary[c, d]
Sulfur Dioxide (SO_2)	Annual arithmetic mean	—	0.030 ppm (80 µg/m^3)
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)
	1 hour	0.25 ppm (655 µg/m^3)	—
Lead (Pb)[e]	30-day average	1.5 µg/m^3	—
	Calendar quarter	—	1.5 µg/m^3
Visibility Reducing Particles	8 hours	[f]	—
Sulfates	24 hours	25	—
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m^3)	—
Vinyl Chloride[e]	24 hours	0.010 ppm (26 µg/m^3)	—

ppm = Parts Per Million
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
* The Nitrogen Dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become eff3ective after regulatory changes are submitted and approved by the Office of Administrative Law, expected later this year.
[a] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 ad 24 hour), nitrogen dioxide, suspended particulate matter – PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
[b] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest either hour concentration or a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration of 150 µg/m^3) is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact US EPA for further clarification and current federal policies.
[c] Concentrations expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
[e] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[f] Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.

National Emissions Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Part 61, Subpart M)

The NESHAPs are emissions standards set by the EPA for air pollutants not covered by National Ambient Air Quality Standards that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology (MACT).

STATE AND LOCAL

California Air Resources Board

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state work toward achievement of the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

The CARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. It is also primarily responsible for statewide pollution sources and produces a major part of the SIP. However, local air districts are still relied on to provide additional strategies for sources under their jurisdiction. The CARB combines this data and submits the completed SIP to the EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

Both the EPA and CARB have established ambient air quality standards for “criteria” pollutants founded on scientific, health-based criteria. These criteria pollutants include ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead.

EPA has established primary and secondary NAAQS for the criteria air pollutants. The primary standards protect the public health and the secondary standards protect the public welfare. CARB has established CAAQS for the criteria air pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter. In most cases the CAAQS are more stringent than the NAAQS. The NAAQS and CAAQS as discussed previously are listed in Table 3.3-1.

The EPA adopted national air quality standards for ground-level ozone and for fine particulate matter in 1997. The existing one-hour ozone standard of 0.12 ppm was revoked and replaced by an eight-hour standard of 0.08 ppm. New national standards for fine Particulate Matter ($PM_{2.5}$) have also been established for 24-hour and annual averaging periods. The current PM_{10} standards were retained, but the method and form for determining compliance with the standards were revised. Additionally, a $PM_{2.5}$ State standard was adopted and became effective on July 5, 2003.

State Implementation Plan

The State Implementation Plan (SIP) is the blueprint for meeting federal air quality standards by the applicable deadlines set in the Federal Clean Air Act. California’s SIP is a compilation of region-specific plans that detail how each area will meet the air quality standards. The plan includes an estimate of the emission reductions needed to meet each air quality standard based on air monitoring results, data on emission sources, and complex air quality modeling. It reflects the benefits of the pollution control program adopted by air agencies at all levels, and may also include commitments to implement new strategies. Together, these elements must reduce emissions by an amount sufficient to meet the air quality standard in each region. Once the local element of the plan is adopted by the air district(s) and other responsible local agencies, it is sent to the CARB for adoption and then formally submitted to the Environmental Protection Agency for approval as a revision to the California SIP.

San Joaquin Valley Air Pollution Control District

The SJVAPCD's rules and regulations are designed to attain and thereafter maintain State and federal air quality standards in the San Joaquin Valley Air Basin (SJVAB) through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SJVAPCD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The SJVAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA and the CCAA.

In January of 2002, the SJVAPCD released a revision to the previously adopted Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). The GAMAQI is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The GAMAQI contains the following applicable components:

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;

- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;

- Methods available to mitigate air quality impacts;

- Information for use in air quality assessments and EIRs that will be updated more frequently such as air quality data, regulatory setting, climate, topography, etc.

The SJVAPCD has also prepared the Air Quality Guidelines for General Plans (AQGGP) (revised June 2005) to provide local planning agencies with a comprehensive set of goals and policies that will improve air quality if adopted in a general plan; to provide a guide to cities and counties for determining which goals and policies are appropriate in their particular community; and to provide justification and rationale for the goals and policies that will convince decision makers and the public that they are appropriate and necessary.

Air Quality Plans

The SJVAPCD has adopted and submitted several ozone and PM_{10} plans in its planning history in an effort to reach attainment. In the most current effort to reach attainment for ozone, the SJVAPCD submitted the 2007 Ozone Plan. This plan contains a comprehensive and exhaustive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the Valley. Additionally, this plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, and a significant increase in state and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire air basin into attainment with the federal ozone standard. The plan calls for a 75% reduction in ozone-forming oxides of nitrogen (NOx) emissions.

In June 2003, the District prepared the 2003 PM_{10} Plan. The 2003 PM_{10} Plan was amended in 2003 and in 2005. The 2006 PM_{10} Plan Update was adopted by the SJVAPCD in February 2006 and contains the existing measures adopted by EPA, CARB and the SJVAPCD and the additional measures needed to reach attainment of the PM_{10} standards.

The SJVAPCD also has voluntary strategies to further reduce air quality impacts in the San Joaquin Valley Air Basin (SJVAB). Included in these strategies are an enhanced California Environmental Quality Act (CEQA) program and the promotion of air quality elements or policies for General Plans in all SJVAB cities and counties. The SJVAPCD reviews and comments on CEQA documents and permit applications sent from SJVAB public agencies. Comments from the SJVAPCD include expert advice on level of significance, applicable rules and regulations, and suggested mitigation measures.

In addition to the plans discussed above, the SJVAPCD has submitted numerous plans with respect to ozone, PM_{10}, $PM_{2.5}$ and CO in compliance with the FCAA and CCAA, as listed below:

Carbon Monoxide Plans

- 1992 Federal Attainment Plan for Carbon Monoxide

Ozone Plans

- Air Quality Attainment Plan (AQAP), Jan. 1992
- Revised 1993 Rate of Progress (ROP) Plan, Nov. 1994
- Ozone Attainment Demonstration Plan (OADP), Nov. 1994
- Revised Post 1996 ROP Plan, Sept. 1995
- California Clean Air Act (CCAA) Triennial Progress Report and Plan Revision 1995-1997 (1997 Triennial Update), Dec. 1998
- CCAA Triennial Progress Report and Plan Revision 1997-1999 (2000 Triennial Plan Update), March 2001

- 2000 Ozone ROP Report, April 2000
- 2002 – 2005 Ozone ROP Plan, May 2002
- 2002 – 2005 Ozone ROP Plan (Amended), Dec. 2002
- 2004 Extreme Ozone Attainment Demonstration Plan, Oct. 2004
- 2004 Extreme Ozone Attainment Demonstration Plan (Amended), Oct. 2005
- 2007 Ozone Plan, April 30, 2007

PM_{10} Plans

- PM_{10} Attainment Demonstration Plan, May 1997 (Withdrawn)
- PM_{10} Attainment Demonstration Plan Progress Report 1997-1999, Aug. 2000
- 2003 PM_{10} Plan, June 2003
- 2003 PM_{10} Plan (Amended), Dec. 2003
- 2005 Amendments to the 2003 PM_{10} Plan, May 2005
- 2006 PM_{10} Plan Update, February 2006

$PM_{2.5}$ Plan

- Draft 2008 $PM_{2.5}$ Plan

Air District Rules, Regulations and Programs

The SJVAPCD has adopted and implemented rules and regulations that include requirements for permits, controls on stationary sources, limits or controls on operations or activities, depending on the source and type of pollutant. Compliance with applicable SJVAPCD rules is required. SJVAPCD rules are periodically updated and amended to adapt to changing air quality conditions and requirements.

Among the rules adopted by the District are Regulation VIII and the Indirect Source Review (ISR) rule. Regulation VIII is a series of rules that regulate dust emissions from open areas, disturbed surfaces, unpaved road areas, construction activities and similar fugitive dust sources. The ISR rule, which took effect March 1, 2006, requires emission reductions and impact fees from development and transportation projects. For development projects, the ISR rule requires that NOx from operations be reduced by 33 percent over ten years and that PM_{10} be reduced by 50 percent over ten years. In addition, construction exhaust emissions must be reduced in accordance with the ISR rule. These reductions may be met through on-site mitigation or by the payment of an “off-site” fee to the SJVAPCD. The SJVAPCD would use the off-site fee to reduce emissions in the SJVAB by funding clean-air projects.

Toxic air emissions are regulated under the SJVAPCD’s Air Toxics Program, which integrates the state and federal requirements, and is aimed at protecting public health. Major goals of this program are as follows:

- Assuring compliance with State and Federal requirements aimed at protecting public health;
- Eliminating duplication and redundancy by consolidating requirements where multiple rules, programs, and emission limits apply to a single operation;
- Maximizing the use of existing programs for quantifying, assessing, and controlling air toxic emissions;
- Maximizing the use of the District's existing ozone and PM10 regulations that also result in air toxic emissions reductions;
- Maximizing the use of the District's existing permitting, inspection, and emission inventory systems to minimize the burden of State and Federal recordkeeping and reporting requirements; and
- Not Federalizing "State-only" requirements, unless doing so provides a corresponding benefit by substantially streamlining the program.

General Plan Consistency

The Selma General Plan Update contains a number of goals, objectives and policies that apply to air quality impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use, Open Space, Conservation and Recreation and Circulation Elements are designed to ensure that air quality impacts are minimized as development occurs.

<u>Land Use Element</u>

Policy 1.21 The City will encourage Leadership in Energy and Environmental Design (LEED) features for new construction including commercial, residential, industrial and public facilities. LEED was established to provide the building industry with design tools and standards which create high performing, environmentally friendly, sustainable buildings.

<u>Circulation Element</u>

Policy 2.1 Coordinate demand-responsive transit service in conjunction with the Council of Fresno County Governments (COFCG) and Fresno County.

Policy 2.3 Coordinate transit services through the City Manager and in conjunction with surrounding cities, and the County of Fresno, and Council of Fresno County Governments.

Policy 2.4 Cooperate with the COFCG in providing transit service and planning to meet the social and economic needs of all segments of the community.

Policy 2.5 Encourage benches, telephones and shaded areas at major transit destinations so people can utilize the transit system safely and comfortably. The City shall determine such need based on site plan review procedure and other planning implementation methods.

Policy 2.44 The City will develop, through various funding mechanisms and sources, a city-wide bicycle path/lane/route system in conformance with the City's 2003 Bicycle Transportation Plan. The bicycle path/lane/route system will utilize existing or future railroad right-of-way and water courses. The paths (class I), may also include landscaping, lighting, mileage markers, directional signage and benches. The on-road lanes (class II) would include striping and the on-road routes (class III) would not include striping. Reference Figure 2-3 for the proposed city-wide bike plan. The class I bike paths can also be utilized by pedestrians if the proposed paths are wide enough to allow both bicyclists and pedestrians.

Policy 2.45 Sidewalks, paths, and appropriate crosswalks should be located to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths should be developed to allow for unobstructed pedestrian flow from within a neighborhood.

Policy 2.46 The City shall require curb, gutter, and sidewalks in all areas of the community to accommodate pedestrian traffic, especially along routes with high pedestrian traffic such as schools, parks, and the Downtown area. Installation of these improvements shall be encouraged to the extent feasible in existing neighborhoods where they do not currently exist.

Policy 2.47 The City shall promote safe, convenient and accessible pedestrian ways within the community.

Policy 2.48 Where security walls or fences are proposed for residential developments along major arterials, arterials, or collector streets, pedestrian access should be considered between the major arterial, arterial, or collector, and the development to allow access to transit vehicles, commercial facilities, educational facilities and recreation areas operating on the street.

Policy 2.49 Street lighting shall be provided for all public streets and pedestrian signals shall be provided at all traffic signal locations.

Policy 2.53 Parking standards shall be evaluated to assess the potential for offering reduced parking requirements to developments that incorporate measures proven to reduce vehicular trips. Shared parking should be encouraged whenever possible.

Policy 2.54 The City of Selma shall work with Caltrans and transit service providers to establish a park and ride lot or lots within the community to serve the needs of regional and local commuters.

Policy 2.60 The City shall encourage the use of energy efficient and non-polluting fuels and modes of transportation.

Policy 2.61 Transportation System Management and Transportation Demand Management are the applicable strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ridesharing and parking management are to be used to the greatest extent practical to implement transportation management strategies.

Policy 2.62 Promote the long term shifting of peak hour commute trips from the single occupant automobile to ridesharing, buses, pedestrians, and bicycles.

Policy 2.63 Large development shall be encouraged to incorporate transit passenger facilities, bicycle racks or lockers, shower facilities, as well as on site services (eating, mail, banking, etc.) as ways to encourage alternative modes for commute trips.

Open Space, Conservation and Recreation Element

Policy 5.19 Coordinate with other local and regional jurisdictions, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Air Resources Board (CARB), in the development of regional and county clean air plans and incorporate the relevant provisions of those plans into City planning and project review procedures. Also coordinate with the SJVAPCD and CARB in:

- Enforcing the provisions of the California and Federal Clean Air Acts, state and regional policies, and established standards for air quality;
- Utilizing clean fuel for city vehicle fleets, when feasible; and
- Developing consistent procedures for evaluating project-specific and cumulative air quality impacts of projects.

Policy 5.20 Require area and stationary source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design, including:

- The use of best available and economically feasible control technology for stationary industrial sources;
- Discourage the use of EPA Phase II certified wood burning heaters or pellet stoves in new residential units;
- The use of new and replacement fuel storage tanks at refueling stations that are clean fuel compatible, if technically and economically feasible; and
- The promotion of energy efficient designs, including provisions for solar access, building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and to protect from winter winds.

Policy 5.21 Develop strategies to minimize the number and length of vehicle trips, which may include:

- Promoting commercial/industrial project proponent sponsorship of van pools or club buses;
- Encouraging commercial/industrial project day care and employee services at the employment site;
- Encouraging the provision of transit, especially for employment-intensive uses of 200 or more employees; and
- Providing expansion and improvement of public transportation services and facilities.

Policy 5.22 Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following where feasible:

- Consider right-of-way requirements for bike usage in the planning of new arterial and collector streets and in street improvement projects;
- Require that new development be designed to promote pedestrian and bicycle access and circulation; and
- Provide safe and secure bicycle parking facilities at major activity centers, such as public facilities, employment sites, and shopping and office centers.

Policy 5.23 Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following where feasible:

- Locate air pollution point sources, such as manufacturing and extracting facilities, in areas designated for industrial development and separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals); establish buffer zones (e.g., setbacks, landscaping) within residential and other sensitive receptor uses to separate those uses from highways, arterials, hazardous material locations and other sources of air pollution or odor;
- Consider the jobs/housing/balance relationship (i.e., the proximity of industrial and commercial uses to major residential areas) when making land use decisions;
- Provide for mixed-use development through land use and zoning to reduce the length and frequency of vehicle trips;

- Accommodate a portion of the projected population and economic growth of the City in areas having the potential for revitalization;

- Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities;

- Encourage small neighborhood-serving commercial uses within or adjacent to residential neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhoods schools; minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area; and,

- Encourage a development pattern that is contiguous with existing developed areas of the City.

Policy 5.27 Neighborhood parks should be from 3 to 5 acres in size and centrally located within each ½ square mile of land. Such parks may be developed alone, in conjunction with school sites, or with ponding basins.

Policy 5.29 Developed public recreation land will be within walking distance of potential users. For purposes of this Element, an optimum walking distance for neighborhood parks is within ¼ mile.

Physical

The SJVAB occupies the southern half of the Central Valley and is approximately 250 miles in length and, on average, 35 miles in width. The Coast Range, which has an average elevation of 3,000 feet, serves as the western border of the SJVAB. The Sierra Nevada extends in a northwesterly direction and forms the eastern boundary of the SJVAB. The San Emigdio Mountains, part of the Coast Range, and the Tehachapi Mountains, part of the Sierra Nevada, are both located to the south of the SJVAB. The SJVAB is basically flat with a downward gradient to the northwest.

The climate of the SJVAB is described as Mediterranean, which is typified by hot, dry summers and cooler winters. The climate is strongly influenced by the presence of the mountain ranges previously discussed. The mountain ranges to the west and south induce winter storms from the Pacific to release precipitation on the western slopes, producing a partial rain shadow over the valley.

The surrounding topographic features restrict air movement through and out of the basin and, as a result, impede the dispersion of pollutants from the basin. Inversion layers are formed in the SJVAB throughout the year. Inversions ‘trap’ pollutants by limiting vertical mixing. During the summer, the Valley experiences daytime temperature inversions at elevations from 2,000 to 2,500 feet above the valley floor. During the winter months, inversions occur from 500 to 1,000 feet above the Valley floor.

During the summer, a Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow (blocking the transportation of moist air from the Pacific to the SJVAB). Summer wind conditions promote the transport of ozone and its precursors from the Bay Area to the SJVAB through the Carquinez Strait (a gap in the Coast Range), and low mountain passes such as Altamont Pass and Pacheco Pass. Summer temperatures that often exceed 100 degrees Fahrenheit coupled with clear sky conditions are favorable to Ozone formation.

In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore and storms. The majority of the precipitation in the valley occurs during the winter. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. Approximately 90 percent of all rainfall in Selma occurs between November and April. Average rainfall measured at Selma is approximately 11 inches per year. Rainfall can vary widely from year to year. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions that result in high CO and PM_{10} concentrations.

Radiation (Tule) fog is common in the winter, and may persist for days. Winds are predominantly up-valley (from the north) in all seasons, but more so in the summer and spring months. Winds in the fall and winter are generally lighter and more variable in direction but generally blow towards the south and southeast.

Average monthly temperatures in Selma include a high of 97° F and a low of 64° F in July and a high of 53° F and a low of 36° F in January. It is not uncommon for maximum temperatures to exceed 100 degrees during the summer months; or for temperatures to drop below freezing in the winter.

POPULATION PROJECTIONS

Selma's population of 23,194 in 2007 is projected to increase to 57,167 by 2030 and to 69,552 by the year 2035, based on an annual growth rate of four percent, as shown in Table 3.3-2.

Table 3.3-2
Population Estimates and Projections, 2007-2040
Selma and Fresno County

	2007	2010	2020	2030	2040
Selma[3]	23,194[1]	26,090	38,620	57,167	84,621
Fresno Co.	917,515[1]	983,478[2]	1,201,792[2]	1,429,228[2]	1,670,542[2]

Sources: Department of Finance, Quad Knopf
[1]Department of Finance, *E-1 City/County Population Estimates, 2007.*
[2]Department of Finance, *Population Projections by Race/Ethnicity for California and Its Counties 2000-2050.*
[3]Selma 2010-2040 population based on 4% annual growth rate.

Fresno County as a whole is projected to grow at an annual rate of 1.9 percent per year during the current decade, and 2.7 percent per year between 2010 and 2020. The projections for surrounding counties for the years 2010-2030 are higher as shown in Table 3.3-3. All the counties shown in Table 3.3-3 are projected to grow faster than California as a whole in each decade through 2030.

Table 3.3-3
Total Population Fresno & Surrounding Counties, 2000-2030

County	2000	2010	Yearly Growth Rate 2000-2010	2020	Yearly Growth Rate 2010-2020	2030	Yearly Growth Rate 2020-2030
Fresno	803,401	949,961	1.9%	1,201,792	2.7%	1,429,228	1.9%
Tulare	369,355	447,315	2.1%	599,117	3.4%	742,969	2.4%
Madera	124,515	162,114	3.0%	212,874	3.1%	273,456	2.8%
Kings	129,823	156,334	2.0%	205,707	3.2%	250,516	2.2%

Source: Department of Finance, E-1 City/County Population Estimates and P1 Population Projections

EXISTING AMBIENT AIR QUALITY

Criteria air pollutant concentrations are measured at several monitoring stations in the SJVAB. The Parlier, Fresno Drummond Street and Fresno 1st Street stations are the closest monitoring stations in proximity to Selma with recent data for O_3, PM_{10} and $PM_{2.5}$. All three are in Fresno County. In general, the ambient air quality measurements from these stations are representative of the air quality in the vicinity of Selma. Table 3.3-4 summarizes the air quality data from 2002 to the year 2006. Ambient air quality conditions and pollutant health effects with respect to each separate criteria pollutant are described below.

Both CARB and EPA use monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Attainment designations with respect to the Planning Area are shown in Table 3.3-1 for each criteria pollutant. Under both the FCAA and CCAA, the SJVAB is a non-attainment area (standards have not been attained) for ozone, PM_{10} and $PM_{2.5}$. The air basin is either an attainment area or unclassified area for other pollutants.

Table 3.3-4
Summary of Annual Ambient Air Quality Data, 2002-2006

	2002	2003	2004	2005	2006
Ozone (O_3), Parlier					
State Standard (1-hr. avg., 0.09 ppm)					
National Standard (1-hr./8-hr. avg., 0.12/0.08 ppm)					
Maximum Concentration (1-hr./8-hr. avg., ppm)	0.164/ 0.124	0.152/ 0.116	0.120/ 0.090	0.125/ 0.100	0.131/ 0.107
Number of Days State Standard Exceeded (1-hour)	96	103	23	36	52
Number of Days National 1-hr./8-hr. Standard Exceeded	21/83	14/92	0/8	1/14	1/35
Respirable Particulate Matter (PM_{10}), Fresno-Drummond Street					
State Standard (24-hr. avg., 50 µg/m^3					
National Standard (24-hr. avg., 150 µg/m^3					
Maximum Concentration (µg/m^3) (National/State)	106.0/ 111.0	92.0/ 93.0	79.0/ 79.0	102.0/ 106.0	132.0/ 139.0
Number of Days State Standard Exceeded	*	128.4	93.7	113	*
Number of Days National Standard Exceeded	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$), Fresno-1st Street					
No Separate State Standard					
National Standard (24-hr. avg., 65 µg/m^3)					
Maximum Concentration (µg/m^3)	84	63	71	86	71
Number of Days National Standard Exceeded	15.1	0	2.4	10.1	1

Sources: California Air Resources Board 2003b, U.S. Environmental Protection Agency 2003.
Note: *There was insufficient (or no) data available to determine the value

Ozone (O_3)

Existing Conditions

Fresno County is currently designated as a severe non-attainment area for the 1-hour ozone standard (state standard) and serious nonattainment (federal standard) for the 8-hour ozone standard as shown in Table 3.3-1.

As shown in Table 3.3-4, the national 1-hour ozone standard was exceeded 7 times per year on average from 2002 to 2006 and the state 1-hour ozone standard was exceeded on average 62 times per year from 2002 to 2006 at the Parlier station. The national 8-hour standard was exceeded on average 46 times per year from 2002 to 2006.

With respect to ozone air quality trends, according to the 2006 California Almanac of Emissions and Air Quality (ARB Almanac 2006), maximum peak 8-hour ozone indicators in the SJVAB decreased 2 percent from 1985 to 2004, whereas the maximum peak 1-hour indicator decreased 7 percent (California Air Resources Board 2006). In the same timeframe, the number of days that the air basin exceeded the national 8-hour standard and the 1-hours standard decreased 14 percent and 29 percent, respectively. However, the ozone problem in the SJVAB still ranks among the most severe in California.

Pollutant Description

O_3 is a photochemical oxidant, a substance formed chemically by another substance in the presence of sunlight, and is the primary component of "smog". O_3 is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of Volatile Organic Compounds (VOC) and NOx in the presence of sunlight. VOC emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NOx are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Health and Environmental Impacts

O_3 located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, O_3 located in the lower atmosphere (troposphere) is a major health and environmental concern. The adverse health effects associated with exposure to O_3 pertain primarily to the respiratory system. According to the SJVAPCD's 2004 Extreme Ozone Attainment Demonstration Plan, O_3 exposure causes eye irritation and damage to lung tissue in humans. Scientific evidence indicates that ambient levels of O_3 affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Ambient levels of O_3 above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. When inhaled, even at very low levels, O_3 can cause acute respiratory problems, aggravate asthma, significantly decrease lung capacity in healthy adults, inflame lung tissue, and impair the defenses of the body's immune system (Godish 1991).

O_3 also interferes with the ability of plants to make and store food; compromises growth, reproduction and overall plant health; and makes plants more susceptible to diseases, pest and other environmental stressors. In addition, O_3 can also damage materials such as rubber, paper, and plastics, thereby generating additional costs to society.

Carbon Monoxide (CO)

Existing Conditions

Fresno County is currently designated as an unclassified/attainment area for the national CO standards and attainment for the state standards (Table 3.3-1).

With respect to CO air quality trends, according to the ARB Almanac 2006, the maximum peak 8-hour trend for the SJVAB shows a fairly consistent downward trend from 1982 to 2004, with year-to-year variability especially in the 1980's because of meteorological conditions. The SJVAB's measured CO concentrations have not exceeded the national standard since 1991, or the state standard since 1995. The decline in ambient CO is attributable to the introduction of cleaner fuels and newer, cleaner motor vehicles.

Pollutant Description

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources of pollution. In fact, 77 percent of the nationwide CO emissions are from mobile sources (California Air Resources Board 2006).

CO concentrations are seasonal, with the highest concentrations occurring in the winter. This may be due to the fact that automobiles create more carbon monoxide in colder weather and partly due to the very stable atmospheric conditions that exist on cold winter evenings when winds are calm. Concentrations typically are highest during stagnant air periods within the period November through January.

Health and Environmental Impacts

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO emissions are also responsible for “global warming” and the physical effects resulting there from. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2003).

Nitrogen Dioxide (NO_2)

Existing Conditions

Fresno County is currently designated as an attainment area for the state and unclassified/attainment for the national NO_2 standards (Table 3.3-1). Although the SJVAB is an attainment area for the state and federal nitrogen dioxide standards, it is an important pollutant because nitrogen dioxide is one of several oxides of nitrogen (NOx) that participate in the formation of photochemical ozone and particulate matter.

Pollutant Description

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2003). The combined emissions of NO and NO_2 are referred to as NOx, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (O_3), the NO_2 concentration in a particular geographical area may not be representative of the local NOx emission sources.

Health and Environmental Impacts

Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. Health effects include increased risk of acute and chronic respiratory disease.

An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat.

Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions. NO_2 also contributes to acid rain and adversely affects aquatic and terrestrial ecosystems (EPA 2006).

Sulfur Dioxide (SO_2)

Existing Conditions

Fresno County is currently designated as an attainment area for the state SO_2 standards and unclassified for the national SO_2 standards (Table 3.3-1).

Pollutant Description

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills. SO_2 is a colorless, irritating gas with a “rotten egg” smell formed primarily by the combustion of sulfur-containing fossil fuels. Historically, in the late 1970’s in Kern County, SO_2 was a pollutant of concern but with the successful application of regulations, the levels have reduced significantly.

Health and Environmental Impacts

The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis. In addition, exposure to high levels of SO_2 can aggravate existing heart disease (EPA 2006).

SO_2 adversely affects materials and the environment through the creating of acid rain. Acid rain damages vegetation, changes the chemistry of soil, and degrades building materials and paints.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Existing Conditions

In October, 2006 EPA announced that the SJVAPCD is in attainment of the PM_{10} NAAQS. The SJVAB is nonattainment for both the State and Federal PM2.5 standards. Fresno County is currently designated as a non-attainment area for the state PM_{10} standards (Table 3.3-1).

As shown in Table 3.3-4, the national 24-hour PM_{10} standard was not exceeded once between 2002 and 2006 at the Fresno, Drummond Street station. The state standard was calculated on average to have been exceeded 111 times at the Fresno, Drummond Street station from 2003 to 2005. The national 24-hour $PM_{2.5}$ standard was calculated on average to have been exceeded 6 times from 2002 to 2006.

According to the California Almanac of Emissions and Air Quality, 2007 Edition, PM_{10}, emissions increased from 1975 to 1990, then decreased slightly between 1990 and the present.

Pollutant Description

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} and $PM_{2.5}$ emissions in the SJVAB are caused primarily by direct emissions from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion. PM_{10} and $PM_{2.5}$ can also be formed by chemical reactions by 'precursors' that include NOx, SOx, VOC and ammonia. On average, approximately 75 percent of the ambient PM_{10} is directly emitted PM_{10} (California Air Resources Board 2006).

Health and Environmental Impacts

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances absorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos.

$PM_{2.5}$ can impair proper lung function and may contribute to the development of chronic bronchitis. $PM_{2.5}$ poses an increased health risk because the particles can deposit in the deepest recesses of the lungs and contain substances that are particularly harmful to human health.

Generally, adverse health effects associated with PM_{10} and $PM_{2.5}$ may result from both short-term and long-term exposure to elevated PM concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2003). Scientific studies have linked particulate matter (alone or in combination with other air pollutants) with a series of health problems, including respiratory related hospital admissions or emergency room visits, aggravated asthma, chronic bronchitis, decrease lung functions, and work and school absences. Those who are most at risk are the elderly, individuals with preexisting heart and lung disease, children, and asthmatics and asthmatic children.

Like the health effects of PM_{10} and $PM_{2.5}$, environmental impacts depend on the composition of the particulates. Damage to building materials includes both soiling and physical degradation. In addition, particulate matter can damage vegetation and crops.

Lead

Existing Conditions

The SJVAB is in attainment for the State lead standard.

Pollutant Description

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead was used until recently to increase the octane rating in auto fuel. Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically. Metal processing is currently the primary source of lead emissions. The highest levels of lead in the air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

All areas of the state are currently designated as attainment for the state lead standard (the EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the CARB identified lead as a toxic air contaminant (California Air Resources Board 2003).

Health and Environmental Impacts

Lead exposure is highly toxic, accumulating in the body in blood, bones, muscles and fat. According to the EPA, infants and young children are especially sensitive to low levels of lead. As provided on the EPA's website, lead exposure:

- **Damages organs** - Lead causes damage to the kidneys, liver, brain and nerves, and other organs. Exposure to lead may also lead to osteoporosis (brittle bone disease) and reproductive disorders.

- **Affects the brain and nerves** - Excessive exposure to lead causes seizures, mental retardation, behavioral disorders, memory problems, and mood changes. Low levels of lead damage the brain and nerves in fetuses and young children, resulting in learning deficits and lowered IQ.

- **Affects the heart and blood** - Lead exposure causes high blood pressure and increases heart disease, especially in men. Lead exposure may also lead to anemia, or weak blood.

- **Affects animals and plants** - Wild and domestic animals can ingest lead while grazing. They experience the same kind of effects as people who are exposed to lead. Low concentrations of lead can slow down vegetation growth near industrial facilities.

- **Affects fish** - Lead can enter water systems through runoff and from sewage and industrial waste streams. Elevated levels of lead in the water can cause reproductive damage in some aquatic life and cause blood and neurological changes in fish and other animals that live there.

As discussed previously, and throughout this Draft EIR, the Plan Update includes a number of policies aimed at improving air quality in the region.

3.3.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

Consistent with Appendix G of the CEQA Guidelines, the Plan Update will have a significant impact on the environment if it will:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*

b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*

c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);*

d) *Expose sensitive receptors to substantial pollutant concentrations; or*

e) *Create objectionable odors affecting a substantial number of people.*

The SJVAPCD has established thresholds of significance criteria for determining significant air quality impacts, as shown in Table 3.3-5. The SJVAPCD's thresholds of significance are described in the GAMAQI (SJVAPCD 2002). Since the SJVAPCD has adopted quantitative air quality thresholds of significance, these will be used in lieu of CEQA Guidelines thresholds as authorized by Public Resources Code, Division 13 Section 21082. Therefore, the CEQA Guidelines thresholds are not presented here.

Table 3.3-5
Impact Criteria Regional Operational Impacts

Pollutant	Threshold of Significance	Screening Criteria	Analytical Tool(s)
NOx[1]	10 Tons Per Year	Small Project Analysis Level (SPAL) GAMAQI Tables 5-2 & 5-3	URBEMIS
VOC[1]	10 Tons per Year	Small Project Analysis Level (SPAL) GAMAQI Tables 5-2 & 5-3	URBEMIS
PM_{10}[2]	15 Tons Per Year	None Available	URBEMIS
Local Operational Impacts			
Hazardous Air Pollutants (HAPs) [1]	Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million, *or* Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.	A new or modified source of HAPs is proposed for a location near an existing or planned residential area or other sensitive receptor *or* A residential development or other sensitive receptor proposed for a site near an existing source of HAPs	Dispersion Modeling and Health Risk Assessments (HRAs)

CO[1]	Estimated CO concentrations, as determined by an appropriate model, exceeding the (CAAQS) of 9 parts per million (ppm) averaged over 8 hours and 20 ppm for 1 hour will be considered a significant impact.	The Level of Service (LOS) at one or more streets, or at one or more intersections in the project's vicinity will be reduced to LOS E or F; *or* The project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity	Transportation Project-level Carbon Monoxide Protocol; *or* CALINE4
Construction Impacts			
Fugitive PM_{10}[1]	Non-Compliance with SJVAPCD Regulation VIII	-	-

[1] SJVAPCD recommended threshold of significance
[2] Additional threshold proposed for this project.

While SJVAPCD's GAMAQI recognizes that PM_{10} is a major air quality issue in the basin, it has to date not established numeric thresholds for significance for operational PM_{10}. However, for the purposes of this analysis, a PM_{10} emission of 15 tons per year was used as a significance threshold. This is the SJVAPCD threshold level at which new stationary sources requiring permits from the District must provide emissions "offsets." This threshold of significance for PM_{10} is therefore consistent with the District's methodology for its VOC and NOx thresholds which are also set at the offset thresholds.

In addition, the SJVAPCD has not developed a threshold of significance for $PM_{2.5}$. Because PM_{10} and $PM_{2.5}$ are directly related, for this analysis $PM_{2.5}$ impacts will be considered significant if project emissions of PM_{10} are found to be significant.

SENSITIVE RECEPTORS

One of the criteria for significance includes potential impacts of Hazardous Air Pollutants (HAPs) on sensitive receptors. The GAMAQI, Section 3, defines a sensitive receptor as a location where human populations, especially children, seniors, and sick persons are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include, but are not limited to: residential land uses, schools, hospitals, convalescent homes, and day cares.

Examples of HAPs include emissions of criteria or toxic air pollutants that have health effects (PM_{10}, ammonia, H_2S sulfur dioxide, etc.). Sensitive receptors would not be directly affected by emissions of regional pollutants such as ozone precursors (VOC and NOx).

The potential for impacts to sensitive receptors can occur when a sensitive receptor is proposed near an existing source of HAPs, or when a development that is a source of HAPs is proposed near sensitive receptors, including siting a source of HAPs near an undeveloped, but designated sensitive receptor land use.

3.3.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.3.3.1 – Conflict with or obstruct implementation of the applicable air quality plan or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors): Implementation of the Plan Update will result in additional development and urbanization in the Planning Area, which would in turn increase criteria air pollutants in an area that is currently designated as a severe non-attainment area.

The City of Selma proposes to: 1) improve infrastructure including streets, parking capacity, curbs, gutters, sidewalks, sewer lines, water lines, drainage systems, and similar improvements to remove blight from the community, 2) assemble adequate sites for construction of industrial facilities, 3) assemble land to promote residential development.

Nearly all development projects in the San Joaquin Valley, from general plans to individual site plans, have the potential to generate pollutants that will reduce air quality or make it more difficult for state and national air quality standards to be attained.

The federal and state ambient air quality standards provide a basis for evaluating air quality related impacts (see Table 3.3-1). Exceedance of a federal or state emission standard for any pollutant is a significant impact. Because the state standards are more restrictive than federal standards, the State standards are typically used for comparison of impacts.

The URBEMIS 2007 v.9.2.4 software was used to estimate emissions from existing development, for the current General Plan, and for buildout under the Plan Update. The results of this analysis are presented in Table 3.3-6. The City of Selma's existing conditions are presented for reference. For each scenario, emissions were estimated for residential, non-residential and educational land uses, and then summed. Results are presented rounded to the nearest integer. The increase of emissions between the existing development and proposed Plan Update is the increase attributable to the proposed project. The increase caused by the project and the existing adopted Plan is shown for reference and comparison.

Table 3.3-6
Air Quality Emissions in Tons/Year
Existing Development, Existing General Plan and Plan Update

Pollutant	2006 Existing Conditions	Current General Plan Buildout at 2035	Proposed General Plan Buildout at 2035	Increase from Existing Conditions to Plan Update	Increase from Current Plan to Plan Update
VOC	596	1,680	2,098	1,502	418
NOx	575	1,475	1,971	1,396	496
PM_{10}	1,188	3,031	4,032	3,914	1,001
CO	5,273	13,677	17,977	12,704	4,300

Source: URBEMIS 2007 v 9.2
Note: Does not include PM_{10} emissions from current and future agricultural operations.

The emission reduction requirements of the SJVAPCD's ISR rule have not been incorporated into the emissions analysis. For projects subject to the rule, operational NOx and PM_{10} emissions must be reduced through onsite measures, an 'off-site fee', or a combination of the two. Application of the ISR requirement will further reduce operational impacts of the proposed General Plan. It is unknown at this time the amount of future development that will be subject to this rule.

In addition, the double-counting correction feature in URBEMIS was not used for this analysis. This feature allows the user to reduce the number of trips that are double counted by the model when a mixed-use project is analyzed. Therefore, the emissions above are conservative and most likely overstate the impact.

Conclusion: The primary increase in pollution levels resulting from the project is attributable to increased vehicle traffic. The impact will be lessened by policies of the proposed General Plan's goals and policies that promote the use of alternative transportation, air quality mitigation for new developments (such as increased connectivity and density), and strategies to minimize the number and length of vehicle trips. Because of the Basin's non-attainment status, any increase in emissions within the Plan Area is a **significant cumulative impact.**

Mitigation Measure #3.3.3.1: The following BACT (Best Available Control Technology) measures are recommended for all new development as a result of the Plan Update (when applicable):

Trees shall be carefully selected and located to protect building(s) from energy consuming environmental conditions, and to shade paved areas. Trees should be selected to shade at least 50% of the paved area within 10 years of planting.

- If transit service is available to a project site, improvements should be made to encourage its use. If transit service is not currently available, but is planned for the area in the future, easements should be reserved to provide for future improvements such as bus turnouts, loading areas, route signs and shade structures.

- Sidewalks and bikeways should be installed throughout as much of any project as possible and should be connected to any nearby existing and planned open space areas, parks, schools, residential areas, commercial areas, etc., to encourage walking and bicycling.

- Projects should use LEED recommended energy features to the extent practicable and feasible. Examples include (but are not limited to):

  - Increased energy efficiency (above California Title 24 Requirements)

  - Energy efficient widows (double pane and/or Low-E)

  - Use Low and No-VOC coatings and paints.

- High-albedo (reflecting) roofing material.
- Cool Paving. "Heat islands" created by this and similar projects contribute to the reduced air quality in the valley by heating ozone precursors.
- Radiant heat barrier.
- Energy efficient lighting, appliances, heating and cooling systems.
- Install solar water-heating system(s)
- Install photovoltaic cells
- Install geothermal heat pump system(s)
- Programmable thermostat(s) for all heating and cooling systems
- Awnings or other shading mechanism for windows
- Porch, patio and walkway overhangs
- Ceiling fans, whole house fans
- Utilize passive solar cooling and heating designs (e.g. natural convection, thermal flywheels)
- Utilize daylighting (natural lighting) systems such as skylights, light shelves, interior transom windows etc.
- Electrical outlets around the exterior of the unit(s) to encourage use of electric landscape maintenance equipment
- Bicycle parking facilities for patrons and employees in a covered secure area. Bike storage should be located within 50' of the project's entrance. Construct paths to connect the development to nearby bikeways or sidewalks.
- On-site employee cafeterias or eating areas.
- Low or non-polluting landscape maintenance equipment (e.g. electric lawn mowers, reel mowers, leaf vacuums, electric trimmers and edger's, etc.)
- Pre-wire the unit(s) with high speed modem connections/DSL and extra phone lines
- Natural gas fireplaces (instead of wood-burning fireplaces or heaters)
- Natural gas lines (if available) and electrical outlets in backyard or patio areas to encourage the use of gas and/or electric barbecues

- Low or non-polluting incentives items should be provided with each residential unit (such items could include electric lawn mowers, reel mowers, leaf vacuums, gas or electric barbecues, etc.)

- Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site

Effectiveness of Mitigation: The above BACT (Best Available Control Technology) installations and measures would reduce project air quality impacts, but not below the SJVAPCD thresholds of significance; therefore, project impacts on air quality would be **significant, cumulative, and unavoidable**.

Impact #3.3.3.2 – Expose sensitive receptors to substantial pollutant concentrations: Adoption of the Plan Update will result in additional development and urbanization in the Planning Area, which may result in the location of sensitive receptors near Hazardous Air Pollutant (HAP) sources, or result in a CO hotspot.

Large sources of HAPs are required to obtain permits from the SJVAPCD and comply with emissions controls to limit the release of HAPs. The SJVAPCD will not issue permits for a source of HAPs if analysis shows that the emissions would cause a significant impact to the nearest sensitive receptor. In addition to the SJVAPCD's Air Toxics Program, permit requirements and regulations, the Open Space, Conservation and Recreation Element of the proposed General Plan contains goals, objectives and policies and standards, as noted in Section 3.3.1, to reduce operational impacts in the Selma Planning Area.

CO hotspots are temporary and localized areas of high CO concentration, occurring at heavily congested intersections or roadways with heavy traffic. Policies 2.5, 2.34, 2.49, 2.50 and 2.54 of the proposed General Plan are designed to reduce vehicle miles traveled (VMT) and promote alternative modes of transportation.

Conclusion: The potential for HAPs impacts primarily results from situating sensitive receptors near sources of HAPs or situating HAPs sources near sensitive receptors. Potential impacts could also result from an emissions release in violation with SJVAPCD permitting requirements. Increased vehicular traffic could be a source of concern for CO impacts.

The HAPs impacts will be reduced through the measures listed above. Analysis, such as a Health Risk Assessment, may be required on an individual project basis, as specific projects are proposed. However, additional analysis is not feasible at this time, as no specific project is proposed.

The CO impacts of future development will be lessened by the Circulation Element's requirement of developers to mitigate traffic impacts associated with their projects and to maintain a LOS of D or above. The City also collects development impact fees for improvements to the circulation system. As discussed under Regional Impacts, the CO impacts will be lessened by policies of the proposed General Plan's policies and standards that promote the use of alternative transportation, air quality mitigation for new developments (such as increased connectivity and density), and strategies to minimize the number and length of vehicle trips. Per the GAMAQI's screening criteria, further analysis is required if the LOS is reduced to an E or an F.

Impacts from CO and HAPs for the proposed project are **potentially significant.**

Mitigation Measure #3.3.3.2: The City shall require a CO "hot spot" analysis for any roadways or intersections that are projected to exceed the thresholds in the GAMAQI.

Effectiveness of Mitigation: Implementation of the above mitigation measures will ensure Impacts from CO and HAPs for the proposed project are reduced to a **less than significant** level.

Impact #3.3.3.3 – Violate any air quality standard or contribute substantially to an existing or projected air quality violation: Construction activity that would occur as a result of the plan would cause temporary, short-term emissions of various air pollutants. Reactive Organic Gasses (ROG) and NOx, which are ozone precursors, as well as PM_{10} and $PM_{2.5}$ and CO_2 (a greenhouse gas) would be emitted by construction equipment during various activities, such as grading and excavation, infrastructure construction, building demolition, and a variety of other construction activities. Several types of diesel-powered heavy equipment will operate during development of the plan area. It is unknown at this time as to the type of uses; therefore, it is speculative as to the exact type of equipment to be used.

Compliance with the SJVAPCD's Regulation VIII is required during construction phases in plan area. The SJVAPCD indicates that implementation of Regulation VIII measures reduces dust generation by 50 percent. The provisions of Regulation VIII pertaining to construction activities require:

- Effective dust suppression for land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill and demolition activities;

- Effective stabilization of all land disturbed areas of a construction site, including storage piles not used for seven or more days;

- Control of fugitive dust from on-site unpaved roads and off-site unpaved access roads;

- Removal of accumulations of mud or dirt at the end of the work day or once every 24 hours from public paved roads, shoulders and access ways adjacent to the site; and

- Limit traffic speeds on unpaved roads to 15 mph.

These measures will be enforced by the SJVAPCD. Additionally, a Dust Control Plan will be prepared and appropriate fees paid for each development within the plan area. Violation of Regulation VIII requirements are subject to enforcement action. Violations are visible by the generation of dust clouds and/or generation of complaints.

The SJVAPCD has also identified an additional "enhanced control measure" that may be appropriate.

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.

If the "enhanced control measure" will not be implemented for large or sensitive projects, then construction impacts would be considered significant unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary.

The SJVAPCD has also identified an additional measure that may be implemented if further emission reductions are deemed necessary by the Lead Agency.

- Install windbreaks at windward side(s) of construction areas.

This control measure is strongly encouraged at construction sites that are large in area, located near sensitive receptors, or which for any other reason, warrants additional emissions reductions.

In the absence of Regulation VIII requirements, construction activity could occur on a maximum of 11 acres per day without causing PM_{10} impacts to exceed the threshold of significance. With Regulation VIII in place, the maximum area of construction activity which falls below the threshold of significance rises to approximately 22 acres per day.

Conclusion: As construction activities could occur on areas large enough to exceed the threshold of significance for the generation of fugitive dust, the project will have a **significant impact** on the generation of various pollutants (ROG, NO_X, PM_{10}, $PM_{2.5}$ and CO_2).

Mitigation Measure #3.3.3.3a: For any phase of construction in which an area greater than 22 acres will be disturbed on any one day, the project developer(s) shall implement the following measures:

1. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.

2. Traffic speeds on unpaved roads shall be no greater than 15 mph.

3. Install wind breaks at windward side(s) of construction areas.

Mitigation Measure #3.3.3.3b: To reduce emissions and thus reduce cumulative impacts, the following measures shall be implemented:

1. Basic fugitive dust control measures are required for all construction sites by SJVAPCD Regulation VIII.

2. The idling time of all construction equipment used in the plan area shall not exceed ten minutes (when applicable).

3. The hours of operation of heavy-duty equipment shall be minimized (when applicable).

4. All equipment shall be properly tuned and maintained in accord with manufacturer's specifications (when applicable).

5. When feasible, alternative fueled or electrical construction equipment shall be used at the project site.

6. The minimum practical engine size for construction equipment shall be used (when applicable).

7. When feasible, electric carts or other smaller equipment shall be used at the project site.

8. Gasoline-powered equipment shall be equipped with catalytic converters (when applicable).

Effectiveness of Mitigation: Implementation of the above mitigation measures will reduce construction exhaust emissions to a **less than significant** level.

Impact #3.3.3.4 – Create objectionable odors affecting a substantial number of people: Construction activity will require the operation of equipment which may generate exhaust from either gasoline or diesel fuel. Construction of new buildings will also require the application of architectural coatings and the paving of roads which would generate odors from materials such as paints and asphalt. These odors are of a temporary or short-term nature and quickly disperse into the surrounding atmosphere.

Future residential development will also involve minor, odor-generating activities, such as backyard barbeque smoke, garden equipment exhaust, and the application of exterior paint for home improvement activities. These types of odors are typical of most residential communities and do not constitute a significant impact.

Industrial uses shall be subject to Policy 5.23 of the proposed Plan Update which is intended to mitigate objectionable odors.

Conclusion: The City's General Plan Update includes Policy 5.23 designed to preclude/reduce objectionable odors associated with industrial uses. Implementation of this policy reduces this impact to a **less than significant** level.

Mitigation Measure: No mitigation measures are required.

3.4 Biological Resources

INTRODUCTION

The central and southern San Joaquin Valley historically supported a diverse assemblage of natural vegetation communities and plant and animal species. Conversion of large expanses of native plant communities to agricultural, urban, oil field, and associated infrastructure developments have resulted in many natural communities and species becoming endangered, threatened, rare, or otherwise considered sensitive. This section identifies the sensitive biological resources that are potentially located within the Planning Area including wetlands, plant communities, and plant and animal species. An evaluation of potential project-related effects on those resources is provided and mitigation measures are presented that will reduce project impacts to a degree that is less than significant.

The information in this section is primarily based upon the Plan Update Background Report and a biological investigation of the project site that was conducted by Quad Knopf biologists on February 14, 2009 and February 20, 2009. Other pertinent information was gathered from standard sources including the California Natural Diversity Database (CNDDB 2008) (Appendix C), the California Native Plant Society rare plant inventory database (CNPS 2008) (Appendix D), the National Wetland Inventory on-line database (USFWS 2008), and California Department of Fish and Game and United States Fish and Wildlife sensitive species lists (CDFG 2008, USFWS 2008) (Appendix E).

3.4.1 REGULATORY AND PHYSICAL SETTING

Regulatory

This section provides a discussion of those laws and regulations that protect wetlands and native wildlife, fish, and plants.

FEDERAL

Federal Endangered Species Act

The primary focus of the Federal Endangered Species Act (FESA) of 1973 is that all federal agencies must seek to conserve threatened and endangered species through their actions. FESA has been amended several times to correct perceived and real shortcomings. FESA contains four key sections. Section 4 (16 USCA §1533) outlines the procedure for listing endangered plants and wildlife. Section 7 (§1536) imposes limits on the actions of federal agencies that might impact listed species. Section 9 (§1538) prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies. Section 10 provides a process allowing for the legal take of threatened and endangered species. The FESA is enforced by the United States Fish and Wildlife Service, except in the case of salt water fish and other marine organisms where the FESA is enforced by the National Marine Fisheries Service (NMFS).

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Recent court cases have found "harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

STATE AND LOCAL

State Endangered Species Act

In 1984, the state enacted the California Endangered Species Act (CESA), which is administered by the California Department of Fish and Game under §2050 of the Fish and Game Code. The basic policy of the CESA is to conserve and enhance endangered species and their habitats, and to discourage private or public projects under their jurisdiction that would jeopardize threatened or endangered species if reasonable and prudent alternatives are available.

CESA requires that all state lead agencies (as defined under CEQA) conduct an endangered species consultation with CDFG if their actions could affect a state-listed species. The state lead agency and/or project applicants must provide information to CDFG on the project and its likely impacts. CDFG must then prepare written findings on whether the proposed action would jeopardize a listed species or would result in the direct take of a listed species. Because CESA does not have a provision for "harm" (see discussion of FESA, above), CDFG considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFG determines that a proposed project could impact a State listed threatened or endangered species, CDFG will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of a species. In addition, if there would be impacts to a threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired a Management Agreement from the CDFG and "incidental take" permit from the USFWS (if it is a Federal listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a state-listed species, a Management Agreement pursuant to §2081 of the Fish and Game Code is required (versus a Federal incidental take permit for Federal listed species). CDFG will issue a Management Agreement only if:

1) The authorized take is incidental to an otherwise lawful activity;

2) The impacts of the authorized take are minimized and fully mitigated;

3) The measures required to minimize and fully mitigate the impacts of the authorized take:

   a) are roughly proportional in extent to the impact of the taking on the species;
   b) maintain the project applicant's objectives to the greatest extent possible; and,
   c) are capable of successful implementation; and,

4) Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

No Section 2081 Management Agreement may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in Fish and Game Code Sections 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the project to avoid all take.

California Fish and Game Codes [§§ 3503, 3503.5, 3511, and 3513]

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls), their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). "Fully protected" birds may not be taken or possessed (that is, kept in captivity) at any time.

Under Title 14 of the California Code of Regulations (CCR 14, Division 1, Subdivision 1, Chapter 5, §41. Protected Amphibians), protected amphibians such as the California tiger salamander (*Ambystoma californiense)* may only be taken under special permit from California Department of Fish and Game issued pursuant to Sections 650 and 670.7 of these regulations.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants, and sale of rare and endangered plants. On botany matters, CESA defers to the California Native Plant Protection Act, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA, but rather under CEQA.

The following kinds of activities are exempt from the California Native Plant Protection Act:

- Agricultural operations.
- Fire control measures.
- Timber harvest operations.
- Mining assessment work.
- Removal of plants by private landowners on private land for construction of canals, ditches, buildings, roads or other rights-of-way.
- Removal of plants for performance of a public service by a public agency or a publicly- or privately-owned public utility.

Section 404 of the Clean Water Act

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the ACOE prior to discharging dredged or fill materials into any water of the United States. In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce...." (33 CFR Section 328.3).

Section 401 of the Clean Water Act

The State Water Resources Control Board (SWRCB) and Regional Water Control Board (RWQCB) regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the ACOE administers permitting programs that authorize impacts to waters of the United States, including wetlands, and other waters, any ACOE permit authorized for a proposed project would be invalid unless it is a Nationwide Permit (NWP) that has been certified for use in California by the SWRCB, <u>or</u> if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs require a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the issued NWP (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual ACOE permits, would require a project specific RWQCB certification or waiver of water quality.

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge. The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). Pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the ACOE' jurisdiction based upon recent court rulings.

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

National Pollutant Discharge Elimination System (NPDES)

In 1972 the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act (CWA) added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge complies with an NPDES Permit. Regulations (Phase II Rule) that became final on December 8, 1999 expand the existing NPDES program to address storm water discharges from construction sites that disturb land equal to or greater than 1 acre.

Section 1602 of California Fish and Game Code

Pursuant to Section 1602 of the California Fish and Game Code, the California Department of Fish and Game (CDFG) regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which CDFG typically considers to include riparian vegetation. Any proposed activity in a natural stream channel that would substantially adversely affect existing fish, wildlife or vegetative resources, would require entering into a Streambed Alteration Agreement (SAA) with CDFG prior to commencing with work in the stream. Prior to authorizing such permits, CDFG typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

Fresno County General Plan

The Fresno County General Plan Open Space and Conservation Element includes a Natural Resources section which includes goals, policies and implementation programs on wetland and riparian areas, fish and wildlife habitat and vegetation. These policies and programs apply to areas outside Selma's City limits and within the Planning Area. Policy OS-E.5 states that "the County shall consider developing a formal Habitat Conservation Plan in consultation with Federal and State agencies, as well as other resource conservation organizations. Such a plan should provide a mechanism for the acquisition and management of lands that support special-status species". As of the date the NOP was circulated, the County has not prepared and adopted a Habitat Conservation Plan that covers the Planning Area.

General Plan Consistency

The Plan Update contains the following policies that apply to biological impacts associated with build-out of the city in accordance with the Plan Update.

<u>Open Space, Conservation and Recreation Element</u>

Policy 5.1 The City shall review the Conservation and Open Space Element regularly to ensure its compatibility with State guidelines and related plans developed by the Council of Fresno County Governments and Fresno County.

Policy 5.7 Maintain Rockwell Pond as both a resource management area (water recharge) and community open space.

Physical

The City of Selma is situated between the cities of Fowler to the north and Kingsburg to the south. State Route 99 and the Southern Pacific Railroad tracks pass through the center of the City in a northwest-southeast direction. State Route 43 terminates at Floral Avenue in Selma. The Planning Area contains 4.9 square miles (3,136 acres), of which 1,924 acres are developed. The remaining 1,212 acres consist primarily of agricultural lands. The following are descriptions of developed lands, agricultural lands, wetlands, sensitive natural communities, and sensitive plant and wildlife species that are known from and potentially occur in the Planning Area.

LAND USE IN PLANNING AREA

There are developed lands, agricultural lands, and irrigation waters that are known from the Planning Area.

Developed Lands

There are three types of developed lands occurring within the Planning Area: urban, commercial, and rural residential.

- **Urban.** Urban areas consist of lawns, street strips, ornamental trees and shrubs associated with homes and other structures, cemeteries and subdivision greenbelts. Human disturbance within urban areas limits wildlife habitat; however, the overall mosaic may be valuable to cosmopolitan wildlife.

- **Commercial.** Commercial development in the Planning Area consists of large buildings on large parcels of land. The ground surface is almost entirely paved to allow for the movements of large trucks and equipment. The high level of disturbance on these lands results in very low habitat value.

- **Rural Residential.** Rural residential properties are scattered throughout the Planning Area. These areas consist of homes on several acres of land. Because the density of development is usually low in these areas and because there are relatively large expanses of open space, the quality of habitat is the highest of the developed lands. There is a greater potential for nesting birds to be present and for movement of wildlife in these areas than in other developed lands.

Agriculture

There are three main types of agriculture found within the Planning Area. They are:

- **Vineyards.** There are several vineyards in the Planning Area.

- **Orchards.** There are several orchards, mainly peach, in the Planning Area.

- **Fallow Land.** There are only a few small areas of fallow agricultural lands within the Planning Area. These fallow lands are typically surrounded by productive agricultural areas.

Agricultural lands provide valuable foraging habitat and open space for migratory movements of wildlife.

Irrigation Waters

There are numerous ditches, canals and detention ponds scattered throughout the Planning Area that are used for delivering and storing irrigation water. Most of these features are devoid of vegetation and contain either a muddy or concrete substrate. Water level and flow is dependent upon the need for agricultural water deliveries. Deliveries are seasonal and not consistent with natural flows. Because of intermittent deliveries, irrigation waters are not available as wildlife habitat year round.

BIOLOGICAL RESOURCES POTENTIALLY OCCURRING IN THE PLANNING AREA

There are sensitive natural communities, special status plant and wildlife species, seasonal wetlands, and riparian habitat that potentially occur within the Planning Area. These important biological resources are described below along with an evaluation of their potential to occur in the Planning Area.

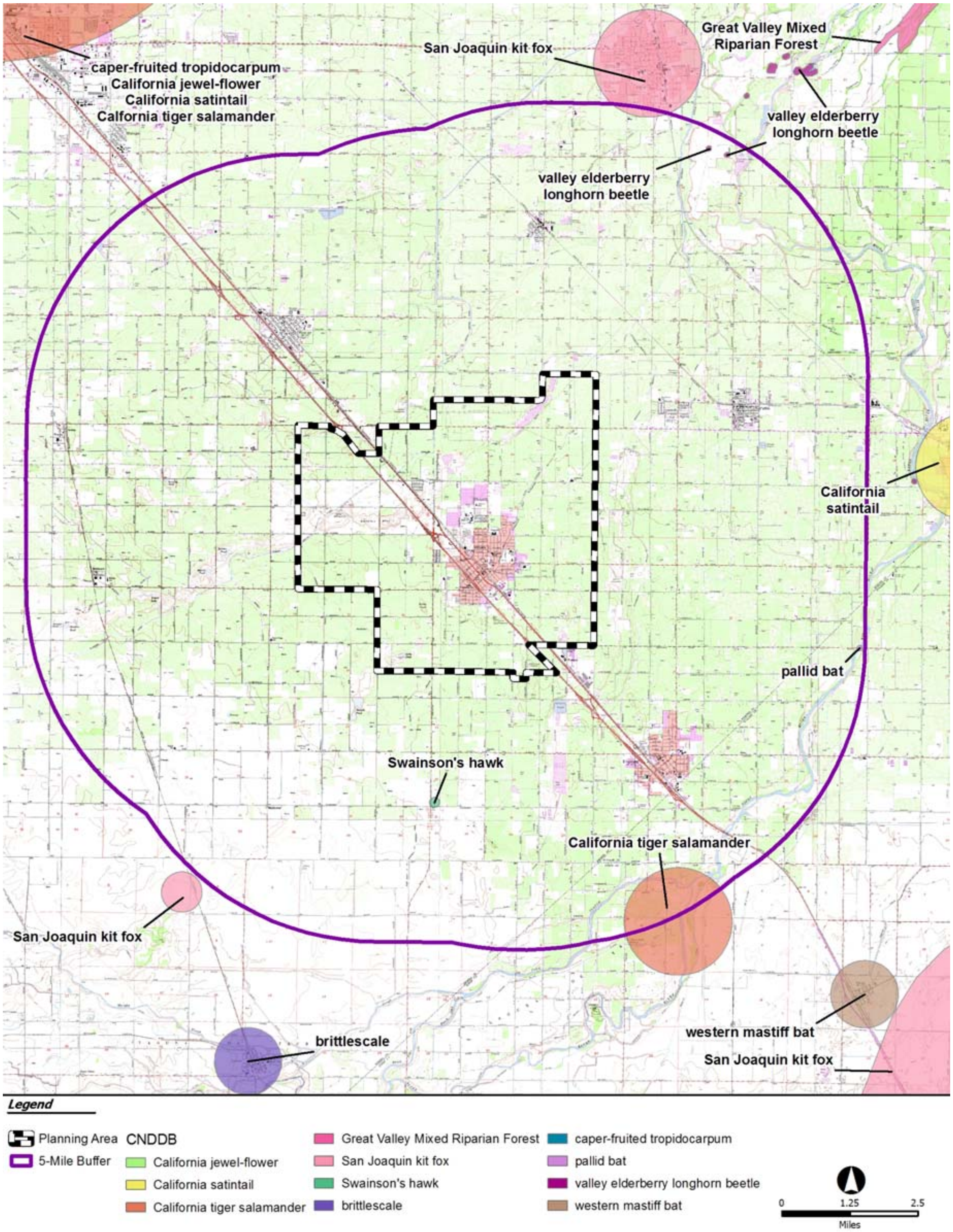
Sensitive Natural Communities

Only one sensitive natural community, Great Valley Mixed Riparian Forest, is known to occur near (within 5 miles of the Planning Area) (Figure 3.4-1). Valley Sacaton Grasslands are absent from the Planning Area because of the high level of habitat conversion to urban and agricultural lands. Furthermore, the soils and other conditions (e.g., water availability, slope aspect) are not suitable to support this community.

There is the potential for small remnants of Great Valley Mixed Riparian Forest and for Northern Claypan Vernal Pools to exist within the Planning Area. Great Valley Mixed Riparian Forest habitat would be limited to disturbed remnants located along the edges of canals and other wetland areas and would not occur in abundance. Vernal Pools are a rare vegetation community comprised of seasonally flooded depressions located on low permeable, bedrock or hard clay soils that aid in retaining water. Vernal Pools remain inundated long enough during the wetter portion of the growing season to support wetland hydrophytic vegetation, including a number of special status plant species. The distribution of Northern Claypan Vernal Pools would be limited to agricultural areas that have not been deep-ripped. No occurrences of Northern Claypan Vernal Pools have been recorded in the Planning Area and their potential for occurrence is low.

<u>Occurrence of Seasonal Wetlands (including vernal pools)</u>

Seasonal wetlands once dominated the landscape in the Central Valley, but now are largely segmented because of large-scale agricultural activities and residential development. Seasonal wetlands are depressions in the land that fill with rain water in the rainy season and due to an impermeable substrate, hold water until it evaporates. Many plants and animals have evolved to specialize in this ecosystem and are therefore considered to be endangered because of declining populations resulting from habitat loss.



Quad Knopf

RECORD OF SPECIAL-STATUS SPECIES KNOWN FROM THE PROJECT SITE

Figure 3.4-1

Within the Planning Area, seasonal wetlands are likely to have been mostly removed through urbanization, deep ripping of agricultural lands, and leveling of fields. However, some ephemeral pools are likely to exist in fallow agricultural fields, and alongside roadways and other areas where the soil is compacted and would retain rainfall.

Occurrence of Other Wetlands

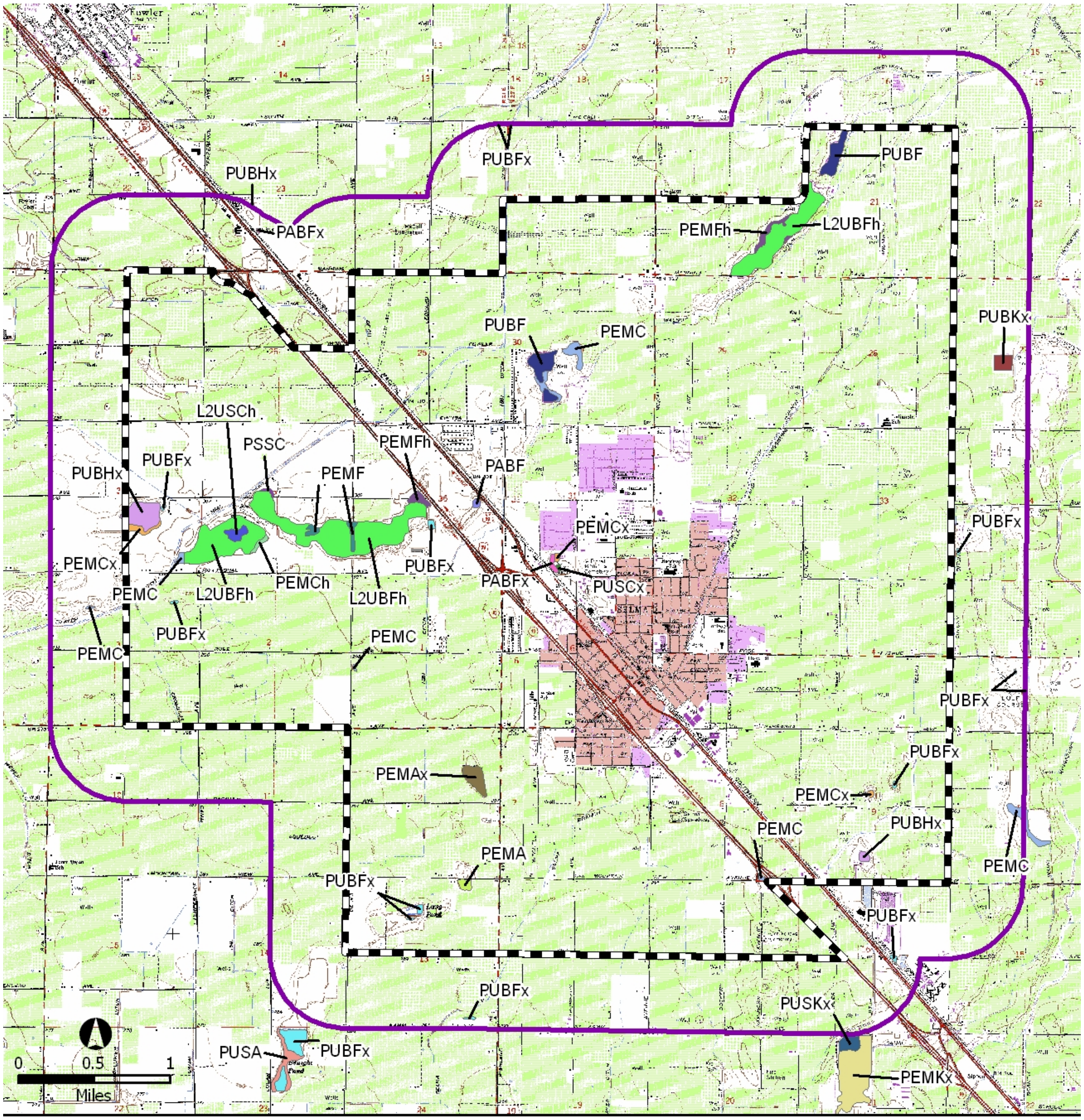
There are several designated wetlands that occur in the Planning Area (Figure 3.4-2). The designated wetlands spanning from the northeastern to the northwestern edge of the Planning Area are isolated remnants of a waterway that previously flowed through the Planning Area. The areas of these wetlands that were accessible during the site visit were dry at the time of the visit. However, these areas may retain water during the rainy season. Due to a sandy substrate, water retention in these areas would be for a limited time span. The designated wetland in the lower southwestern section of the Planning Area, labeled as PEMAx, was a partially excavated, sandy bottomed area that was also dry during the time of the site visit. It is currently fallow land with sparse vegetation. The remaining wetlands are temporarily and seasonally flooded, excavated areas (Figure 3.4-2).

Occurrence of Riparian Habitat

Riparian areas are shrub and tree dominated communities that are highly associated with moist conditions and running water. They are typically highly productive zones and provide excellent habitat for a wide variety of plants and animals. In addition to food and water, riparian habitats provide migration and dispersal corridors, roosting and thermal cover, and reproductive substrate. Riparian areas may be present along canals, ditches and waterways in the Planning Area. It is likely that if they are present, they would be somewhat degraded and restricted to small isolated patches.

Occurrence of Valley Oak Trees

Several individual Valley oak trees (*Quercus lobata*), a protected resource, occur in scattered locations throughout the Planning Area. Within the Planning Area, oak trees are located along canals, irrigation ditches, agricultural fields, surrounding rural residences, and along the Golden State Highway Corridor.



Legend

- Planning Area
- 1/2-Mile Buffer

Wetlands Inventory

- L2UBFh, Lacustrine Littoral Unconsolidated Bottom Semipermanently Flooded Diked Impounded
- L2USCh, Lacustrine Littoral Unconsolidated Shore Seasonally Flooded Diked Impounded
- PABF, Palustrine Aquatic Bed Semipermanently Flooded Semipermanently Flooded
- PABFx, Palustrine Aquatic Bed Semipermanently Flooded Excavated
- PEMA, Palustrine Emergent Temporarily Flooded Temporarily Flooded
- PEMAx, Palustrine Emergent Temporarily Flooded Excavated
- PEMC, Palustrine Emergent Seasonally Flooded Seasonally Flooded
- PEMCh, Palustrine Emergent Seasonally Flooded Diked Impounded
- PEMCx, Palustrine Emergent Seasonally Flooded Excavated
- PEMF, Palustrine Emergent Semipermanently Flooded Semipermanently Flooded
- PEMFh, Palustrine Emergent Semipermanently Flooded Diked Impounded
- PEMKx, Palustrine Emergent Artificially Flooded Excavated
- PSSC, Palustrine Scrub-Shrub Seasonally Flooded Seasonally Flooded
- PUBF, Palustrine Unconsolidated Bottom Semipermanently Flooded Semipermanently Flooded
- PUBFx, Palustrine Unconsolidated Bottom Semipermanently Flooded Excavated
- PUBHx, Palustrine Unconsolidated Bottom Permanently Flooded Excavated
- PUBKx, Palustrine Unconsolidated Bottom Artificially Flooded Excavated
- PUSA, Palustrine Unconsolidated Shore Temporarily Flooded Temporarily Flooded
- PUSCx, Palustrine Unconsolidated Shore Seasonally Flooded Excavated
- PUSKx, Palustrine Unconsolidated Shore Artificially Flooded Excavated

Quad Knopf	WETLANDS	Figure 3.4-2

Special-Status Plant Species

There are 12 special-status plant species which occur in the region that could potentially occur in the Planning Area (Table 3.4-1). These plants occur in a variety of habitats including chaparral, valley and foothill grasslands, vernal pools and cismontane woodlands. Four of these special-status plant species, brittlescale, California jewel-flower, California satintail, and caper-fruited tropidocarpum, are known to occur within 10 miles of the Planning Area. Although none of these plant species were observed during the site visit, three of these species (California jewel-flower, California satintail, and brittlescale) have the potential to occur in undeveloped and fallow agricultural lands of the Planning Area. Caper-fruited tropidocarpum is likely absent from the project site; the last occurrence of this species was recorded in 1957 and it is currently considered extinct by the California Native Plant Society.

The spiny-sepaled button-celery, San Joaquin Valley orcutt grass, and Green's tuctoria are obligate vernal pool species that co-occur with vernal pools and other temporarily flooded wetlands. Suitable wetlands have the potential to occur in undeveloped and fallow lands of the Planning Area and it is possible that isolated populations of these species could occur in the Planning Area. There are no historic records of their occurrence in the Planning Area and the potential for their presence is low.

Table 3.4-1
Special-Status Species with the Potential to Exist in the Selma Area

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
Sensitive Natural Communities				
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	RARE	Great Valley Mixed Riparian Forest is a tall, dense, winter-deciduous, broadleafed riparian forest. It occurs in floodplains of low-gradient, depositional streams of the Great Valley, usually below about 500 feet.	**Absent.** Suitable habitat does not occur within the Planning Area.
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	RARE	Northern claypan vernal pools are shallow ephemeral water bodies found in depressions among grassland and open woodland habitats. The fairly old, circum-neutral to alkaline, Si-cemented clay hardpan soils retain water throughout some potion of the spring, but dry down entirely in summer months.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development since access was restricted due to private ownership and potential habitat may exist on these lands.
Valley Sacaton Grassland	Valley Sacaton Grassland	RARE	Valley Sacaton Grasslands are dominated by sacton or salt grasses. They are composed of fine-textured, poorly drained, usually alkaline soils.	**Absent.** Suitable habitat does not occur within the Planning Area.
Special-Status Plants				
Atriplex depressa	brittlescale	1B.2	An annual herb, blooms from May to October in chenopod scrubland, grassland, and alkali sink habitats.	**Possible.** There are no records of this species occurring in the Planning Area.
Atriplex erecticaulis	Earlimart orache	1B.2	An annual herb in the goosefoot family, blooms from August to September in grasslands with alkali conditions.	**Absent.** Suitable habitat does not occur within the Planning Area.
Atriplex minuscula	lesser saltscale	1B.1	An annual herb, blooms from May to October in chenopod scrubland, grassland, and alkali sink habitats, but it also is known to occur in wet areas.	**Absent.** Suitable habitat does not occur within the Planning Area.
Caulanthus californicus	California jewelflower	FE, CE, 1B.1	An annual herb, blooms from February to May in sandy soils with chenopod scrub, pinyon juniper woodland, and grasslands.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
Eryngium spinosepalum	spiny-sepaled button-celery	1B.2	An annual, blooms from April to May and is associated with vernal pools, depressions within grasslands, and moist grasslands.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development
Imperata brevifolia	California satintail	2.1	A rhizomatous herb, blooms from September to May. Occurs in chaparral, coastal scrub, mojavean desert scrub, meadows and seeps and riparian scrub.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development
Lepidium jaredii ssp. *album*	Panoche pepper-grass	1B.2	An annual herb, blooms from February to June in valley and foothill grasslands.	**Absent.** Suitable habitat does not occur within the Planning Area.
Orcuttia inaequalis	San Joaquin Valley orcutt grass	FT, CE, 1B.1	An annual herb in the grass family, blooms from April to September and is associated with vernal pools.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development
Pseudobahia peirsonii	San Joaquin adobe sunburst	FT, CE	An annual herb in the sunflower family, blooms from March to April. Associated with adobe clay soils within foothill woodlands and grasslands.	**Absent.** Suitable habitat does not occur within the Planning Area.
Schizymenium shevockii	Shevock's copper-moss	1B.2	A moss that occurs from 750 to 1400m in Fresno County in cismontane woodland in metamorphic rock.	**Absent.** Suitable habitat does not occur within the Planning Area.
Tropidocarpum capparideum	caper-fruited tropidocarpum	1B.1	Annual herb, blooms from March to April in valley and foothill grasslands.	**Absent.** This plant was last seen in 1957 and is presumed extinct. Suitable habitat does not occur within the Planning Area.
Tuctoria greenei	Greene's tuctoria	FE, CR, 1B.1	Annual herb in the grass family, blooms from May to September and is associated with vernal pools.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
Special-Status Wildlife				
Emys marmorata	western pond turtle	CSC	Adult pond turtles range from 6-8 inches in length and weigh 1-2.4 pounds. Coloration ranges from brown to black on the upper shell, with lighter marbling visible on close examination. The lower shell is black and yellow. The head and legs are also dark with possible yellow markings (not stripes). The western pond turtle occurs in streams, large rivers, and other bodies of slow-moving water. They are most common in areas with large rocks and boulders which they use as basking sites.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development
Ambystoma californiense	California tiger salamander	FT, CSC	California tiger salamanders have a large stocky body that is black with large, pale yellow spots, small eyes, and a broad, rounded snout. Associated with vernal pools and other wet areas.	**Possible**. Suitable habitat occurs in the Planning Area. Nearest recorded occurrence within 5 miles.
Antrozous pallidus	pallid bat	CSC	A large bat. Creamy to beige above; nearly white below. Big ears, separated at base. Wings and interfemoral membrane essentially naked. Associated with open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**Unlikely**. While there are records of the pallid bat occurring within the vicinity, it is not likely it would occur in the Planning Area, except as a potential transient forager. The lands to the far south provide more suitable habitat due to reduced habitat disturbance.
Athene cunicularia	burrowing owl	CSC	The adult is boldly spotted and barred and has a round head, long legs, and stubby tail. When agitated the owl will characteristically bob and bow. Associated with open, dry grassland and shrub habitats throughout California.	**Possible**. Suitable habitat occurs in fallow agricultural fields and along ditch banks and irrigation berms in the Planning Area.
Branchinecta conservatio	Conservancy fairy shrimp	FE	All fairy shrimp have delicate elongate bodies, large stalked compound eyes, and 11 pairs of swimming legs that also function as gills, absorbing dissolved oxygen as they are moved through the water. Fairy shrimp do not have a hard	**Unlikely.** While there are no records of this species occurring in the Planning Area, or south of Merced County, additional surveys will need to be completed prior to development.

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
			shell. Associated with vernal pools.	
Branchinecta lynchi	vernal pool fairy shrimp	FT	All fairy shrimp have delicate elongate bodies, large stalked compound eyes, and 11 pairs of swimming legs that also function as gills, absorbing dissolved oxygen as they are moved through the water. Fairy shrimp do not have a hard shell. Associated with vernal pools.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development.
Buteo swainsoni	Swainson's hawk	CT	Large hawk with dark brown upperparts, white throat, rufous upper breast, and pale buff underparts. Tail is gray with faint bars, dark terminal band, and white trailing edge. Associated with this species nests in riparian forests and other forested areas. It will roost in a variety of trees and forage widely over forests, grasslands, and shrublands. It is easily disturbed by human activities.	**Unlikely**. While there are records of the Swainson's hawk occurring within the vicinity, it is not likely it would occur in the Planning Area, except as a potential transient forager. The lands to the far south provide more suitable habitat due to an increased prey base and reduced habitat disturbance.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	CE	Medium-sized cuckoo with gray-brown upperparts and white underparts. Eye-rings are pale yellow. Bill is mostly yellow. Wings are gray-brown with rufous primaries. Tail is long and has white-spotted black edges. Sexes are similar. Associated with riparian woodland; preferably with dense sub-canopy layer dominated by willows.	**Unlikely.** There are no records of this species occurring in the Planning Area. It is unlikely that suitable habitat consisting of dense riparian thickets occurs within the Planning Area. There are no major watercourses within the Planning Area that would be expected to support such habitat.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Coloration of the beetle is variable; the first pair of wings may vary from dark metallic green, with a bright red-orange border to a pattern of four oblong metallic green spots. The antennae are nearly as long as the body, extending forward from the head, thus the "longhorn" designation. Associated with elderberry shrubs in the Sacramento and San Joaquin Valleys.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development since access was restricted due to private ownership and potential habitat may exist on these lands.
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE, CE	Fur is dark yellowish-buff dorsally and white ventrally. A white stripe extends across the hips, continuing for the length of the tufted tail. The base of the tail is circumscribed by white. The top	**Absent.** Suitable habitat does not occur within the Planning Area.

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
			and bottom of the tail are blackish. Dark whisker patches on each side of the nose are connected by a black band of fur. Associated with alkali sink-open grassland habitats in western Fresno County. Require bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE, CE	Fur is dark yellowish-buff dorsally and white ventrally. A white stripe extends across the hips, continuing for the length of the tufted tail. The base of the tail is circumscribed by white. The top and bottom of the tail are blackish. Dark whisker patches on each side of the nose are connected by a black band of fur. Associated with saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Require soft friable soils which escape seasonal flooding to dig their burrows in elevated soil mounds at the base of shrubs.	**Absent.** The Planning Area is outside of the current distributional range of the Tipton kangaroo rat.
Eumops perotis californicus	western mastiff bat	CSC	Biggest North American bat. Fur is dark brown, with thin, white hairs at the base. Has huge ears, joined at base of head and extending out over forehead like a bonnet. Associated with dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	**Unlikely**. It is not likely the mastiff bat would occur in the Planning Area, except as a potential transient forager. The lands to the far south provide more suitable habitat due to an increased prey base and reduced habitat disturbance.
Gambelia sila	blunt-nosed leopard lizard	FE, CE	Large lizard with a short, blunt snout and striping pattern on its back, which breaks into spots as the lizard grows. Associated with sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief.	**Absent.** Suitable habitat does not occur within the Planning Area.
Hypomesus transpacificus	Delta smelt	FT, CT	Steel blue sheen on the lateral sides and appears somewhat translucent. Associated with Sacramento and San Joaquin estuaries of the San Francisco Bay.	**Absent.** Suitable habitat does not occur within the Planning Area.

Scientific Name	Common Name	Status	Species and Habitat Description	Probability of Occurrence
Lepidurus packardi	vernal pool tadpole shrimp	FE	Vernal pool tadpole shrimp adults reach a length of 2 inches. They have compound eyes, a large shield-like carapace (shell) that covers most of the body, and a pair of long cercopods (appendages) at the end of the last abdominal segment. Associated with vernal pools.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development since access was restricted due to private ownership and potential habitat may exist on these lands.
Rana aurora draytonii	California red-legged frog	FT	Light jaw stripe usually ends in front of shoulder with red on underside of hind limbs. Associated with streams, ponds and marshes with dense shrubby vegetation such as cattails and willows near deep water pools.	**Absent.** Suitable habitat does not occur within the Planning Area.
Spea hammondii	western spadefoot	CSC	A relatively smooth-skinned species; eye is pale gold with vertical pupil; green or grey dorsum often with skin tubercles tipped in orange; whitish color on venter; wedge-shaped black spade on each hind foot. Associated with grassland, scrub, and chaparral habitat. It occurs in seasonally moist areas, including puddles, vernal pools, and roadside ditches.	**Possible.** While there are no records of this species occurring in the Planning Area, additional surveys will need to be completed prior to development since access was restricted due to private ownership and potential habitat may exist on these lands.
Thamnophis gigas	giant garter snake	FT, CT	Brown or olive with 2 alternating rows of well-separated small dark spots between stripes. Associated with permanent or semi-permanent marshes and sloughs.	**Absent.** Suitable habitat does not occur within the Planning Area.
Vulpes macrotis mutica	San Joaquin kit fox	FE, CT	The smallest of the arid land foxes, characterized by its large ears and distinctive black tip on its tail. Associated with open, dry grassland, shrub and open forest habitats on the floor of the San Joaquin Valley and surrounding foothills.	**Unlikely**. While there are records of the kit fox occurring within the vicinity, it is not likely it would occur in the Planning Area, except as a potential transient forager. The lands to the far south provide more suitable habitat due to an increased prey base and reduced habitat disturbance.

Sources:
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United States Fish and Wildlife Service (USFWS). 2008. Wetlands Geodatabase, Wetlands Mapper, United States Fish and Wildlife Service.

USGS 7.5-Minute Quadrangles:
Selma, Conejo, Burris Park, Laton, Wahtoke, Reedley, Fresno South, Caruthers, Traver, Sanger, Malaga, and Riverdale.

Abbreviations:

FE	Federal Endangered Species
FT	Federal Threatened Species
CE	California Endangered Species
CT	California Threatened Species
CR	California Rare Species Afforded Protection under the Native Plant Protection Act
CSC	California Department of Fish and Game Species of Special Concern
1B.1	California Native Plan Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Threatened in California.
1B.2	California Native Plan Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Threatened in California.
2.1	California Native Plan Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California but More Common Elsewhere; Seriously Threatened in California.

*Potential Occurrence Definitions:

Present:	Species or sign of their presence observed on site at time of the field survey.
Likely:	Species not observed on site, but may reasonably be expected to occur there on a regular basis. Or, species not observed on the site, exceptional habitat exists, and additional surveys needed to verify presence.
Possible:	Species not observed on site, but could occur there from time to time. Or, species not observed on the site, suitable habitat exists, and additional surveys needed to verify presence
Unlikely:	Species not observed on site, and would not be expected to occur there except, perhaps, as a transient. Or, species not observed on the site, marginally suitable habitat exists, and additional surveys needed to verify presence.
Absent:	Species or sign of their presence not observed on site, and precluded from occurring there because habitat requirements not met.

Descriptions of the six special status plant species which could occur within the Planning Area, natural history information, and evaluations of occurrence are:

Brittlescale

Brittlescale (*Atriplex depressa*) is an annual herb that is limited to California and typically occurs in barren areas within alkali grassland, alkali meadow, and alkali scrub habitat. It is also occasionally found on the margins of alkali vernal pools.

Brittlescale occurs along the western side of the Great Valley from Glenn County to Merced County and in the small valleys of the inner Coast Ranges, including the Livermore Valley. It occurs in the broad flood basins of the valley floor and on alluvial fans associated with the major streams draining from the inner Coast Range foothills. It is generally found at low elevations but has been collected up to 1,055 feet above sea level.

There are no records of this species occurring within the Planning Area; the nearest record is approximately 6 miles to the southwest. There is a low potential for this species to occur in undeveloped and fallow agricultural lands of the Planning Area. It would be absent from other lands in the Planning Area.

California jewelflower

California jewelflower (*Caulanthus californicus*) is an annual member of the mustard family (Brassicaceae), with hairless, usually branching stems, which can range from less than 4 inches to more than 20 inches tall. The upper leaves are egg-shaped and clasp the stem, unlike the leaves at the base of the plant, which are oblong. The maroon buds are clustered at the tip of the stem and contrast with the translucent white flowers below. The fruits of California jewelflower are 0.4 to 2.4 inches long, and flattened, with spherical seeds. Other jewelflowers also have maroon buds and whitish flowers, but those that overlap in range with California jewelflower have narrow, elongated fruits and flattened seeds. California jewelflower flowers and sets seed from February to March into May, and occurs in non-native valley and foothill grassland, chenopod scrub, and cismontane piñon and juniper woodland at elevations ranging from 250 to 2,950 feet.

There are no records of this species occurring within the Planning Area; the nearest record is approximately 8 miles to the northwest. There is a low potential for this species to occur in undeveloped and fallow agricultural lands of the Planning Area. It would be absent from other lands in the Planning Area.

Spiny-sepaled button-celery

Spiny-sepaled button celery (*Eryngium spinosepalum*) is an annual/perennial herb occurring mesic locations in valley and foothill grassland, and in vernal pool habitats. The elevation range is from 80 to 255 meters. The blooming period is from April to May.

There are no records of this species occurring within the Planning Area; the nearest record is approximately 9 miles to the north. There is a low potential for this species to co-occur with any vernal pools or other temporarily flooded wetlands that may be present in undeveloped and fallow agricultural lands of the Planning Area. This species would be absent from other lands in the Planning Area.

California satintail

California satintail (*Imperata brevifolia*) is a perennial herb that occurs in chaparral, coastal sage scrub, creosote bush scrub, and wetland-riparian habitats between Sea Level and 1,640 feet. Its range is throughout the San Joaquin Valley and flowers from September to May.

There are no records of this species occurring within the Planning Area; the nearest record is approximately 1 mile to the east. There is a low potential for this species to occur in undeveloped and fallow agricultural lands, and along any riparian areas within the Planning Area. This species would be absent from other lands in the Planning Area.

San Joaquin Valley orcutt grass

San Joaquin Valley orcutt grass (*Orcuttia inaequalis*) is an annual herb occurring in vernal pool habitats. The elevation range is from 10 to 755 meters. The blooming period is from April to September. *Orcuttia inaequalis* has apparently been extirpated from Stanislaus County but remains in Fresno, Madera, Merced, and Tulare Counties. The highest concentrations are northeast of Merced.

There are no records of this species occurring in the Planning Area; the nearest record is approximately 11 miles to the southeast. There is a low potential for this species to occur within vernal pools or other temporarily flooded wetlands that may occur in the Planning Area. Those areas would be limited to the undeveloped and fallow agricultural lands. This species would be absent from other lands in the Planning Area.

Greene's tuctoria

Greene's tuctoria (*Tuctoria greenei*) is an annual herb occurring in vernal pool habitats. The elevation range is from 30 to 1,070 meters. The blooming period is from May to July, sometimes extending into September.

Greene's tuctoria is currently found in widely separated occurrences in Butte, Merced, Shasta and Tehama counties and is believed to be extirpated from Fresno, Madera, San Joaquin, Stanislaus, and Tulare counties. Sixty percent of the extant occurrences are in the Vina Plains area of Tehama and Butte counties. Eastern Merced County has about 30 percent of the known occurrences of this plant. Other occurrences are located in Glenn and Shasta counties.

There are no records of this species occurring in the Planning Area; the nearest record is approximately 9 miles to the north. There is a low potential for this species to occur within any vernal pools or other temporarily flooded wetlands in undeveloped and fallow agricultural lands of the Planning Area. This species would be absent from other lands in the Planning Area.

Special Status Wildlife Species

There are special-status wildlife species which occur in the region that could potentially occur in the Planning Area (Table 3.4-1, Figure 3.4-1). Six special-status wildlife species, the California tiger salamander, San Joaquin kit fox, Swainson's hawk, pallid bat, western mastiff bat and Valley elderberry longhorn beetle are known to occur within 5 miles of the Planning Area. Although there are records of the San Joaquin kit fox, Swainson's hawk, pallid bat, and western mastiff bat occurring within the vicinity, it is not likely they would occur in the Planning Area, except perhaps as potential transient foragers in the agricultural fields. There is the potential for California tiger salamander habitat to occur within the Planning Area in wetlands and undisturbed agricultural areas. No occurrences of these species have been recorded in the Planning Area. The Valley elderberry longhorn beetle is an obligate species of the elderberry shrub. Although no elderberry shrubs were observed during the site visit, they have the potential to occur along irrigation canals and ditches and in agricultural, rural residential, and riparian habitats in the Planning Area.

Six special-status wildlife species, the western pond turtle, burrowing owl, vernal pool fairy shrimp, western yellow-billed cuckoo, vernal pool tadpole shrimp, and western spadefoot, are known to occur within 15 miles of the Planning Area. There are no records of these species from within the Planning Area, but there is the potential for them to occur. Western pond turtles occur along slow moving bodies of water. The burrowing owl and western yellow-billed cuckoo also have the potential to occur in undisturbed agricultural and dense riparian woodland habitat, respectively. Vernal pool fairy shrimp and vernal pool tadpole shrimp are associated with vernal pools and other temporarily flooded wetlands. These wetlands have the potential to occur in undeveloped and fallow lands of the Planning Area. The western spadefoot occurs within the mesic grasslands and in wetlands.

Conservancy fairy shrimp are associated with vernal pools and other temporarily flooded wetlands which may occur in undeveloped and fallow lands of the Planning Area. However, conservancy fairy shrimp are unlikely to occur in the Planning Area because there are no records of this species occurring south of Merced County, and the closest known record is 64 miles to the northwest.

Descriptions of these 13 special status wildlife species which could occur within the Planning Area, natural history information, and evaluations of occurrence are:

<u>Western pond turtle</u>

Western pond turtles (*Emys marmorata*) are medium-sized (up to 8.5 inches long) aquatic turtles with an olive brown or blackish brown carapace (dorsal shell). Plastron (belly) markings range from no markings to dark brown blotches. Being a thoroughly aquatic turtle, they are highly associated with permanent ponds, lakes, reservoirs, canals, and low-gradient streams. While adults are habitat generalists, hatchlings and first year young require shallow, warm-water habitats with emergent vegetation. They occur in a wide variety of terrestrial habitats below 6,000 feet in elevation as long as there is a permanent water source.

Western pond turtles require upland sites in the vicinity of aquatic habitats for oviposition (process of laying eggs). Nest sites include sandy banks, but typically are dug (about 4 inches deep) in dry soils with a high clay or silt content and are usually within 200 meters of water. Eggs are laid from March to August depending on local conditions and clutch size varies from three to twelve eggs. Incubation takes from about 70 to 90 days. In warmer areas of central and southern California, hatchlings may emerge in the fall, but most hatchlings stay through the winter and emerge in the spring.

In California, western pond turtles occur west of the Cascade-Sierra crest to the coast and from between the northern border of the state south through the Transverse and Peninsular Ranges of southern California. They are common to uncommon in the northern parts of their range and are rare or locally common in the southern portion of their distribution.

There are no records of this species occurring in the Planning Area; the nearest record is approximately 13 miles to the northeast. There is the potential for this species to occur in slow moving bodies of water in the Planning Area.

California tiger salamander

The California tiger salamander (*Ambystoma californiense*) is terrestrial and fossorial as an adult. It spends most of its time underground in small-mammal burrows, emerging only for brief periods to breed. California tiger salamanders also use logs, piles of lumber and shrink-swell cracks in the ground for cover. Adults are predators, eating earthworms, snails, insects, fish and small mammals. California tiger salamanders can overwinter in burrows as much as 1.25 miles from their breeding site. Breeding occurs in both seasonal pools and permanent bodies of water including reservoirs, ponds, vernal pools, small lakes and slow-flowing streams that do not support predatory fish or bullfrogs. Adult salamanders migrate from grassland habitats to aquatic breeding sites during the first major rainfall events of fall and early winter and return to grassland habitats after breeding California tiger salamanders may not reproduce during years of low rainfall. Juveniles disperse from aquatic breeding sites to grassland habitats after metamorphosis.

Historically, California tiger salamanders were believed to inhabit much of the San Joaquin Valley and southern Sacramento Valley between the foothills of both the Coast Ranges and the Sierra Nevada. Currently, the California tiger salamander occurs in the Central Valley and Sierra Nevada foothills from Yolo County or Colusa County south to Tulare County, and in the coastal valleys and foothills from Sonoma County south to Santa Barbara County. Isolated populations are found at the Gray Lodge Wildlife Area in Butte County and at Grass Lake in Siskiyou County. Most populations occur at elevations below 1,500 feet, but tiger salamanders have been recorded at elevations up to 4,500 feet. Although populations have declined, the species continues to breed at a relatively large number of locations in its range (Federal Register 59:18353-18354).

The closest occurrence element is located within 5 miles of the Planning Area. Critical Habitat designations have been established along the western border of Tulare and Kings Counties (Unit 5, Southern San Joaquin Region) and at the border of Tulare and Fresno Counties (Units 3a and

3b, Southern San Joaquin Region) (USFWS 2008b). There is a low potential for this species to occur in wetlands and undisturbed agricultural lands of the Planning Area. It would be absent from other land use types within the Planning Area.

Pallid bat

The pallid bat (*Antrozous pallidus*) ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco Mexico, and east to Texas. An isolated population, *A. p. koopmani*, is endemic to Cuba. Pallid bats inhabit rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, desert shrublands, juniper woodlands, grasslands, and coniferous forests. They are most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (Sherwin 2005).

There are no records of this species occurring in the Planning Area; the nearest record is approximately 5 miles to the east. This species is likely to occur as a transient forager in the agricultural lands of the Planning Area. It is not likely to be present in urbanized areas.

Burrowing owl

The burrowing owl (*Athene cunicularia*) is a California Species of Special Concern. Burrowing owls are small, ground-dwelling raptors that nest and forage in open grasslands, prairies, and farmlands. They are distinguished by their long legs and are approximately 9 to 10 inches in length. Adults are boldly spotted and barred with females being darker in coloration than the males. They nest in small mammal burrows, most frequently in the burrows of California ground squirrels (Spermophilus beecheyi). Burrowing owls are primarily crepuscular in their foraging habits, but will hunt for insects and small vertebrates during both day and night. They breed from March or April through August. The average clutch size is 5 or 6 eggs and they rarely produce a second brood. Although burrowing owls still exist in most portions of their historic range, their population densities have declined due to habitat loss, degradation, and fragmentation.

Burrowing owls are summer residents in the western half of the United States and year-round residents in the southwestern portion of the U.S. and northern and central Mexico. In California, they inhabit the lowlands of the Central Valley and the desert environments of southeastern part of the state. Burrowing owls are seasonal migrants, traveling south during the winter months. Birds that summer in Oregon and Canada will winter in the Central Valley, while those that summer in the Central Valley winter in southern California, Arizona, and Mexico. A segment of the Central Valley population is year-round residents.

There are no records of this species occurring in the Planning Area; the nearest record is approximately 9 miles to the west. There is a moderate to high potential for this species to occur in the undisturbed agricultural lands of the Planning Area. Burrowing owls would typically be absent from urban areas.

Conservancy fairy shrimp

The Conservancy fairy shrimp (*Branchinecta conservatio*) was designated as an endangered species on September 19, 1994 (Federal Register 59:48136). Critical habitat for this species was originally designated on August 6, 2003 and revised on August 11, 2005. Species by unit designations were published on February 10, 2006 (Federal Register 71:7117). The project area is located outside of critical habitat designated for this species.

The Conservancy fairy shrimp is currently known from a few isolated populations distributed over a large portion of California's Central Valley and in southern California. The Conservancy fairy shrimp is currently known from six isolated populations: Vina Plains in Tehama County; south of Chico in Tehama County; Jepson Prairie in Solano County; Sacramento National Wildlife Refuge in Glenn County; near Haystack Mountain northeast of Merced in Merced County; and the Lockewood Valley of northern Ventura County. This species inhabits large pools (such as the 36 hectare Olcott Lake at Jepson Prairie). In the San Joaquin Valley Vernal Pool Region, Conservancy fairy shrimp are found in the Grasslands Ecological Area in Merced County, and at a single location in Stanislaus County. In the Southern Sierra Foothills Vernal Pool Region, the species is known from the Flying M Ranch, the Ichord Ranch, and the Virginia Smith Trust lands in eastern Merced County (USFWS 2005). There are no records of Conservancy fairy shrimp south of Merced County.

The nearest population to the Planning Area is at the Flying M Ranch in Merced County, 64 miles to the northwest. It is unlikely that this species would occur in the Planning Area; which occurs in Fresno County.

Vernal pool fairy shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) was designated as threatened throughout its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003 (federal Register 68:46683-46867).

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½ to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05 acres) that are most commonly present in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. However, this species has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May.

The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley, to as far south as Tulare County. The current distribution of the vernal pool fairy shrimp in the Central Valley may be similar to its historical distribution in extent, but remaining populations are now considerably more fragmented and isolated than in pre-agricultural times. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. A disjunct metapopulation consisting of four subpopulations exist in southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agriculture and urban uses.

There are no records of the Vernal pool fairy shrimp occurring in the Planning Area; the nearest record is approximately 11 miles to the southeast. There is the potential for this species to occur in vernal pools and other temporarily flooded wetlands within undeveloped and fallow agricultural lands of the Planning Area.

Swainson's hawk

Swainson's hawk (*Buteo swainsoni*) is a California threatened species. The Swainson's hawk is a large, slender Buteo (soaring hawks) of the open plains, prairies, and ranchlands. Sexes are similar in size and average 19 inches in total length with an average wingspread of 51 inches. This species occurs in three different color morphs—light, dark, and rufous colored morphs. They are long-distance migrants—nearly the entire summer breeding population moves from central North America to winter grounds in the pampas of South America, primarily Argentina.

Swainson's hawks forage over open plains and grasslands. They also forage in agricultural areas containing crops of hay, grain, and certain low growing row crops. During the summer breeding season, and while they are feeding young, Swainson's hawks prey mostly on small vertebrates. They feed on large arthropods (especially grasshoppers and dragonflies) during much of the rest of the year.

Swainson's hawks typically nest in solitary, mature trees such as oaks, cottonwoods, willows, and eucalyptus. Nests are often near or in riparian corridors and are usually constructed near foraging areas. Swainson's hawks exhibit high nest fidelity, returning to the same nest year after year. The breeding season begins in late March and lasts through August. Clutch size averages two to four eggs and they produce only one brood per season.

Swainson's hawks are summer residents of the plains and prairies of the western half of the United States and in the southern prairies of Canada. Summer distribution in California is mainly confined to the Sacramento Valley, the northern half of the San Joaquin Valley, and Northeastern Plateau of Lassen and Modoc Counties. There are no records of this species occurring in the Planning Area; the nearest record is approximately 3 miles to the south. There is the potential for this species to occur as a transient forager in the agricultural lands of the Planning Area.

Western yellow-billed cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is listed as a California endangered species. Yellow-billed Cuckoos are primarily foliage gleaners, though they are known to catch flying prey such as dragonflies or butterflies or drop to the ground to catch grasshoppers or tree frogs.

Nesting requires an area of dense understory near water or at least with adequate humidity; which makes the western yellow-billed cuckoo an obligate riparian nester. Nests are typically placed in willows, small cottonwoods or mesquite. The nearest recorded occurrence of this species is approximately 8.5 miles to the north of the Planning Area. It is unlikely that this species would occur in the Planning area because of the lack of dense riparian habitat.

Valley elderberry longhorn beetle

The Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened and only occurs in association with its host plant, blue elderberry shrubs. Elderberry shrubs are a common component of riparian forests and adjacent upland habitats throughout the Central Valley and surrounding foothills. The use of the elderberry plant by the Valley elderberry longhorn beetle, a wood borer, is rarely apparent. Often, the only evidence of its presence is an exit hole created by the larva just prior to the pupal stage. There are four stages in the Valley elderberry longhorn beetle's life cycle: egg, larva, pupa, and adult. The Valley elderberry longhorn beetle spends most of its life in the larval stage, living within the stems of an elderberry plant. Females lay their eggs in May on the bark of elderberry plants. After hatching, approximately 10 days later, the larvae burrow into the stems where they will feed on the interior wood for one to two years. The larvae then enter the pupal stage and transform into the adult stage, which is short-lived. Adults are active from March through early June.

In the region of the survey area, elderberries are commonly found along streams and creeks and in riparian and fallow agricultural habitats. There are no records of this species occurring in the Planning Area; the nearest record is within 5 miles. There is the potential for this species to occur in elderberry shrubs which may be present along irrigation canals, ditches, and in agricultural, rural residential and riparian habitats of the Planning Area.

Western mastiff bat

The western mastiff bat (*Eumops perotis californicus*) is a California Species of Special Concern. The mastiff bat roosts in crevices in cliff faces, high buildings, trees and tunnels. This bat needs a vertical face with a drop of approximately 3 meters when roosting in rock crevices, in order to take flight. Accordingly, roosts are generally high above the ground. In California, the mastiff bat is most commonly encountered in broad open areas, but occurs in many semi-arid to arid habitats, including dry desert washes, flood plains, conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, montane meadows, palm oases, chaparral, desert scrub, urban, and agricultural areas. The western mastiff bat ranges from the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, and from the Pacific Coast eastward to the Colorado Desert.

Known occurrences of this species have been reported approximately 7.5 miles to the southeast of the Planning Area. There is the potential for this species to occur as a transient forager in the agricultural lands and rural residential areas of the Planning Area.

Vernal pool tadpole shrimp

The Vernal pool tadpole shrimp (*Lepidurus packardi*) was designated as threatened throughout its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003 (Federal Register 68: 46683-46867).

The vernal pool tadpole shrimp is a small crustacean whose adults reach approximately 2 inches in length. Vernal pool tadpole shrimp require seasonally aquatic habitats that are wet for at least 7 weeks and dry in summer. They occur in a variety of natural and artificial, seasonally inundated habitats including vernal pools, seasonal wetlands, alkaline pools, clay flats, vernal swales, stock ponds, roadside ditches, and road rut pools resulting from vehicle activity. Occupied pools and wetlands typically have highly turbid waters or aquatic vegetation that may provide shelter from predators. They also have been observed in clear waters. Tadpole shrimp climb or scramble over objects, as well as plowing along or within bottom sediments. Their diet consists of organic debris and living organisms, such as fairy shrimp and other invertebrates.

The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons.

The vernal pool tadpole shrimp is currently distributed in isolated and fragmented vernal pool habitats across the Central Valley of California and in the San Francisco Bay area. In the Northwestern Sacramento Vernal Pool Region, vernal pool tadpole shrimp are found at the Stillwater Plains and in the vicinity of Redding in Shasta County. In the Northeastern Sacramento Vernal Pool Region, vernal pool tadpole shrimp have been documented on private land in the vicinity of Chico in Butte County and in Tehama County at the Vina Plains Preserve and the Dales Lake Ecological Reserve. The largest concentration of vernal pool tadpole shrimp occurrences are found in the Southeastern Sacramento Vernal Pool Region, where the species occurs on a number of public and private lands in Sacramento County. Vernal pool tadpole shrimp are also known from a few locations in Yuba and Placer Counties, including Beale Air Force Base. In the Solano-Colusa Vernal Pool Region the vernal pool tadpole shrimp occurs in the vicinity of Jepson Prairie, Travis Air Force Base, and near Montezuma in Solano County and on the Sacramento National Wildlife Refuge in Glenn County. In the San Joaquin Vernal Pool Region, vernal pool tadpole shrimp are known from the Grasslands Ecological Area and private land in Merced County and from single locations in Tulare and Kings counties. In the Southern Sierra Foothills region, the species occurs at the Stone Corral Ecological Preserve in Tulare County, on ranchlands in eastern Merced County, at the Big Table Mountain Preserve in Fresno County, and at a few locations in Stanislaus County. In the Central Coast Vernal Pool Region, the vernal pool tadpole shrimp is found on the San Francisco National Wildlife Refuge and private land in Alameda County (USFWS 2005).

There are no records of this species occurring in the Planning Area; the nearest record is approximately 11.5 miles to the southeast. There is a low potential for this species to occur in undeveloped and fallow agricultural lands of the Planning Area. It would be restricted to vernal pools and other temporarily flooded wetlands.

<u>Western spadefoot</u>

The western spadefoot (*Spea hammondii*) is a California Species of Special Concern. The western spadefoot toad is a medium-sized toad (up to 2.5 inches long, not including legs) and one of five spadefoot toads occurring in the western United States. It is greenish gray on its dorsal side and has small, but distinctive, spade-shaped protuberances on each hind foot, which is used for digging burrows. They are highly associated with grassland ecosystems, but also occur in open chaparral, pine-oak woodlands, and even in vineyards and orchards.

Adult spadefoots spend the majority of their lives underground in burrows they construct themselves, coming out to forage at night after rains or a period of high humidity. Spadefoots feed primarily on worms and insects, especially Lepidoptera (butterflies and moths) and Coleoptera (beetles). Breeding season typically occurs from late winter to the end of March, but breeding activities can occur earlier in mild conditions. They breed in season wetlands, vernal pools and stock ponds. Eggs hatch in less than a week and usually reach metamorphosis and disperse within four weeks of hatching.

Western spadefoots occur from the Sacramento Valley south through the San Joaquin Valley and the adjacent foothills of the Sierra Nevada and South Coast Ranges. South of the Coast Range it is found along the South Coast and Peninsular Ranges. They are uncommon in the south and uncommon to locally common in the northern portion of its range. There are no records of this species occurring in the Planning Area; the nearest record is approximately 11.5 miles to the southeast. There is the potential for this species to occur in wetlands and undisturbed agricultural lands of the Planning Area.

<u>San Joaquin kit fox</u>

The San Joaquin kit fox (*Vulpes macrotis mutica*) is federally listed as endangered and state listed as threatened. They are found in grasslands and scrublands, many of which have been extensively modified. Types of modified habitats include those with oil exploration and extraction equipment and wind turbines, and agricultural mosaics of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands. Oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities also provide habitat for kit foxes. This species requires underground dens to raise pups and to avoid predators, and to avoid adverse environmental conditions. An individual's home range is typically less than six square miles. However, some pups have been known to travel 60 miles or more when dispersing from the den.

Prior to 1930, San Joaquin kit foxes (*Vulpes macrotis mutica*) inhabited most of the San Joaquin Valley from southern Kern County north to eastern Contra Costa County and eastern Stanislaus County (USFWS 1998). By 1930 it was believed that the kit fox range had been reduced by more than half, with the largest remaining portion being in the western and southern portions of the San Joaquin Valley (USFWS 1998).

Many of these natural communities that support kit foxes are restricted to small, degraded remnants of their once vast expanses. The current range of San Joaquin kit foxes is primarily limited to suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains and on the Carrizo and Elkhorn Plains. They occur on isolated parcels of natural lands in Kern, Tulare, Kings, Fresno, Madera, San Benito, Merced, Stanislaus, San Joaquin, Alameda, and Contra Costa counties. Along the western foothills of the San Joaquin Valley, they occur in extremely low densities. There are no records of this species occurring in the Planning Area; the nearest record is approximately 5 miles to the northeast. There is the potential for this species to occur as a transient forager in the agricultural lands of the Planning Area.

3.4.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

Public Resources Code Section 21001(c) finds and declares that it is the policy of the State to prevent the elimination of fish or wildlife species due to human activities, to ensure that fish and wildlife populations do not drop below self-sustaining levels, and to preserve for future generations representations of all plant and wildlife communities and examples of the major periods of California history. *Section 15065(a)* of the *CEQA Guidelines* states that a project may have a significant effect on the environment if it has the potential to substantially reduce the habitat of a fish or wildlife species or cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species.

Biological impacts are considered significant if they will:

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*

b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*

c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

Section 15380 of the *CEQA Guidelines* defines endangered, threatened, and rare species that must be addresses under evaluation criteria (a), listed above, as:

1) *“Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes including loss of habitat, over-exploitation, predation, competition, disease, or other factors; or*

2) *“Rare” (all animals designated as rare by the Fish and Game Commission prior to January 1, 1985, were automatically reclassified as threatened by Fish and Game Code Sec. 2067) when either:*

   (a) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

   (b) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the Federal Endangered Species Act.

   (c) A species of animal or plant shall be presumed to be endangered, rare or threatened, if it is listed in:

      (1) Sections 670.2 or 670.5, Title 14, California Administrative Code of Regulations; or

      (2) Title 50, Code of Federal Regulations Sections 17.11 or 17.2 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.

   (d) A species not included in any listing identified in subsection (c) shall nevertheless be considered to be rare or endangered if the species can be shown to meet the criteria in subsection (b).

   (e) This definition shall not include any species of the Class Insecta which is a pest whose protection under the provisions of CEQA would present an overwhelming and overriding task to man as determined by:

      (1) The Director of Food and Agriculture with regard to economic pests; or

      (2) The Director of Health Services with regard to health risks.

The following section discusses potential project-related impacts to sensitive and special-status biological resources as defined in Appendix G of the CEQA Guidelines; and indicates whether the impacts would be considered significant under CEQA. Mitigation measures that would reduce impacts to a less than significant level are provided.

3.4.3 IMPACTS

Project Impacts and Mitigation Measures for Candidate, Sensitive, or Special-Status Species

Impact #3.4.3.1 – Potential Project Impacts To Protected Special-Status Plant Species: There are special-status plant species that potentially occur within the Planning Area.

Conclusion: If present, development would likely result in direct mortality of plants and loss of habitat which would be a **potentially significant** impact. To ensure the protection of sensitive plant species and their habitat, the following mitigation measure shall be implemented.

Mitigation Measure #3.4.3.1: Mitigation for Protected Special-Status Plant Species: Surveys for sensitive plant habitat shall be conducted prior to construction activities or, for annually emerging plants, during the preceding flowering season. If appropriate habitat for sensitive plants is absent from the project site then no further mitigation is needed. If appropriate habitat for sensitive plants exists in the project area then surveys for sensitive plants shall be conducted within 14 to 30 days before vegetation removal or, for annually emerging plants, during the preceding flowering season, site grading, or the start of construction in fallow agricultural areas, riparian areas, designated wetlands and along irrigation ditches and canals. Surveys and avoidance are only needed in areas adjacent to construction activities to avoid existing resources that might otherwise be subject to unnecessary removal or degradation. Avoidance buffer areas of 50 feet will be established around special status plants. This 50-foot distance may be reduced if avoidance of a 50-foot area is not possible and if a monitoring biologist so agrees. Avoidance buffers will be maintained until construction activities have been completed, and then will be removed.

Each proposed project will be designed to avoid impacts to populations of protected special-status plant species. Impacts to protected special-status plant species will be avoided wherever possible. Populations of special-status plant species found during surveys will be protected by a conservation easement as open space. Prior to the issuance of a grading permit that would result in activities affecting special-status plant species populations in development areas of the site, the on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve in perpetuity these populations of protected special-status plant species. Management will include the protection of the population from human foot traffic and off road vehicles.

Where avoidance is not possible, the project applicant will purchase protected special-status plant species credits from a Conservation Bank. The project applicant will be required to pay the market rate for protected special-status plant species credits at a ratio to be determined after consultation with the California Department of Fish and Game and the United States Fish and Wildlife Service from a conservation bank whose service area includes Fresno and/or Madera County.

Effectiveness of Mitigation: Implementation of the above mitigation measures will reduce impacts to protected special-status plant species to a **less than significant** level.

Impact #3.4.3.2 – Potential Project Impacts To Vernal Pool, Vernal Pool Tadpole And Conservancy Fairy Shrimp: No vernal pool, vernal pool tadpole or conservancy fairy shrimp have been documented to occur in the Planning Area; however, they are known to occur within the region of the Planning Area and they potentially occur within designated wetlands and in ephemeral pools that may be present in the Planning Area.

Conclusion: The loss of habitat and direct mortalities to special-status fairy shrimp species from construction activities would be a **potentially significant** impact. To protect special-status fairy shrimp species that may occur within vernal pools in the Planning Area the following mitigation measures shall be implemented.

Mitigation Measure #3.4.3.2a: Surveys to locate wetlands and ephemeral pools shall be conducted prior to the initiation of construction related activities within 150 feet of a wetland or its upland tributary. If no wetlands or ephemeral pools are located on a construction site, no additional mitigation is warranted. If wetlands or ephemeral pools are located on a project site, then additional specific surveys for fairy shrimp must be conducted. Surveys methods shall follow those outlined in the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods* (USFWS 1996).

Mitigation Measure #3.4.3.2b: Proposed projects shall be setback to avoid impacts to populations of vernal pool and conservancy fairy shrimp species by avoidance of all wetlands, ephemeral pools, and buffer areas consisting of 100 feet from the edges of wetlands and ephemeral pools. Populations of vernal pool and conservancy fairy shrimp species avoided will be protected by a conservation easement as open space. The on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve these populations in perpetuity. The area of vernal pool fairy shrimp habitat to be protected within designated on-site open space will be at a ratio of 5 acres of protected vernal pool habitat for each acre of such habitat directly or permanently disturbed by grading and construction associated with the development of the project. Management will include the protection of the population from human foot traffic and off road vehicles.

Mitigation Measure #3.4.3.2c: The designated open space will provide buffers to foot and off-road vehicle traffic between developed areas of the project site and ephemeral pools of 100 to 450 feet.

Mitigation Measure #3.4.3.2d: Prior to issuance of a grading permit for the development area, a management plan will be prepared for the undisturbed open space of the site. Elements of this management plan will include the following: 1) the Project will be designed to ensure that winter stormwater runoff into open space areas of the development area will mimic pre-project conditions. Upon project completion, surface and subsurface flows of runoff to preserved vernal pools will be roughly equivalent to pre-project conditions; 2) all runoff originating in developed areas of the site will pass through retention basins, bio-filtration swales, or both, which will act together as stormwater filters such that water quality will not be significantly reduced from pre-project conditions; 3) irrigation runoff from landscaped areas will be routed away from vernal pool habitats during the summer and fall to ensure that the hydrology of these habitats mimics pre-project conditions; 4) a management plan will be developed and implemented to control the proliferation of non-native annuals in grassland and vernal pool habitats of the on-site open space areas, and to control the build-up of flammable thatch; 5) access to the open space areas will be controlled in order to minimize impact to vernal pools and other habitats, and to ensure that cattle are confined to the open space areas when grazing is permitted. This management plan will be submitted to the USFWS for review and approval.

Mitigation Measure #3.4.3.2e: Prior to the issuance of a grading permit the project applicant will compensate for the loss of vernal pool habitat through the creation/restoration of additional vernal pool habitat at a ratio of one acre of creation/restoration for each acre of such habitat directly and permanently disturbed by grading and construction associated with the project development. Creation/restoration of vernal pool habitat will be accomplished by one or a combination of the following two mitigation alternatives:

1. Off-Site Creation/Restoration. The project applicant will conserve through acquisition or conservation easement off-site lands suitable for vernal pool creation/restoration in Fresno or Madera County. Such lands will be located south of the Fresno River, and will consist of the following characteristics: natural undisturbed native wetlands and habitat suitable for threatened and endangered plant and animal species will be absent (i.e., these lands will have been previously disturbed by farming, or some other intensive human use); vernal pools once occurred on these lands naturally; the underlying hardpan layer is still intact; and the natural topography has not been eliminated through land leveling. Topographic depressions will be created/restored on these lands according to a "mitigation and monitoring plan" prepared by a qualified biologist. The depressions will hold water for approximately three months of every year. When full, the depth of the filled pools will vary from 6 to 18 inches. The depressions will be revegetated with vernal pool species native to the area; soil collected from existing pools in the region will be distributed on the bottoms of the constructed pools in order to enhance the prospects for establishing vernal pool fairy shrimp populations. Efforts to establish fairy shrimp populations in the constructed pools will only occur after receiving formal authorization to do so from the USFWS, as required by law. The components of this mitigation and monitoring plan will be consistent with standard USACE guidelines.

2. Purchase of Vernal Pool Creation/Restoration Credits from a Conservation Bank._ The project applicant will pay the market rate for Vernal Pool Creation/Restoration Credits at the stipulated 1:1 ratio from a Conservation Bank whose service area includes Fresno and or Merced County.

Effectiveness of Mitigation: Implementation of the above mitigation measures will reduce project impacts to vernal pool and conservancy fairy shrimp to a **less than significant** level.

Impact #3.4.3.3 – Potential Project Impacts to the San Joaquin Kit Fox: San Joaquin kit foxes, a federal and state species of special concern, are known from the vicinity of the Planning Area. Although no kit foxes have been identified in the Planning Area, there may be transient foragers in the Planning Area, which may den on the site in fallow agricultural areas.

Conclusion: Development within fallow agricultural areas is a **potentially significant** impact to the San Joaquin kit foxes, if present in those areas, by eliminating denning sites, eliminating foraging habitat, and by causing direct mortalities from development activities.

Mitigation Measure #3.4.3.3: Mitigation for the San Joaquin Kit Fox: Because San Joaquin kit foxes could be transient foragers in the Planning Area and may den on the project sites designated for development, the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance* (USFWS 1999) shall be followed in fallow agricultural and urban areas and along the banks of canals and irrigation ditches. The measures that are listed below have been excerpted from those guidelines and will protect San Joaquin kit foxes.

- Pre-construction surveys should be conducted in development zones no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones should be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal Den	Contact U.S. Fish and Wildlife Service for guidance
Atypical	50 foot radius

- If dens must be removed, they should be appropriately monitored and excavated by a trained wildlife biologist. Replacement dens would be required. Destruction of natal dens and other "known" kit fox dens should not occur until authorized by USFWS.

- Project-related vehicles should observe an appropriate speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when San Joaquin kit foxes are most active. Nighttime construction should be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit foxes. The area within any such fence should be determined to be uninhabited by San Joaquin kit foxes prior to initiation of construction. Off-road traffic outside of designated project areas should be prohibited.

- To prevent inadvertent entrapment of San Joaquin kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.

- San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of a biologist, the pipe may be moved once to remove it from the path of construction activity, until the animal has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from the construction or project site.

- No firearms should be allowed on the project site.

- To prevent harassment, mortality of San Joaquin kit foxes, or destruction of dens by dogs or cats, no pets should be permitted on the project site.

- A representative should be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox, or who finds a dead, injured or entrapped individual. The representative's name and telephone number should be provided to the USFWS and CDFG.

- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice.

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox should immediately report the incident to their representative. This representative should contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

- The Sacramento Fish and Wildlife Office and CDFG should be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification should include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

Effectiveness of Mitigation: Implementation of the mitigation measures listed above would reduce project impacts to San Joaquin kit foxes to a level that is **less than significant.**

Impact #3.4.3.4 – Potential Project Impacts to the California Tiger Salamander and the Western Spadefoot: The federally threatened California tiger salamander (CTS) has been documented within five miles of the project site. Development within vernal pools, roadside ditches and other temporary water sources, fallow agricultural fields, vacant lots, along roadsides and within other areas that contain disturbed grassland habitats has the potential to significantly impact California tiger salamanders and western spadefoot toads. The anticipated impacts include eliminating potential breeding and aestivation habitat, and direct mortalities from development activities.

Conclusion: If California tiger salamanders and western spadefoot toads are present in the areas listed above where development activities are proposed, a **potentially significant** impact to these species could occur. To protect California tiger salamanders and western spadefoot toads, the following mitigation measures shall be implemented.

Mitigation Measure #3.4.3.4a: Surveys for potential breeding habitat of California tiger salamanders and western spadefoot toads shall be conducted in fallow agricultural fields, vacant lots, along roadsides and within other areas that contain disturbed grassland habitats. Breeding habitat for California tiger salamanders and western spadefoot toads consists of ephemeral pools, roadside ditches and other temporary water pools that lack predators (e.g. mosquito fish). Surveys for suitable breeding pools are best conducted during the wet season, October through April. If suitable breeding pools are not found, no other mitigation measures are warranted.

Mitigation Measure #3.4.3.4b: If suitable ephemeral pools are found to occur on a project site, then specific surveys for California tiger salamanders and western spadefoot toads will be conducted. Survey methods will follow standard guidelines *(Interim guidance on Site Assessment and field surveys for determining presence or a negative finding of the California tiger salamander,* 2003). If surveys determine that no California tiger salamanders or spadefoot toads are present, then no additional mitigation measures are warranted. If presence is confirmed, then those pools and a buffer area around those pools shall be protected. The avoidance areas will be protected by a conservation easement as open space. The area of habitat to be avoided and protected will be a minimum of 5 acres in size, will include all pools present on the site, and will include a buffer area of a minimum of 1,000 feet from the edge of the vernal pool. Habitat within the protected site, including the buffer area will be managed and restored. Prior to the issuance of a grading permit that would result in activities affecting California tiger salamanders and western spadefoot populations in development areas of the site, the on-site open space will be placed under conservation easement to be held by a non-profit land trust, and the designated open space will be managed to preserve these populations in perpetuity. Management will include the protection of the population from human foot traffic and off road vehicles.

Mitigation Measure #3.4.3.4c: If avoidance, conservation, and management are not practical, then off-site habitat acquisition or purchase of conservation credits will suffice. Off site acquisition will be at a ratio of 5 acres purchased for each acre impacted. Prior to issuance of a grading permit for all or any portion of the project site, the project applicant will preserve grassland habitats suitable for California tiger salamander (CTS) aestivation under conservation easement at a minimum ratio of five acres of habitat preservation for every acre of such habitat directly or permanently disturbed by project grading and construction. Preservation of off-site habitat will be in Fresno and/or Madera Counties, or at a conservation bank which includes the project site within its area of influence. Additionally, appropriate permits for take of the CTS must be obtained from the United States Fish and Wildlife Service.

Effectiveness of Mitigation: Implementation of the mitigation measures listed above would reduce project impacts to CTS and western spadefoot toad to a level that is **less than significant.**

Impact #3.4.3.5 - Potential Project Impacts to Swainson's Hawks: Swainson's hawks are known from the vicinity of the Planning Area and may forage and nest on the project site in riparian and agricultural areas. If Swainson's hawks were found nesting on or within 1,000 feet of these areas, construction-related disturbance could result in nest abandonment, disruption of nesting activities resulting in nest failure, and loss of foraging habitat.

Conclusion: As discussed above, construction-related disturbance could result in a **potentially significant** impact and conflict with Fish and Game Code §2080. However, if Swainson's hawks nest on or within 1,000 feet of the project site once the site has been developed, these Swainson's hawks would be considered habituated to any existing disturbance from the project site, and consequently, no mitigation would be warranted.

Mitigation Measure #3.4.3.5: The California Department of Fish and Game has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the California Department of Fish and Game's recommendations for mitigation and protection of Swainson's hawks, surveys shall be conducted for a half-mile radius around all project activities within riparian and agricultural areas, and shall be completed for at least the two survey periods immediately prior to a project's initiation (defined as the time a grading permit is issued). The guidelines provide specific recommendations regarding the number of surveys based on when the project is scheduled to begin and the time of year the surveys are conducted.

If Swainson's hawks are found to be nesting on or in the immediate vicinity of a project site, consultation with the California Department of Fish and Game and compensation for the loss of foraging habitat will be required. At that time, the necessity of acquiring a Fish and Game Section 2081 management authorization shall be determined. The California Department of Fish and Game has prepared a *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG 1994) (hereinafter referred to as the Mitigation Guidelines) that prescribes avoidance and mitigation for impacts to Swainson's hawk nesting and foraging habitats. The Mitigation Guidelines require applicants to replace any impacted Swainson's hawk nesting and/or foraging habitat with other suitable Swainson's hawk nesting/foraging habitat. Mitigation required would include a 1:1 impact to replacement ratio.

The Mitigation Guidelines state that acceptable mitigation to offset impacts to Swainson's hawk foraging habitat can be met by Fee Title acquisition of Swainson's hawk habitat, or by acquisition of the right to record a conservation easement over lands that can be managed for this hawk species. Any land acquired through Fee Title would have to be donated to a suitable conservation organization for management. In addition to providing Habitat Management Lands, the applicant would be assessed a management fee for the long-term management of the Habitat Management Lands by a suitable conservation organization.

Effectiveness of Mitigation: Implementation of these mitigation measures will reduce the impacts to Swainson's hawks to a level that is **less than significant.**

Impact #3.4.3.6 – Potential Project Impacts to Burrowing Owls: Burrowing owls are known from the region of the Planning Area and may forage and nest on the project site in fallow agricultural areas, raised agricultural berms, canals, irrigation ditches and roadside berms.

Conclusion: If burrowing owls are found nesting on or within 1,000 feet of a proposed project site, construction-related disturbance could result in nest abandonment, disruption of nesting activities resulting in nest failure, loss of foraging habitat, and direct mortalities. These impacts would be **potentially significant.**

Mitigation Measure #3.4.3.6a: A survey shall be conducted for ground nesting raptors, including burrowing owls for each project site that occurs within potential habitat. The survey shall be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's October 17, 1995 *Staff Report on Burrowing Owl Mitigation* in fallow agricultural areas, raised agricultural berms, canals, irrigation ditches and roadside berms.

Preconstruction surveys of the development area shall be conducted no more than 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the habitat is converted to non-habitat (e.g., graded and developed).

Mitigation Measure #3.4.3.6b: If burrowing owls are identified onsite or within the area of influence of the project site (within 1,000 feet of the project site), an upland mitigation area for burrowing owls shall be established either on or offsite. The mitigation site must be determined to be suitable by a qualified biologist. The size of the required mitigation site will be based on the number of burrowing owls observed on the project site, with a minimum of 6.5 acres preserved per pair of owls or single owl observed using the site. The number of owls for which mitigation is required shall be based on the combined results of the protocol-level survey and the preconstruction surveys (i.e., if two pairs of owls are observed on the project site during the protocol-level survey, the mitigation requirement shall be 2 x 6.5 = 13 acres provided that no more than two pairs of owls are observed during the preconstruction survey; if three pairs of owls are observed during the preconstruction survey, then the mitigation requirement shall be 3 x 6.5 = 19.5 acres). Two natural or artificial nest burrows will be provided on the mitigation site for each burrow in the project area that will be rendered biologically unstable. Monitoring will occur on a weekly basis to prevent re-colonization in construction areas of the project site. This plan must be approved by the California Department of Fish and Game.

Mitigation Measure #3.4.3.6c: If burrowing owls are present in the development area during the breeding season (peak of the breeding season is April 15 through July 15), and appear to be engaged in nesting behavior, a fenced 500-foot buffer would be required between the nest site(s) (i.e., the active burrow(s)) and any earth-moving activity or other disturbance in the development area. This 500-foot buffer could be removed once it is determined by a qualified biologist that the young have fledged. Typically, the young fledge by August 31st. This date may be earlier than August 31st, or later, and would have to be determined by a qualified biologist. If burrowing owls are present in the non-breeding season and must be passively relocated from the project site, as approved by the California Department of Fish and Game, passive relocation shall not commence until October 1st and must be completed by February 1st. After passive relocation, the project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move and to ensure that the owls are not reoccupying the development area. A report detailing the results of the relocation and subsequent monitoring will be submitted to the California Department of Fish and Game within two months of the relocation.

Mitigation Measure #3.4.3.6d: If an upland mitigation site is designated for burrowing owls, it shall be approved as a suitable burrowing owl mitigation property by the California Department of Fish and Game. The preserved area shall be preserved in perpetuity as wildlife habitat via recordation of a conservation easement that designates the California Department of Fish and Game, or any other qualified conservation organization as the Grantee of the easement.

Mitigation Measure #3.4.3.6e: If a conservation easement is established over burrowing owl habitat, an endowment to cover the management of the mitigation area and implementation of the mitigation and monitoring plan shall be provided by the project applicant to the Grantee of the Conservation Easement within six months of breaking ground on the project site.

Effectiveness of Mitigation: Implementation of these mitigation measures will reduce impacts to burrowing owls to a level that is **less than significant.**

Impact #3.4.3.7 – Potential Project Impacts to Valley Elderberry Longhorn Beetles: Valley elderberry longhorn beetles are known from the region of the Planning Area and may be found in fallow agricultural areas, riparian areas, and along canals and irrigation ditches in the Planning Area.

Conclusion: The removal, trimming, or encroachment within 100 feet of an elderberry bush would be a **potentially significant** impact to Valley elderberry longhorn beetle. To ensure protection of the Valley elderberry longhorn beetle, the following mitigation measures shall be implemented. These mitigation measures will not apply if, and when, the Valley elderberry longhorn beetle has been removed from the United States Fish and Wildlife Service list of Endangered Species Act.

Mitigation Measure #3.4.3.7: Mitigation to Protect Valley Elderberry Longhorn Beetles: To protect potential elderberry longhorn beetle habitat, the following will be implemented:

- Prior to ground disturbance at a project site, a survey of the project site shall be conducted for elderberry bushes. Surveys shall be conducted according to the *Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999).

- Each elderberry bush that has stems 1 inch or greater in diameter and that is within 100 feet of any proposed construction activity will be inspected for Valley elderberry longhorn beetles prior to initiation of construction.

- For those bushes in which the beetle does not occur, construction within the 100 foot buffer area will be allowed, provided that:

- A letter of concurrence is obtained from the United States Fish and Wildlife Service authorizing construction within the buffer area.

- A biologist is present on-site during construction within the 100-foot buffer area to monitor construction activities and ensure that there are no impacts to the elderberry bushes.

- Restoration of habitat within the 100-foot buffer area will occur once construction is complete, except in those instances where permanent facilities are constructed. The applicant must provide a written description to the USFWS of how the buffer areas are to be restored, protected, and maintained after construction is completed. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing shall occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

- All areas to be avoided during construction activities shall be fenced and flagged. In areas where encroachment on the 100-foot buffer has been approved by the Service, providing a minimum setback of at least 20 feet from the dripline of each elderberry plant is required.

- Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

- A qualified biologist shall conduct a training program for all construction contractors that will be working on the project to inform workers of the need to avoid damaging elderberry plants and the possible penalties for not complying with these requirements. The training program must include information on the status of the beetle and the need to protect its elderberry host plant.

- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant shall be used in the buffer areas, or within 100 feet of any elderberry plant.

▪ For each bush in which the Valley elderberry longhorn beetle is found, the 100-foot buffer area shall be observed during the activity period of the Valley elderberry longhorn beetle (from April to July). Construction activities may occur within the 100 foot buffer area during other periods provided the mitigation measures outlined above are implemented and restoration within the buffer area is completed by beetle emergence (April).

▪ If a construction project will result in the elimination of one or more elderberry bushes, consultation with the United States Fish and Wildlife Service shall be initiated and appropriate approvals for take of elderberry bushes will be obtained. Approvals for the take of elderberry bushes may require compensation for the loss of elderberry bushes through the purchase of conservation credits in an approved conservation bank or the establishment of a conservation area and the transplant of elderberry bushes, the planting of additional elderberry bush seedlings, and the planting of additional native species. Monitoring and management of the conservation area may also be required.

Effectiveness of Mitigation: The mitigation measures listed above are standardized measures adopted by the USFWS for the protection of elderberry longhorn beetles. The implementation of these measures will prevent the loss of habitat (elderberry bushes) and prevent the incidental take of elderberry longhorn beetles. Implementation of these measures will ensure that impacts to elderberry shrubs and elderberry longhorn beetles will be **less than significant.**

Impact #3.4.3.8 – Potential Project Impacts to Nesting Raptors (Evaluation Criteria A and provisions of the CDFG Code): Raptor species are known to occur locally and could move onto the project site or within an "area of influence" adjacent to the project site. The area of influence varies from species to species known from the region, but in all cases would not be greater than 1,000 feet from the project site.

Conclusion: If raptors were nesting on the project site or within the area of influence, construction-related disturbance could result in nest abandonment, interrupt foraging, and/or cause other impacts to nesting raptors which could result in nest failure. These impacts are **potentially significant,** unless mitigated. To protect nesting raptors, the following mitigation measures shall be implemented.

Mitigation Measure #3.4.3.8: Mitigation to Protect Nesting Raptors: The typical breeding period for raptors is March 1 to September 1. If construction commences between March 1 and September 1, surveys will be conducted 30 days prior to the start of construction for the project. If construction begins from September 2 to February 28 nest surveys will not be required because this is outside the typical breeding period of raptors. The raptor nesting surveys shall include examination of all trees and shrubs on the project site and within a 1,000-foot area of influence surrounding the site.

If nesting raptors are identified during the surveys on the project site, a 300-foot radius buffer around the nest tree or shrub must be fenced with bright orange construction fencing. This 300-foot buffer may be reduced in size if a qualified biologist determines through monitoring that the nesting raptors are acclimated to people and disturbance, and otherwise would not be adversely affected by construction activities. Under no circumstances shall the buffer be reduced to less than a radius of 200 feet. If the nest site is on an adjacent property, the portion of the buffer that occurs on the project site shall be fenced with orange construction fencing. When construction buffers are reduced in size, the biologist shall monitor distress levels of the nesting birds while the birds nest and construction persists. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the biologist shall have the right to re-implement the full 300-foot buffer.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by early July. Regardless, the resource agencies consider 1 September to be the end of the nesting period unless otherwise determined by a qualified biologist. Once raptors have completed nesting, and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can be terminated.

Effectiveness of Mitigation: When implemented, this mitigation measure would reduce impacts to nesting raptors to a level that is **less than significant.**

Impact #3.4.3.9 – Potential Project Impacts to Migratory Birds (Evaluation Criteria A and the Migratory Bird Treaty Act): Grassland and riparian habitats provide potential nesting habitat for a variety of migratory bird species and special-status species. Birds protected pursuant to the Migratory Bird Treat Act of 1918 and California Department of Fish and Game Code §3503 and §3800 could nest on the project site and may be disturbed to an extent that eggs and/or young would be lost.

Conclusion: Development-related loss of active bird nests, the interruption of breeding behaviors, and other activities that result in nest failure would be a **potentially significant** impact. To protect breeding migratory birds and their nests, the following mitigation measures shall be implemented.

Mitigation Measure #3.4.3.9: Mitigation for Migratory Birds: To avoid impacts to common and special-status nesting birds protected pursuant to the Migratory Bird Treat Act and California Department of Fish and Game Codes §3503, §3503.5, and §3800, a survey for nesting birds shall be conducted prior to commencing with construction work if construction work would commence between March 15th and August 31st. If special-status birds are identified nesting on the project site or within a 150-foot area of influence, then a 150-foot non-disturbance radius around the nest must be fenced and avoided by construction activities. This fencing requirement shall not replace or be constructed in lieu of fencing discussed above for impacts to nesting raptors. No construction or earth-moving activity shall occur within this 150-foot buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1st. This date may be earlier or later, and would have to be determined by a qualified biologist. Similarly, the qualified biologist could modify the size of the buffer based upon site conditions and the bird's apparent acclimation to human activities.

If common (non-special-status) passerine birds (perching birds such as northern mockingbirds) are identified nesting in any tree or shrub proposed for removal, tree removal shall be postponed until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the project site. Typically, most passerine birds can be expected to complete nesting by July 1st, with young attaining sufficient flight skills by this date that are sufficient for young to avoid project construction zones. Unless otherwise prescribed for special-status bird species, upon completion of nesting no further protection or mitigation measures would be warranted for nesting birds. The mitigation measure shall be implemented by the project applicant and the construction contractor.

Effectiveness of Mitigation: When implemented, this mitigation measure would reduce project impacts to common and special-status nesting birds to a level that is **less than significant.**

Impact #3.4.3.10 – Impacts to Riparian Habitat or Other Sensitive Natural Communities (Evaluation Criteria B and the Oak Woodland Protection Act): Two sensitive natural communities potentially occur within the Planning Area; Great Valley Mixed Riparian Forest and Northern Claypan Vernal Pools. Great Valley Mixed Riparian Forest may occur as isolated remnants, limited in distribution to along the edges of canals or other wetland areas. This habitat type is not anticipated to be common. Construction activities have the potential of eliminating or causing further degradation this natural community. Degradation or elimination of this community would potentially be a significant impact.

Northern Claypan Vernal Pool habitat has the potential to occur within the Planning Area in locations where deep-ripping of agricultural lands has not occurred and in fallow fields and along roadsides where soil is compacted. Conversion of lands from agriculture, fallow fields, or roadsides to urban uses has the potential of eliminating or degrading Northern Claypan Vernal Pools. Degradation or elimination of this community would potentially be a significant impact.

Several individual oak trees (a protected resource) occur throughout the Planning Area and typically occur within the Planning Area along canals, irrigation ditches, agricultural fields, surrounding rural residences, and along the Golden State Highway Corridor. Potential impacts to oak trees would include removal, severe cutting, disturbance to root systems from construction activities, and reductions in the groundwater to a level that would damage or kill trees. These impacts would be potentially significant.

Conclusion: If riparian habitat or other sensitive natural communities are present in the Planning Area where development activities are proposed, a **potentially significant** impact to these resources could occur.

Mitigation Measure #3.4.3.10: Mitigation for Riparian Habitat or Other Sensitive Natural Communities: Each project site with the potential to contain Great Valley Mixed Riparian Forest or Northern Claypan Vernal Pools (those sites adjacent to irrigation canals or other wetlands and those that include fallow agricultural lands, agricultural lands that have not been deep-ripped, or those which include disturbance to the shoulder of a paved roadway) shall be inspected for the presence of these natural communities. If these communities are absent from the project site, no mitigation is warranted. If however, one or more of these communities are present, then the natural community shall be avoided. If avoidance is not possible, then compensation for their loss shall be mitigated at a ratio of 2 acres for each 1 acre of disturbance. Compensation shall be through the purchase of conservation credits from an existing conservation or mitigation bank that contains the project site within its service area. Alternatively, conservation may be accomplished through the protection and restoration of habitat at off site locations where a conservation agreement has been established and a long-term monitoring and restoration plan that has been approved by the California Department of Fish and Game has been placed in effect. Compensation/restoration within conserved lands shall be at a ratio of 2:1.

The removal or severe trimming of oak trees will be avoided to the greatest extent possible. If the removal of oak trees is necessary, then oak trees shall be replanted at a ratio of two trees replanted for every oak removed or killed. The replacement oaks shall be planted within an area in the Planning Area that has been designated as open space or within an area where a conservation easement exists. Planted oaks shall be monitored for a period of 5 years to monitor their survival. If an oak tree does not survive that period, a replacement shall be planted, which shall also be monitored for a period of 5 years. Alternatively, compensation for the loss of oaks may be accomplished through contributions of funds to the Oak Woodlands Conservation Fund (See Section 1363 of the Fish and Game Code).

Effectiveness of Mitigation: Implementation of this mitigation measure will reduce impacts to sensitive natural communities and oak trees to a level that is **less than significant.**

Impact #3.4.3.11 – Impacts to Federally Protected Wetlands and Jurisdictional Waters (Evaluation Criteria C and the California State Porter-Cologne Act): There are no known jurisdictional waters present in the Planning Area; however, there are several designated wetlands in the Planning Area.

Conclusion: Development-related loss of jurisdictional wetlands or degradation to wetlands would be a **potentially significant** impact.

Mitigation Measure #3.4.3.11: Mitigation for Federally Protected Wetlands: Prior to the issuance of a grading permit, each project site shall be inspected for the presence of wetlands by a qualified wetland delineator. If wetlands do not occur on the site, no additional mitigation measures are warranted. However, if wetlands are present, then a wetland delineation will be conducted and a wetland delineation report will be prepared and submitted to the US Army Corps of Engineers (ACOE) and the State Water Quality Control Board for verification. If the wetlands that are present on the site fall within the jurisdiction of the ACOE or the State Water Quality Control Board, then those wetlands shall be avoided by construction activities. If the wetlands cannot be avoided, Compensation shall be provided by one of the following two alternatives:

1. Off-Site Creation/Restoration. The Project applicant will conserve through acquisition or conservation easement, off-site lands suitable for the creation/restoration of wetlands and other water bodies in Fresno or Madera County. Such lands will be located south of the Fresno River, and will have the following characteristics: natural undisturbed native wetlands and habitat suitable for threatened and endangered plant and animal species will be absent (i.e., these lands will have been previously disturbed by farming, or some other intensive human use); native wetlands and/or other water bodies once occurred on these lands naturally; the soils and hydrology of these lands are suitable for the creation of naturally occurring wetlands and other water bodies; and the natural topography has not been eliminated through land leveling. Topographic depressions, swales and naturalistic drainage channels will be created/restored on these lands according to a "mitigation and monitoring plan" prepared by a qualified biologist. These engineered features must be inundated and/or experience soil saturation for a duration sufficient to naturally support hydrophytic vegetation native to wetlands of the region. All engineered wetlands and other water bodies

will be revegetated with native hydrophytic species. The wetland creation/restoration plan prepared by the biologist will provide for long-term management of the mitigation site, mitigation objectives by which the success of the mitigation can be measured, and a monitoring plan for determining the success of the mitigation. The components of this mitigation and monitoring plan will be consistent with standard USACE guidelines.

2. Purchase of Wetland Creation Credits from a Conservation Bank. The Project applicant will pay the market rate for Wetland Creation Credits at a 1:1 ratio from a Conservation Bank whose service area includes Fresno and/or Madera County.

Effectiveness of Mitigation: Compliance with these mitigation measures would reduce impacts to jurisdictional wetland habitats and other waters to a **less than significant** level. Creation/restoration of non-vernal pool wetlands will ensure no net loss of regional wetland habitat. Due to the disturbed nature of lands to be targeted for wetland creation/restoration, the absence of natural wetlands, and the absence of habitats suitable for special status species, wetland creation/restoration is not expected to result in significant environmental impact to sensitive biological resources.

Impact #3.4.3.12 – Impacts to Fish or Wildlife Movement, Wildlife Corridors and Nursery Sites (Evaluation Criteria D): The project site is not within a designated wildlife corridor or linkage area for sensitive species, nor is it located within a local migratory corridor for other species. The entire San Joaquin Valley, including the project site, is within the regionally significant Pacific Flyway for waterfowl. The site is not considered to be a wildlife nursery; however, construction activity on the site may disturb nesting, feeding, rearing, and foraging behaviors of migratory birds if active nests are within or near construction areas.

Conclusion: If active nests of migratory birds are present in the Planning Area where development activities are proposed, a **potentially significant** impact could occur.

Mitigation Measure #3.4.3.12: Mitigation for Impacts to Fish or Wildlife Movement, Wildlife Corridors, and Nursery Sites: To protect breeding birds and active birds' nests, Mitigation Measures #3.4.3.8 and #3.4.3.9 will be implemented. No additional mitigation measures are warranted.

Effectiveness of Mitigation: Implementation of Mitigation Measures #3.4.3.8 and #3.4.3.9 will reduce impacts to migratory birds to a level that is **less than significant.** No additional mitigation measures are warranted.

Impact #3.4.3.13 – Project Consistency with Local Policies or Ordinances Protecting Biological Resources (Evaluation Criteria E): The proposed project is subject to provisions of the Open Space and Conservation Element "Natural Resources" of the Policy Document of the Fresno County General Plan. For example, General Plan policies related to riparian habitats and grasslands are relevant to the project.

Conclusion: Implementation of the proposed General Plan Update policies and the mitigation measures included in this section (3.4 Biological Resources), will ensure compliance with

Countywide policies or ordinances protecting biological resources. This impact is **less than significant.**

Mitigation Measures: No mitigation measures are required.

Impact #3.4.3.14 – Impacts to Habitat Conservation Plans or Other Plan Conflict (Evaluation Criteria F): There are no applicable or pertinent habitat conservation plans or natural community preservation plans affecting the project area. There is a Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1997) as well as a Draft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2004). Both of these recovery plans cover special-status species that have the potential to occur in the Planning Area.

Conclusion: The policies, goals, and objectives of the proposed General Plan Update do not conflict with the provisions of the Recovery Plans discussed above. Therefore, the impact on habitat conservation plans or other plans affecting the Planning Area is **less than significant.**

Mitigation Measures: No mitigation measures are required.

3.5 Cultural Resources

INTRODUCTION

This section summarizes information on the cultural resources in Selma and provides an evaluation of the effects that the proposed General Plan would have on these sensitive resources.

3.5.1 REGULATORY AND PHYSICAL SETTING

Regulatory

There are several federal and State laws and regulations applicable to historical and architecturally significant resources, as well as archaeological and paleontological resources. The key regulations are discussed briefly below.

FEDERAL

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) is the most influential federal law dealing with historic preservation. In addition, Congress has enacted numerous other statutes that affect historic properties. One of the most important provisions of the NHPA is the establishment of the National Register of Historic Places (NRHP), the official designation of historical resources. Districts, sites, buildings, structures and objects are eligible for listing in the Register. Nominations are listed if they are significant in American history, architecture, archeology, engineering and culture. The NRHP is administered by the National Park Service. To be eligible, a property must be significant under criterion A (history), B (persons), or C (design/construction); possess integrity; and ordinarily be 50 years of age or more.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee recognition in the planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. The NRHP is influential beyond its statutory role because it achieves uniform standards of documentation and evaluation. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

STATE AND LOCAL

California Register of Historic Resources

The California Register of Historical Resources establishes a list of those properties which are to be protected from substantial adverse change (Public Resources Code Section 5024.1). A historical resource may be listed in the California Register (Register) if it meets any of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in California's past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.
- It has yielded or is likely to yield information important in prehistory or history.

The Register includes properties that are listed or have been formally determined to be eligible for listing in the NRHP, State Historical Landmarks and eligible Points of Historical Interest. Other resources require nomination for inclusion in the Register. These may include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic resource surveys conducted in accordance with State Historic Preservation Office (SHPO) procedures, historic resources or districts designated under a local ordinance consistent with Commission procedures, and local landmarks or historic properties designated under local ordinance.

Health and Safety Code, Section 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the California Native American Heritage Commission (NAHC).

California Native American Historical, Cultural and Sacred Sites Act

The California Native American Historical, Cultural and Sacred Sites Act applies to both State and private lands. The Act requires that, upon discovery of human remains, construction or excavation activity cease and the county coroner be notified. If the remains are Native American, the coroner must notify the NAHC. The NAHC then notifies those persons mostly likely to be descended from the Native American remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Native American Historic Resource Protection Act (Public Resources Code, Section 5097)

Public Resources Code, Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states the following:

- No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

- As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State or any city, county, district, authority or public corporation, or any agency thereof. Consequently, Selma is required to comply with Public Resources Code Section 5097 for its activities on publicly-owned land.

California State Senate Bill 18 (SB18)

California State Senate Bill 18 (SB18), signed into law in September 2004 and implemented March 1, 2005, requires cities and counties to notify and consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting Traditional Tribal Cultural Places (also referred to as Traditional Cultural Properties). The Governor's Office of Planning and Research was mandated to amend its General Plan Guidelines to include the stipulations of SB 18 and to add advice for consulting with California Native American Tribes. According to the Tribal Consultation Guidelines, SB 18 "requires local governments to involve California Native Americans in early stages of land use planning, extends to both public and private lands, and includes both federally recognized and non-federally recognized tribes" (Governor's Office of Planning and Research 2005).

General Plan Consistency

No policies regarding Cultural Resources exist in the current Selma General Plan.

Physical

The City of Selma was founded around 1890 and incorporated in 1893; the surrounding lands have been intensively farmed for over one hundred years. Agriculture provides the City's economic base. In pre-agricultural times, the principal plant communities dominating the valley would have been lower Sonoran Grassland and Freshwater Marsh.

The Native American group inhabiting the San Joaquin Valley were the Yokuts. There were over forty Yokuts tribes, each having a distinct name, dialect, and territory. Yokuts have been separated into three geographical divisions, Northern, Southern Valley and Foothill. The Southern Valley Yokuts occupied the region around the City of Selma.

Cultural resources encompass archeological, traditional, and built resources, including but not necessarily limited to buildings, structures, objects, sites and districts. Qualified cultural resources professionals, consulting with their peers, Native Americans, subject matter experts, or review authorities as necessary, will conduct studies, when appropriate, of cultural resources that could have potential to possess significance and that could be affected by projects within the Selma Planning Area.

Not every feature that might be considered a cultural resource requires study. Certain properties as a type are minor, fragmentary, or ubiquitous features that lack potential for significance and are exempt from evaluation. Additional properties with limited potential may be determined exempt upon review by appropriately qualified cultural resources staff. At the same time, however, it is essential to be aware that not all potentially significant cultural resources are visible or apparent prior to conducting technical studies or consultations. Archaeological resources may be buried, without surface features, or inconspicuous to the untrained eye. Sites of important events, traditional cultural places, or places associated with an important person may lack obvious physical characteristics. Minor or ordinary features such as fences, ditches, or tree rows may require study when they could constitute part of a larger significant property, such as a potential historic district or landscape. Historic roads and railroads may also have potential for significance, and may require study.

Research was conducted to identify previously recorded resources in the Planning Area and to collect a general background of the prehistory and history in the Selma vicinity. The background information collected in this section will provide a basis for evaluation of the cultural and historical significance of individual resources of the area.

Research sources employed in this section include:

- California Office of Historic Preservation
- Central California Information Center of the California Historical Resources Information System
- National Register of Historic Places, including listed and eligible properties
- California Inventory of Historic Resources
- California Historical Landmarks
- California Points of Historic Interest
- Other registers (through Information Center)
- Historic maps
- Published texts

PREVIOUS STUDIES

A cultural records search was conducted by the Southern San Joaquin Valley Historical Resources Information Center (HRIC) at California State University, Bakersfield for the Selma

Planning Area on June 18th, 2007 (reference Appendix F). The records search indicated that there have been 20 previous cultural resource studies within or immediately adjacent to the Planning Area. It should be noted that a large portion of the Planning Area has never been surveyed. The records search found no known cultural resources within the Planning Area or within a half-mile radius that are listed in the *National Register of Historic Places, California Register of Historical Resources, California Points of Interest, California Inventory of Historic Resources,* or the *California State Historic Landmarks.*

According to the Southern San Joaquin Valley Historical Resources Information Center, no prehistoric resources have been reported. The following historic features have been reported:

- Restroom EA 3463-26
- Jensen Home, 8262 Bethel Avenue
- Residence, 8674 E Khan Street
- Selma Japanese Mission Church, 2415 Floral Avenue
- Residence, 2124 Gaither Street
- Residence, 2428 Jasper Street
- Stockley Terrace, 1445 Peach Street
- Residence, 2639 Pine Street
- State Route 43 Widening, 12490 S. Highland Avenue
- Residence, 9727 S. Shaft Avenue
- Selma Women's Clubhouse, Selma Street
- Residence, 2487 Thompson Avenue
- Residence, 2564 Stillman Street
- Residence, 2600 Stillman Street
- Residence (1), 2506 Stillman Street
- Residence (2), 2506 Stillman Street
- Residence, 2523 Whitson Avenue
- Historic buildings including a school, church and various residential buildings, Art Gonzales Pkwy and Highland Avenue
- Ca. 1943 bridge, Fowler Switch Canal

A historical resource is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. There may be unidentified features in the Selma vicinity that are 45 years or older and considered as historical resources requiring further study and evaluation by a qualified professional of the appropriate discipline.

3.5.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally be considered potentially significant with regard to cultural resources if it would:

a) *Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.*

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.*

c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.*

d) *Disturb any human remains, including those interred outside of formal cemeteries.*

3.5.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.5.3.1 – Cause a substantial adverse change in the significance of a historical resource as defined in, or pursuant to, §15064.5, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred: The City of Selma contains numerous buildings that are over 45 years of age and may be historically significant. The Cultural Resources records search (Appendix F) for the City of Selma found a number of historical properties and no past evidence of archaeological resources in the project area. Although the majority of new development under the Plan Update would take place on land without existing structures, redevelopment within the historic downtown or in-fill development in older residential areas could result in the demolition, destruction, relocation or alteration of buildings that are historically significant and eligible for listing on the California Register of Historical Resources. In addition, there are a number of rural buildings that are located outside the city, but within the SOI, that may be subjected to substantial adverse change as a result of new development.

Development allowed under the proposed General Plan would also involve construction activities that could result in the disturbance of undiscovered archaeological and paleontological resources during grading or other on-site excavation activities. Paleontological, unique geological features or known human burial sites have yet to be discovered within the project area. Due to the fact that many cultural resources are buried, there is the potential for cultural resources of various types to be encountered when new development is carried out as a result of the Plan Update.

One of the goals of the Open Space, Conservation and Recreation Element of the proposed General Plan is to "identify and protect unique cultural and historical features of the community."

Conclusion: The twenty previous cultural resources studies within the Planning Area have resulted in the discovery of 18 documented historical sites and no archaeological sites. This indicates the potential for discovery of cultural resources during future project-related excavation and construction. A survey of Selma's older buildings may yield structures that qualify for historic preservation. These potential discoveries possess great possibilities for the City to further develop its historic and cultural resources. The impact is **potentially significant,** unless mitigated;

Mitigation Measure #3.5.3.1a: All projects (as defined by CEQA Guidelines Section 15378(a) and Public Resources Code Section 21065) shall implement the following measures for cultural resources discovered during project implementation activities:

1. In the event that cultural or paleontological resources are encountered during project construction, all earth-moving activity within 50 feet of the find shall cease until the applicant retains the services of a qualified archaeologist or paleontologist. The archaeologist or paleontologist shall examine the findings, assess their significance, and offer recommendations for procedures deemed appropriate to either further investigate or mitigate adverse impacts on those cultural, paleontological or archaeological resources that have been encountered (e.g., excavate the significant resource) prior to re-commencement of construction in the affected area.

2. If human bone or bone of unknown origin is found during project construction, all work shall stop within 50 feet of the find and the County Coroner shall be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. The Native American Heritage Commission shall notify the person considered to be the most likely descendant. The most likely descendant will work with the project applicant to develop a program for the re-interment of the human remains and any associated artifacts. No additional work shall take place within the immediate vicinity of the find until the identified appropriate actions have been completed.

3. Project personnel shall not collect or retain artifacts found at the site. Prehistoric resources may include, but would not be limited to: chert or obsidian flakes; projectile points; mortars and pestles; and dark friable soils containing shell, fragmentary bone, dietary debris, scorched rock, or human remains. Historic resources may include, but would not be limited to, stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits, including those in old wells and privies.

4. If development and/or modification of the historic structures reported by the Center for Archeological Research at CSU, Bakersfield is proposed, a historic analysis of such modification shall be made, including consultation with the State Historic Preservation Office. Historic features or elements that are considered to be significant shall be preserved. If such preservation is not feasible, mitigation shall include:

   - Relocation of the structure to a location that is historically suitable; or

   - Recordation of feature through archival photography and donation of artifacts to the local museum.

Mitigation Measure #3.5.3.1b: The following policies shall be included in the Open Space, Conservation and Recreation Element of the proposed Plan Update to address cultural resources impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. Inclusion of these draft policies in the General Plan Update would further reduce this impact to a less than significant level.

- The City shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable.

- The City shall, within the limits of its authority and responsibility, maintain confidentiality regarding the locations of archeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts.

- The City shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or sites of cultural importance.

- The City shall support efforts of other organizations and agencies to preserve and enhance historic resources for educational and cultural purposes through maintenance and development of interpretive services and facilities at City recreational areas and other sites.

- The City shall develop and promote financial incentive programs for historic preservation efforts.

Effectiveness of Mitigation: With implementation of the identified mitigation measures, potential impacts on cultural resources would be considered **less than significant**.

3.6 Geology/Soils

INTRODUCTION

This section describes the regulatory framework and conditions related to seismicity and soils in and around Selma and identifies potential impacts related to these factors that could result from implementation of the proposed General Plan Update.

3.6.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

US Uniform Building Code

The 2006 International Building Code (IBC), adopted by the City of Selma, has design criteria for excavations and structures under static and dynamic loading conditions.

STATE AND LOCAL

The State of California has established a variety of regulations and requirements related to seismic safety and structural integrity, including the California Building Code, the Alquist-Priolo Earthquake Fault Zones Act and the Seismic Hazards Mapping Act.

California Building Code

The California Building Code (CBC) is included in Title 24 of the California Code of Regulations and is a portion of the California Building Standards Code. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The CBC is based on the 2006 International Building Code (IBC), a widely adopted model building code in the United States.

Through the CBC, the State provides a minimum standard for building design and construction. The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls and site demolition. It also regulates grading activities, including drainage and erosion control.

Alquist-Priolo Earthquake Fault Zones Act

The Alquist-Priolo Earthquake Fault Zones Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The main purpose of the Act is to prevent the construction of buildings used for human occupancy on top of active faults. The Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards.

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults, and to issue appropriate maps. The maps are distributed to all affected cities, counties, and State agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones and there can generally be no construction within 50 feet of an active fault zone.

The California Geological Survey does not list Selma on its current list of cities affected by Alquist-Priolo Earthquake Fault Zones.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically-induced landslides. Under the Act, seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The Act states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety." Section 2697(a) of the Act additionally requires that "cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard." Fresno County has not yet been mapped under the Seismic Hazards Mapping Act because the State has targeted higher risk areas first, such as the San Francisco Bay Area and the Los Angeles/Riverside areas.

General Plan Consistency

The Plan Update contains a number of policies that apply to geologic and soils impacts in conjunction with ultimate build-out of the City in accordance with the proposed General Plan

Update. The specific policies listed below contained in the Safety and Open Space, Conservation and Recreation Elements are designed to ensure that geologic and soils related impacts are minimized as development occurs.

Safety Element

Policy 4.2 The City shall develop and adopt an Emergency Operations Plan which shall include action plans in the event of an earthquake or other disaster. Emergency evacuation routes shall be included in the plan.

Policy 4.4 The City should establish an inspection program to identify and inventory all existing unreinforced masonry structures in the City.

Policy 4.5 The City shall work with property owners to remove or rehabilitate all identified substandard structures.

Policy 4.6 Emergency communication centers, fire stations and other emergency service or critical facilities should be examined to determine earthquake resistance. A program to mitigate deficient facilities should be established.

Policy 4.8 Primary and secondary hazards from seismic activity should be evaluated in all environmental assessment and reporting processes.

Policy 4.9 The list of critical facilities (hospitals, police and fire stations, and similar facilities) for the City of Selma shall be reviewed and updated annually.

Policy 4.10 Critical facilities shall be designed to the standards established by the International Building Code for such facilities. Critical facilities mean essential facilities as provided in the International Building Code.

Policy 4.11 The City shall continue to adopt current issues of the International Building Code and implement the seismic design standards provided by the Code.

Policy 4.13 The Seismic Impact Transportation Plan designates the following disaster transportation routes.

A. Primary Transportation Routes

1. Freeway 99 through the Selma Planning Area;
2. Manning Avenue through the Selma Planning Area;
3. McCall Avenue between Manning Avenue and Second Street;
4. Second Street between McCall Avenue and Nebraska Avenue;
5. Nebraska Avenue between Second Street and Highland Avenue;
6. Highland Avenue south of Nebraska Avenue.

B. Secondary Transportation Routes

1. Golden State-Whitson through the Selma Planning Area;
2. McCall Avenue south of Golden State-Whitson;
3. Del Rey Avenue between Manning Avenue and Orange Avenue;
4. Orange Avenue (Ditch Road) between Del Rey Avenue and Rose Avenue;
5. Rose Avenue between Orange Avenue and McCall Avenue.

C. Evacuation Routes

All arterial and collector streets of the Circulation Element of the Selma General Plan, shall be designated as evacuation routes in the event of a seismic disaster.

Policy 4.14 Detailed mapping and analysis of identified areas of geologic hazard shall be provided through the use of Geographic Information Systems (GIS) technology. Areas identified with a "severe" rating for allowable soil pressures or high corrosivity soil characteristics should be mapped for City staff use in new development project consideration.

Policy 4.15 Continue to enforce the International Building Code in all matters related to soil preparation and foundation requirements.

Open Space, Conservation and Recreation Element

Policy 5.14 Require soil studies in localized areas known to have expansive or unstable soils.

Policy 5.16 Areas with high erosion potential or soil instability which cannot be mitigated shall be designated for open space land uses.

Policy 5.17 Channel and slope modification shall be discouraged where they increase the rate of surface runoff and increase the potential for erosion.

Physical

Selma lies within a relatively seismically quiet area, and is not on the State Geological Survey's list of Cities and Counties affected by Alquist Priolo Earthquake Fault Zones as of May 1, 1999 (California Geological Survey, January 2008). This means it does not contain areas subject to surface fault rupture. The nearest faults are the San Joaquin fault about 60 miles to the west/northwest near Los Banos, the San Andreas Fault about 60 miles to the southwest near Parkfield, and the Sierra Nevada Fault Zone on the east side of the Sierra Nevada Mountains about 75 miles to the east. The Coalinga area, about 50 miles to the west-southwest of Selma experienced an earthquake measuring 6.7 on the Richter scale (Rs) in 1983 on a previously unknown “blind” thrust fault. A “blind” fault is one that does not produce a surface rupture and therefore shows no evidence of its presence at the surface.

The Five Counties Seismic Safety Element places Selma within the V1 Seismic Zone, characterized by a relatively thick section of sedimentary rock overlying a granitic basement. Primary hazards due to ground shaking are "low" because of the distance from seismic faults. Secondary hazards are as follows: landslides, minimal; subsidence/settlement, low to moderate; liquefaction, low; seiche, minimal. The Seismic Safety Element states that the Uniform Building Code, Zone II building standards should be adequate for normal facilities.

New buildings in Selma are constructed to prevent loss of life because of an earthquake. Older buildings, however, especially un-reinforced masonry buildings, could collapse causing injury and loss of life. According to a report in 1979 to the California Seismic Safety Committee, a building should be considered hazardous to life in the event of an earthquake if the building:

a. Was constructed prior to the adoption and enforcement of local building codes requiring the earthquake resistant design of buildings;

b. Is constructed of un-reinforced masonry;

c. Lacks an effective system for resisting lateral forces; and

d. Exhibits any one of the following characteristics:

    1. Has exterior parapets and ornamentation that may fall on a public way;

    2. Is constructed of un-reinforced masonry;

    3. Has exterior walls of un-reinforced masonry that are not anchored to the floors or roof;

    4. Has sheathing or a roof that is not capable of withstanding lateral loads or uniformly transferring horizontal loads to walls; or

    5. Has large openings in walls that may result in damage due to torsional (twisting) forces.

In order to eliminate these problems, reconstruction is necessary to at least provide for the adequacy of: (a) un-reinforced masonry bearing walls, (b) the anchorage of exterior parapets and ornamentation, (c) the anchorage of un-reinforced bearing walls to the floors and roof, (d) floor and roof diaphragms, and (e) the development of a complete bracing system to resist horizontal wind and earthquake forces.

Enforcing the retrofitting of buildings to meet earthquake standards is a difficult task. First, Selma would have to commit staff to the project. In addition to being costly, this would require a policy decision on the part of the City Council that the potential problems were of such dimensions that the cost, both to the City and to the landowner, is warranted. Second, the cost to the property owner might be prohibitive, at the very least causing construction impacts on the existing tenants, possibly relocation and rent increase. The report referenced above stated that it was unlikely that building owners could feasibly afford the cost of making the necessary improvements and that some sort of grant funds would be needed.

Aside from structural damage, earthquake activity can produce three other types of adverse effects. The first is ground failure such as landslides, subsidence/settlement, and liquefaction, which itself is a factor in making some lands unsuitable for development. The risk of such effects in Selma is minimal to moderate. The second adverse effect would be from a seiche (an earthquake induced wave in a lake, reservoir, or harbor). As stated earlier, there are no bodies of water within the Selma area large enough to be subject to a seiche.

The third effect would be caused by damage to a dam that results in dam failure. Pine Flat Dam on the Kings River could produce flooding should it fail. There are requirements that the owners of dams prepare maps showing areas that would be flooded should a dam fail. Dam failure inundation maps are available for these dams. Although the Safety Element of Selma's current General Plan states that "…the City of Selma would be located in the center of a floodway approximately 17 miles wide and eight to 10 feet in depth within three hours of the actual failure" (City of Selma, July 1983), information regarding the depth of the water should flooding occur is no longer available. It is the policy of the U.S. Army Corps of Engineers not to list depths since such a calculation depends on too many variables (amount of water stored, location of the failure, extent of the failure, etc).

Soils

Reference Section 3.2.1 and Figure 3.2-2 for soils information. Soils in the Selma area are relatively stable.

3.6.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, the proposed Plan Update would result in a significant geologic/seismic/soils impact if it would:

a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:*

    i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault*

    ii) *Strong seismic ground shaking*

    iii) *Seismic-related ground failure, including liquefaction*

    iv) *Landslides*

b) *Result in substantial soil erosion or the loss of topsoil*

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse*

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.*

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water*

The Initial Study found that the proposed project would have a less than significant impact or no impact to the following significance thresholds:

- *Expose people or structures to potential substantial adverse effects including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction or landslides.*

- *Result in substantial soil erosion or the loss of topsoil.*

- *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.*

These issues are considered less than significant and will not be discussed further in this Draft EIR. Reference the Initial Study in Appendix A for additional information.

3.6.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.6.3.1 – Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault or strong seismic ground shaking: The proposed General Plan would accommodate new development and additional population that could be exposed to seismic hazards. As discussed previously, the risk of ground rupture is low since Selma is not within an Alquist-Priolo Earthquake Fault Zone. Ground-shaking seismic hazards in Selma are lower than most of California but unreinforced masonry buildings could be subject to severe damage in an earthquake.

The proposed General Plan includes several policies to minimize seismic hazards. Policies 4.4 and 4.5 of the Safety Element state that the City should establish an inspection program to identify and inventory all existing unreinforced masonry structures and remove or rehabilitate substandard structures. Policy 4.8 says that primary and secondary hazards from seismic activity should be evaluated in all environmental assessment and reporting processes. Policies 4.9 and 4.10 say that the list of critical facilities shall be reviewed and updated annually and be designed to the standards established by the IBC for such facilities. Policy 4.13 says that the City will establish primary, secondary and evacuation routes within the Seismic Impact Transportation Plan. Policy 4.15 says that the City will continue to enforce the IBC in all matters related to soil preparation and foundation requirements. Policy 4.2 says that the City shall develop and adopt an Emergency Operations Plan which shall include action plans in the event of an earthquake or other disaster.

Any new project must be designed in compliance with the International Building Code and California Building Code, and must be inspected by City building inspectors during the construction phase. Also, non-single-family projects must be designed by an engineer or architect to resist any seismic-related impacts, including liquefaction, and must be designed for the appropriate soil type by an engineer to resist spreading, subsidence, or collapse. The Five-County Seismic Safety Element places the Planning Area in an area of minimal ground shaking, with no likelihood of ground failure or liquefaction.

Conclusion: Application and enforcement of existing building code regulations will mitigate any impacts. Selma is not located on a known fault and special regulations above these are not required. The impact is **less than significant.**

Mitigation Measures: No mitigation measures are required.

Impact #3.6.3.2 – Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property: As previously discussed, soils in the Planning Area have moderate erosion potential and moderate expansion potential, however, this could pose a risk to new development under the proposed General Plan Update. The policies and standards of the proposed General Plan Update will serve to reduce hazards associated with soil conditions.

Proposed General Plan Safety Element policy 4.14 states the City shall identify areas of geologic hazard using GIS and areas identified with a "severe" rating for allowable soil pressures or high corrosivity soil characteristics should be mapped for City staff use in new development project consideration. Proposed General Plan Safety Element policy 4.15 States the City will continue to enforce the IBC in all matters related to soil preparation and foundation requirements. Policy 5.14 of the proposed General Plan Open Space, Conservation and Recreation Element states the City will require soil studies in localized areas known to have expansive or unstable soils. Policy 5.16 states areas with high erosion potential or soil instability which cannot be mitigated shall be designated for open space land uses. Policy 5.17 states that channel and slope modification shall be discouraged where they increase the rate of surface runoff and increase the potential for erosion.

Conclusion: Compliance with the following General Plan Update policies and City adopted Building Codes hazards related to soils, as the proposed General Plan updated is implemented, would be a **less than significant** impact.

Mitigation Measures: No mitigation measures are required.

3.7 Hazards and Hazardous Materials

INTRODUCTION

The Initial Study concluded that the proposed project would have a less than significant impact under each of the CEQA standards of significance as identified in Appendix G of the CEQA Guidelines. However, as a result of comments received on the NOP regarding potential impacts associated with the private airports which are *available for public use*, this issue will be discussed further. The remaining issues which were found to be less than significant will not be discussed further in this Draft EIR. Consult the Initial Study in Appendix A for more information regarding potential hazards and hazardous materials impacts as a result of the proposed General Plan.

The potential for health and safety issues resulting from airport hazards is the focus of this section. Potential noise issues resulting from airport operations are described in Section 3.11, Noise.

As a result of comments received during the NOP public scoping phase of the proposed project, specific hazards issues have been considered as part of the impact analysis. For example, the County of Fresno Department of Public Works requested that the Plan Update EIR refer to the Airport Land Use Commission (ALUC) for a determination of consistency, and that the potential impacts associated with the private airports which are available for public use are discussed in the EIR.

3.7.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

Code of Federal Regulations, Title 14, Part 101, Section 13

To protect the safety of airport operations, Section 101.13 of the Code of Federal Regulation provides rules that limit use of balloons and kites within five miles of any airport, but does not prohibit the operation of a balloon or kite below the top of any structure, as long as it is operated within 250 feet of the structure.

STATE AND LOCAL

California Public Utility Codes

Sections 21670-21679.5 (Chapter 4, Article 3.5) provide the statutory authority for the establishment of the Fresno County Airport Land Use Commission and its adoption of procedures and policies.

Fresno County Airport Land Use Policy Plan

The Fresno County Airport Land Use Policy Plan (ALUP) guides land use decisions within the vicinity of the two privately owned airports in Selma (Quinn Airport and Selma Aerodrome). The Fresno County Airport Land Use Commission (ALUC) administers this plan.

General Plan Consistency

The Selma General Plan Update contains a number of policies that apply to reduction of airport related hazards in conjunction with ultimate urban build-out in accordance with the proposed General Plan Update. The specific policies listed below contained in the Land Use, Circulation, Safety and Noise Elements are designed to ensure that exposure to airport related hazards are minimized as development occurs.

Land Use Element

Policy 1.106 Development occurring within the primary and secondary review radii of the Fresno County Airports Land Use Policy Plan shall be reviewed for consistency with the Airport/Land Use Safety Compatibility Criteria (Table 1-2 and Figure 1-2 of the Policy Plan) as adopted by the Fresno County Airport Land Use Commission.

Circulation Element

Policy 2.56 To preserve the viability of the Selma Aerodrome as a regional general aviation facility, the City adopts the policy plan recommendations of the *Fresno County Airports Land Use Policy Plan Study,* where applicable.

Policy 2.57 The City shall discourage land uses surrounding the Selma Aerodrome that would reduce its ability to function as an element of the transportation system.

Policy 2.58 Since the Selma Aerodrome serves as the primary air field in the area, efforts shall be made to continue to upgrade the service capacity of the airport.

Noise Element

Policy 3.7 Industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) shall be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary areas of planned or zoned noise sensitive land uses

Policy 3.14 All projects within the impact area of airports and heliports, shall be evaluated for potential noise impacts from aircraft over-flights based on the standards in the Fresno County Airports Land Use Policy Plan and this Noise Element.

Safety Element

Policy 4.25 The City shall continue to implement the Airport Land Use Plan for the Selma Aerodrome.

Policy 4.26 New public use buildings should not be located within the flight path or approach zone of airports.

Physical

There are two privately owned airports within the City's SOI: Quinn Airport located near Golden State Boulevard and Dinuba Avenue, and the Selma Aerodrome located near Huntsman and Temperance Avenues. Only a few aircraft are based at the Quinn Airport and there are no records of annual operations on file. According to FAA records, there were 15,000 annual operations at the Selma Aerodrome in 2007.

3.7.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally be considered significant with regard to hazards and hazardous materials if it would:

a) *Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.*

b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.*

c) *Emit hazardous emissions or handle hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.*

d) *Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.*

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.*

f) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people living or working in the project area.*

g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.*

h) *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.*

As noted in the Introduction of this Section, the Initial Study concluded that the proposed project would have a less than significant impact to each of the CEQA standards of significance listed above. However, as a result of comments received on the NOP regarding potential impacts associated with the private airports which are *available for public use* (significance thresholds e) and f) above), this issue will be discussed further. The remaining issues which were found to be less than significant will not be discussed further in this Draft EIR. Consult the Initial Study in Appendix A for more information regarding potential hazards and hazardous materials impacts as a result of the proposed General Plan.

3.7.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.7.3.1 – Result in a safety hazard for people living or working in the project area due to proximity to a private or public use airstrip: Implementation of the Plan Update would result in new residential and non-residential land uses. The exact location and timing of this new development will evolve over the next 25+ years and is not known at this time. These new land uses could result in urban development in the vicinity of the two private airstrips within the Planning Area.

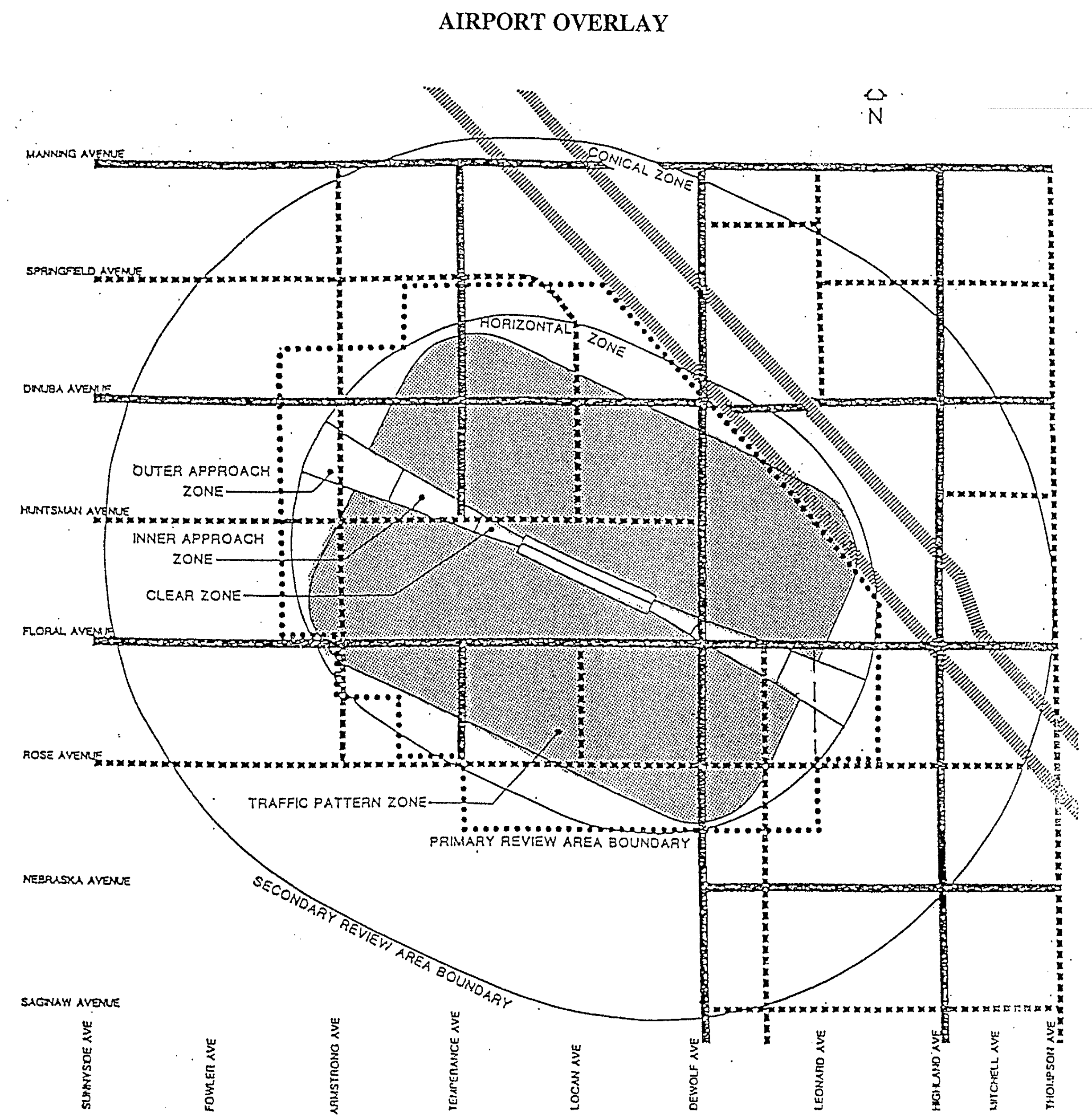
New development near aviation facilities, particularly multi-story structures or developments with aerial features such as antennas, could create hazards to aviation. The Fresno County ALUC is a statutorily defined body that advises the cities and the County on compatible land uses in the vicinity of public airports in Fresno County. One of the key functions of the ALUC is to determine conformity of cities' General Plans and zoning ordinances with the counties' Airport Land Use Plan.

Overall, the intent of the proposed General Plan is to ensure that existing and future land uses function without imposing a nuisance, hazard, or unhealthy condition upon adjacent uses. Policies included as part of the proposed project that would minimize conflicts with local airports include Policy 1.106 of the Plan Update's Land Use Element, which states that development occurring within the primary and secondary review radii of the Fresno County Airports Land Use Policy Plan shall be reviewed for consistency with the Airport/Land Use Safety Compatibility Criteria shown in Table 3.7-1 and Figure 3.7-1 as adopted by the Fresno County Airport Land Use Commission.

Table 3.7-1
Airport/Land Use Safety Compatibility Criteria

	Safety Zones			
Land Use Characteristics	**Clear of Runway**	**Inner Approach**	**Outer Approach & Traffic Pattern**	**Horizontal & Conical**
Residential	-	A,F	B,F	+
Other Uses in Structures	-	C,E,F	E,F	+
Other Uses Not in Structures	C,G	D	+	+
Light or Glare	-	-	-	G
Smoke or Electronic Interference	-	-	-	G
Attractor of Birds	-	-	-	+

\+ Acceptable - Unacceptable
A - Density no greater than 1 du/3 acres. ; B - Density no greater than 4 du/acre. ; C - No uses attracting more than 10 persons/acre.
D - No uses attracting more than 25 persons/acre. ; E - No schools, hospitals, nursing homes or similar uses.
F - At least 20% of area open (having a size and shape such that a small aircraft could conceivably make an emergency landing without damage to buildings or serious injury to aircraft occupants. ; G - Characteristic cannot reasonably be avoided or located.
Source: Fresno County Airports Land Use Policy Plan



AIRPORT OVERLAY

Figure 3.7-1

Policy 2.56 of the Draft Circulation Element states that in order to preserve the viability of the Selma Aerodrome as a regional general aviation facility, the City shall adopt the policy plan recommendations of the Fresno County Airports Land Use Policy Plan Study, where applicable. Policy 2.57 states the City shall discourage land uses surrounding the Selma Aerodrome that would reduce its ability to function as an element of the transportation system. Because the Selma Aerodrome serves as the primary air field in the area, Policy 2.58 states that efforts shall be made to continue to upgrade the service capacity of the facility. Policy 3.7 of the Draft Noise Element states that noise-generating land uses shall be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary areas of planned or zoned noise sensitive land uses. Policy 3.14 of the Draft Noise Element states that all projects within the impact area of airports and heliports shall be evaluated for potential noise impacts from aircraft over flights based on the standards in the Fresno County Airports Land Use Policy Plan and this Noise Element.

Policy 4.25 of the Draft Safety Element states that the City shall continue to implement the Airport Land Use Plan for the Selma Aerodome. New public use buildings should not be located within the flight path or approach zone of airports (Policy 4.26).

Conclusion: With implementation of the above mentioned policies and adherence to federal, state and local regulations, this impact is considered **less than significant**.

Mitigation Measure: No mitigation measures are required.

3.8 Hydrology and Water Quality

INTRODUCTION

This section summarizes information on hydrology, including flooding, and water quality in the City of Selma and the Planning Area and provides an evaluation of the effects the proposed General Plan would have on these environmental factors.

3.8.1 REGULATORY AND PHYSICAL SETTING

Regulatory

There are several federal, State and local regulations pertaining to water quality, flood protection and infrastructure for stormwater conveyance and discharge. These are described below.

FEDERAL

Federal Water Pollution Control Act (Clean Water Act)

The Clean Water Act (CWA), initially passed in 1972, regulates the discharge of pollutants into watersheds throughout the nation. Section 402(p) of the Clean Water Act establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. Section 402(p) requires that stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by a NPDES permit. On

December 8, 1999, the United States Environmental Protection Agency circulated Phase II regulations for non-point sources requiring permits for stormwater, including discharges from Small Municipal Separate Storm Sewer System (MS4s) operators. In California, the NPDES Program is administered by the State.

Under Section 404 of the Clean Water Act, a permit must be obtained from the US Army Corps of Engineers prior to discharge of dredged or fill material into waters of the United States, including wetlands. The purpose of this program is to ensure that water quality is protected from polluting discharges.

STATE AND LOCAL

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) is responsible for implementing the Clean Water Act and does so by issuing NPDES permits. Federal regulations allow two permitting options for stormwater discharges: individual permits and general permits. The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0004-DWQ) for MS4s covered under the Clean Water Act to efficiently regulate numerous stormwater discharges under a single permit. Permitees must meet the requirements in Provision D of the General Permit, which requires development and implementation of a Storm Water Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable.

Federal Emergency Management Agency

Flood plain zones are determined by the Federal Emergency Management Agency (FEMA) and are used to create Flood Insurance Rate Maps (FIRMs). These tools assist cities in mitigating flooding hazards through land use planning and building permit requirements. To address the need for insurance to cover flooding issues, FEMA administers the National Flood Insurance Administration (NFIA) program. The NFIA program provides federal flood insurance and federally financed loans for property owners in flood prone areas. To qualify for federal flood insurance, cities must identify flood hazard areas and implement a system of protective controls. FEMA stipulates minimum guidelines to regulate floodplain development

Regional Water Quality Control Board

The State's Porter-Cologne Water Quality Control Act outlines the specific responsibilities of the Regional Water Quality Control Boards, and the procedures for coordinating with the SWQCB to meet federal Clean Water Act standards. Fresno County falls within the Central Valley Region, which is the largest in the state, stretching from the Oregon border south to Los Angeles County. It encompasses 60,000 square miles, or about 40 percent of the State's total area, and includes 38 of the State's 58 counties. The Central Valley Regional Water Quality Control Board (CVRWQCB) mission is to "preserve and enhance the quality of California's water resources for the benefit of present and future generations." This duty is carried out by formulating and adopting water quality control plans for specific ground and surface water basins, and by prescribing and enforcing standard requirements on waste discharges. For the Selma area, these waste discharge requirements are found in the Water Quality Control Plan for the Tulare Lake Basin Second Edition Revised January 2004 (With approved Amendments) at pages IV-8 through IV-15.

The National Pollution Discharge Elimination System (NPDES) program, under Section 402(p) of the Federal Clean Water Act, is administered locally by the Central Valley Regional Water Quality Control Board on behalf of the US EPA. The program is designed to reduce pollution from storm water discharge and may require a permit from parties discharging to lakes, streams, and other water bodies. In the case of the proposed project, a construction activity permit would be required since construction activities associated with the project would result in the disturbance of more than one acre. The permit would require that the following measures be implemented during construction activities: eliminate or reduce non-storm water discharges to storm water systems and other waters of the US, develop and implement a Storm-water Pollution Prevention Plan (SWPPP), and perform inspections of storm water control structures and pollution prevention measures.

AB 162--Designation

In compliance with Assembly Bill 162 and Government Code §65302(g), jurisdictions are also required to utilize the FEMA flood insurance rate maps to determine flood hazards zones, and the NFIA maps when considering development in flood hazard areas.

City of Selma Storm Water Management Plan

This plan provides guidance for the design of storm water management facilities in the City of Selma. Primarily a technical document, procedures to be followed in designing project related storm water collection and conveyance systems are contained in the plan.

General Plan Consistency

The Plan Update contains a number of policies that apply to hydrological systems and water quality in conjunction with ultimate build-out of the City in accordance with the Plan. The specific policies listed below contained in the Land Use, Safety, Open Space, Conservation and Recreation, and Public Services and Facilities Elements are designed to ensure that hydrological and water quality impacts are minimized as development occurs.

Land Use Element

Policy 1.92 Residential development at urban densities shall be located only where services and facilities can be provided.

Policy 1.94 Development shall be allowed only in areas that already have urban services or are within a master plan to provide those services. Development of lands outside of current service or master Plan Areas (such as the SKF Sewer District, City of Selma Master Plan for Storm Drainage Area, etc.) may be considered if the following findings can be made:

a. The development will not cause a shortfall, either short- or long-term in the financing of any public facility.

b. The development will not significantly delay the provision of a public improvement.

c. The development will not accelerate the need for a public improvement beyond the ability of the improvement fund to adjust for the improvement.

d. Expansion of the master Plan Area and/or public facility will not result in the City being unable to maintain existing facilities at their current service levels.

e. Notwithstanding the improvements proposed by any development, all developments will be required to contribute their pro rata share towards the completion of established Master Plan improvements.

Safety Element

Policy 4.16 The City shall evaluate areas within its Planning Area to identify areas of potential localized flood hazards.

Policy 4.17 In areas identified as being potentially subject to flooding, where the exact area and depth of flooding is uncertain, the applicant or developer of an annexation or development proposal shall be responsible for the preparation of a civil engineering report evaluating the flooding potential.

Policy 4.18 The City shall continue to implement and administer the Master Plan for Storm Drainage as a means of offsetting increased storm water runoff from urbanization.

Policy 4.19 The City shall incorporate maps from appropriate state and federal agencies that identify all flood hazard areas within the General Plan Planning Area into its Geographic Information System.

Policy 4.20 The City shall encourage new development to avoid floodplains or require developers to mitigate and protect against flood impacts if development is to be located in such areas.

Policy 4.21 The City shall seek and petition the County of Fresno, Council of Fresno County Governments and other agencies and cities impacted by potential dam failure, to participate in the completion of a disaster plan dealing with Pine Flat Dam failure.

Policy 4.22 The City shall prepare a local emergency evacuation plan responding to the complete failure of Pine Flat Dam at peak capacity. The evacuation plan shall be coordinated with other responsible and impacted jurisdictions.

Open Space, Conservation and Recreation Element

Policy 5.15 Use conservation irrigation technology as well as a water efficient plant palette for all City-owned properties.

Policy 5.16 Areas with high erosion potential or soil instability which cannot be mitigated shall be designated for open space land uses.

Policy 5.17 Channel and slope modification shall be discouraged where they increase the rate of surface runoff and increase the potential for erosion.

Policy 5.18 The City shall endeavor to mitigate, to the extent feasible, activities which will exacerbate groundwater overdraft.

Public Services and Facilities Element

Policy 6.1 Coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms including assessment district, property owner's association's user fees, development impact fees, mitigation payments, reimbursement agreements and/or other mechanisms which provide for equitable distribution of development and maintenance costs.

Physical

SURFACE WATER

The primary surface waters in the vicinity of Selma include the Centerville and Kingsburg Canals, which run through the east side of the community, Fowler Switch Canal and Rockwell Pond, which are located in the northwest part of the Planning Area, and the Kings River.

The Kings River is located approximately seven miles east of downtown Selma. The drainage area of the Kings River above Pine Flat Dam is 1,542 square miles, and the average annual flow at this point is 1,727,500 acre-feet (Friant Water Users Authority, September 2001). Pine Flat Dam is the main irrigation conservation facility on the Kings River and is operated by the Kings River Water Association, an organization of Kings River diverters. Water released from Pine Flat Dam flows through the various channels of the Kings River in the Valley to the diversion points of 22 water agencies in Kings, Tulare, and Fresno Counties. In extremely wet years, Kings River water flows to the ocean through the Fresno Slough or to Tulare Lake through the south fork of the Kings River.

One of the districts diverting water from the Kings River is the 145,000-acre Consolidated Irrigation District (CID) within which Selma is located. Summers Engineering (2007) reports that this district uses an average of 239,000 AF of surface water annually to supplement an average of 80,500 acre-feet (AF) of pumped groundwater. Current agricultural operations in

CID use an average of 2.1 AF of water per irrigated acre per year with .70 AF of groundwater per acre, and 1.40 AF per acre of surface water.

FLOODING

FEMA uses the national standard of the 100-year flood as the base flood-line for purposes of flood plain management. The 100-year flood zones are delineated by FEMA and indicated on the Flood Insurance Rate Map for the Selma area. Selma's flood boundaries generally correspond to the location of ponds and other flood control structures throughout the community. Other state and federal sources of current information and maps must also be used when considering development of structures, roads, utilities and essential public facilities in a potential flood hazard area.

GROUNDWATER

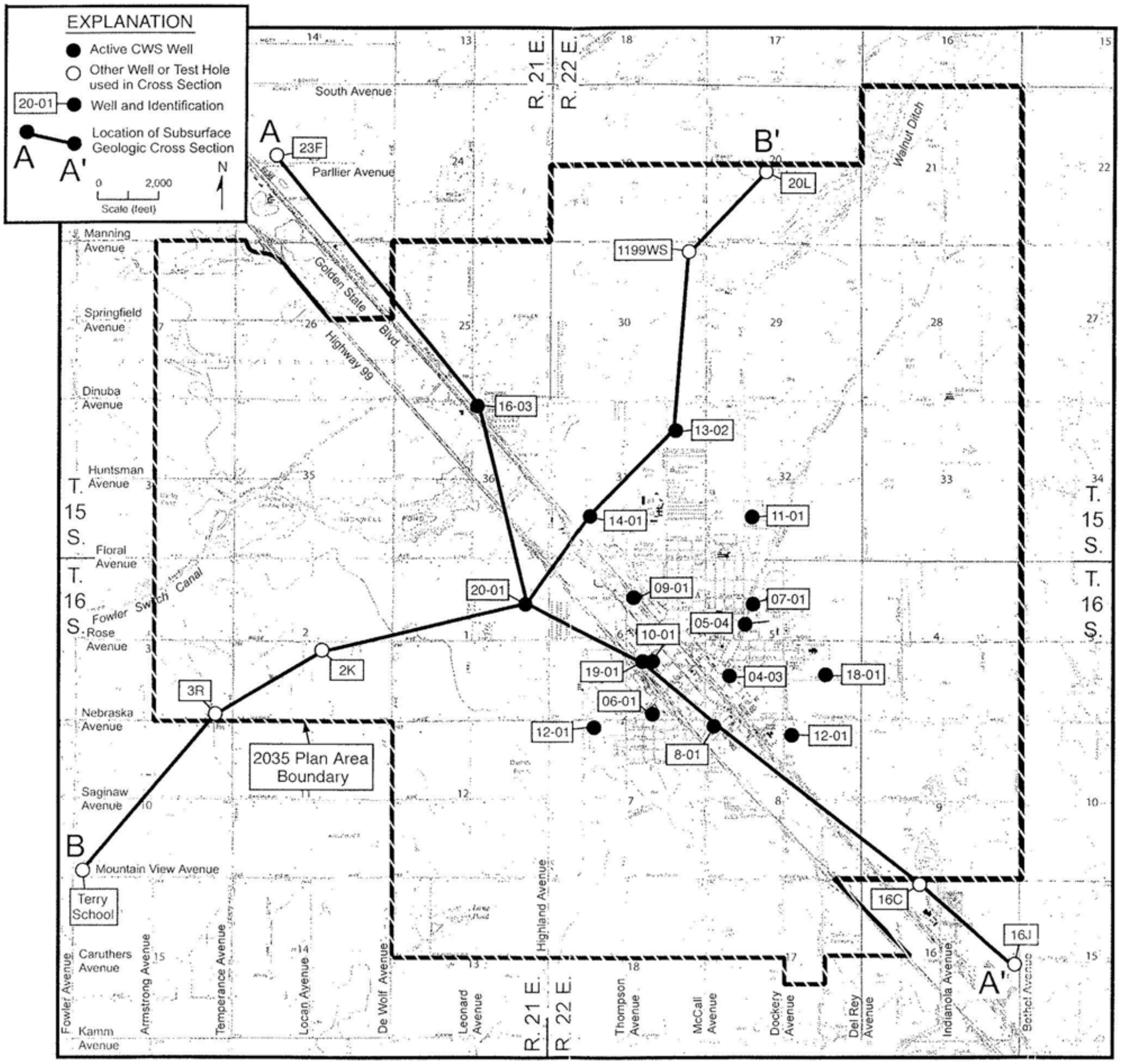
Selma is located in the Kings sub-basin of the San Joaquin Valley groundwater basin in the Tulare Lake hydrologic region. The sub-basin encompasses approximately 1,530 square miles and contains approximately 90 million acre-feet of water. Prior to agricultural and urban development, groundwater moved from areas of recharge along the eastern rim of the Valley to areas of discharge along the Valley axis. Recharge was primarily by seepage from stream flows. Under present conditions, groundwater is recharged primarily from stream flow percolation, from percolation basins developed by agricultural irrigation districts, percolation from storm drainage basins, and from treated wastewater disposal facilities and from percolation attributed to excess applied surface irrigation water. Groundwater depth in the Selma area is approximately 60 feet below ground surface level.

California Water Service

California Water Service (CWS) provides water service within the Selma City limits and to a small neighboring area of Fresno County. Water from the system comes from 15 underground water wells (see Figure 3.8-1). Of these wells, Well No. 05-04 has been on standby and Well No. 12-01 is temporarily out of service. Table 1 of the Groundwater Conditions Report found as Appendix H provides construction data for CWS wells. The CWS wells have a maximum combined production capacity of approximately 13 million gallons per day (mgd), which equals approximately 9,028 gallons per minute (gpm). The maximum daily demand is 12 mgd, and the daily average demand is 5.9 mgd (6,600 AF per year). CWS reports that the system is adequate to satisfy current demand and provide required Uniform Fire Code fire flows, but it is expected that new wells and other facilities will be needed to keep ahead of demand. The City's groundwater is in compliance with all federal water requirements.

Consolidated Irrigation District

The Consolidated Irrigation District (CID) was organized on September 8, 1921, in accordance with the Irrigation District Law of the State of California Water Code. CID diverts water at the Gould and Fresno Weirs to provide surface water from the Kings River to farms within CID's service area. CID has 119,000 Acre-Feet (AF) of storage in Pine Flat and another 22,937 AF in other upstream storage facilities.



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LOCATION OF ACTIVE CALIFORNIA WATER SERVICE CO. SELMA WELLS AND SUBSURFACE GEOLOGIC CROSS SECTIONS

Figure 3.8-1

According to the *Urban Impacts White Paper* (November 2007) prepared for CID (reference Appendix G), CID is comprised of approximately 145,000 gross acres of irrigable land. Approximately 95,000 acres are capable of receiving surface water through the District's diversion from the Kings River. CID's average annual surface water deliveries are approximately 239,000 acre-feet. The remaining 50,000 acres obtain a water supply of approximately 80,500 acre-feet exclusively from pumped groundwater**.**

CID's water delivery system is comprised of approximately 350 miles of open channels, which include constructed ditches and channelized natural drains and sloughs. The water system also includes more than 50 dedicated recharge basins with a total surface area of approximately 1,300 acres. Irrigation deliveries are diverted from the Kings River to eligible District growers through the system of ditches and laterals. These deliveries typically occur in the spring and summer and their annual duration and volume are dependent upon runoff conditions in the Kings River. The river is regulated by Pine Flat Dam, which is located upstream of CID's diversion point. When there are flood releases from the dam, which typically occur in the winter and spring, CID diverts a portion of the flood flow into its recharge basins through the same system of ditches and laterals that are otherwise used for irrigation deliveries. The native soils in the District are sandy and allow relatively rapid infiltration through dedicated recharge basins, unlined canals, or the ground surface of agricultural lands. The groundwater basin is also largely unconfined.

On an average annual basis, the land in CID that is eligible for surface water deliveries (approximately 65% of total CID acreage) receives a little over half of its irrigation supplies from imported Kings River water. All other irrigation in the District is supplied with pumped groundwater. All of the incorporated cities, urban areas, and commercial-industrial water users in the District also rely on pumped groundwater for 100 percent of their municipal and industrial supplies.

CID maintains a system of approximately 85 groundwater monitoring wells located on a two-mile square grid pattern throughout the District. The water in these wells have been measured and recorded by District staff multiple times per year since 1923. When the average depth to groundwater in the monitoring wells is plotted over the period of record, there is a definite downward trend, indicating that groundwater overdraft is occurring. The District is located within the Kings sub-basin, and the California Department of Water Resources has published bulletins which list the Kings sub-basin as being subject to critical conditions of overdraft.

Because of capacity and water quality issues, CID policy now dictates that no new or additional urban runoff is to be discharged into District facilities.

GROUNDWATER QUALITY

In general, the groundwater quality of the City is relatively high with the exception of one major contaminant, dibromochloropropane (DBCP), a soil fumigant nematicide. Like many east side San Joaquin Valley communities, Selma has experienced DBCP contamination in City wells to the point that one well has been abandoned and another uses an activated carbon filter to reduce DBCP to an acceptable level (the well that was abandoned was also contaminated with EDB, a chemical used in dry-cleaning). Many of the existing wells and new well sites in the City may require treatment to remove DBCP. Other than this contaminant, the City's groundwater supply is suitable for domestic purposes with normal treatment (chlorination).

STORM DRAINAGE

The City of Selma does not have a history of flooding. According to the Public Services and Facilities Element of the General Plan (City of Selma, July 1983), "Local storm water drainage is provided by a network of ponding basins, canals and storm drains. Most of the newer areas of the community are well drained, however, some of the older areas, such as those bounded by Valley View, Floral, Olive and Thompson Avenues do experience some localized ponding during heavy rain concentrations." The City of Selma's storm drain system consists of surface runoff to streets (curbs and gutters), subsurface storm drainage pipelines, canals and retention basins.

3.8.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the *CEQA Guidelines*, a project will normally be considered to have significant impacts to hydrology and water quality if it would:

a) *Violate any water quality standards or waste discharge requirements*

b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)*

c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site*

d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site*

e) *Create or contribute to runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff*

f) *Otherwise substantially degrade water quality*

g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or other flood hazard delineation map*

h) *Place within a 100-year flood hazard areas structures which would impede or redirect flood flows* *i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam*

j) Inundation by seiche, tsunami, or mudflow

As discussed in Chapter One, Introduction, certain issues were analyzed in the Initial Study and found to be less than significant, and therefore need no further analysis. The Initial Study found that the project would have a less than significant impact to potentially altering the existing drainage pattern in the area which would result in substantial erosion or siltation or flooding, and that it would have no impact from inundation by seiche, tsunami or mudflow. These issues are therefore not discussed further in this Draft EIR. Consult the Initial Study in Appendix A for more information.

3.8.3 IMPACTS

Impact #3.8.3.1 – Water Quality: Water quality can be impacted by the discharge of soils and other pollutants, often associated with urban runoff and construction activities. In addition, grading and construction activity can cause erosion, increasing the sediment load or runoff. These non-point source pollutants in the runoff may flow into local surface waters or seep into the groundwater table and incrementally deteriorate water quality. Pollutants associated with urban uses include grease, oil, pesticides, fertilizers and litter entering drainage facilities, which would have adverse effects on wildlife and human health. As development occurs in accordance with the proposed Plan Update, the possibility of additional urban and construction related runoff would increase. Until urban development occurs on portions of the Plan Area currently in intensive agricultural use, water quality impacts will continue to result form application of fertilizers, pesticides and other agricultural related uses.

Although the Kings Basin is experiencing a range of groundwater quality problems in the upper aquifer which include the presence of nitrates, organic chemicals, arsenic, and other contaminants that could cause impairment and/or result in problems complying with drinking water standards, the quality of groundwater in most of the Plan Area, in general, has been suitable for public supply, except for DBCP and uranium in the shallow groundwater at some locations. Since 1983, new CWS wells have been drilled to depths of at least 600 feet and the upper aquifer sealed off. Other new water system wells have also been constructed in a similar manner. As discussed below, the quality of groundwater below a depth of about 300 feet and above a depth of about 700 feet beneath the Plan Area appears to be excellent for public supply. Shallower groundwater is generally only suitable quality for irrigation use.

INORGANIC CONSTITUENTS

Table 3 of the Groundwater Conditions Report found as Appendix H shows the results of analyses for selected constituents for water samples collected from shallower CWS Selma wells during 2007-08. Total Dissolved Solids (TDS) concentrations ranged from 136 to 260 mg/l. The lowest TDS concentrations (175 mg/l or less) were in water from Wells No. 05-03, 07-01, 11-01, and 14-01. The first three of these wells were near the C&K Canal, and the other was near the Walnut Ditch. The waters from this group of wells were of the calcium or calcium-sodium bicarbonate type, and pH values ranged from 8.0 to 8.3. Nitrate concentrations in water from these wells ranged from 8 to 29 mg/l, below the Maximum Contaminant Level (MCL) of 45 mg/l. The lowest nitrate concentrations (15 mg or less) were from the wells with the lowest TDS concentrations. Concentrations of iron, manganese, and arsenic in water from these were well below the respective MCLs.

Table 4 of the Groundwater Conditions Report found as Appendix H shows the results of analyses for inorganic constituents in water samples collected from deeper CWS Selma wells during 2007-08. TDS concentrations ranged from 62 to 132 mg/l. Water from three of these wells (No. 17-02, 19-01, and 20-01) were less than 70 mg/l. The waters were of the sodium or calcium-sodium bicarbonate type and pH values ranged from 8.3 to 8.9. Nitrate concentrations in water from these wells ranged from less than 1 to 11 mg/l.

Concentrations of iron and manganese were well below the respective MCLs. Arsenic concentrations ranged from about 2 to 5 ppb, below the MCL of 10 ppb.

RADIOLOGICAL CONSTITUENTS

CWS Selma Well No. 15-01 is now inactive, but produced uranium concentrations near or exceeding the MCL. This well was perforated from 160 to 300 feet in depth. Table 3 of the Groundwater Conditions Report found as Appendix H indicates that alpha activities in water from the shallower CWS Selma wells ranged from about 3 to 9 picocuries per liter in 2007-08, below the MCL of 15 picocuries per liter. The highest alpha activities were generally in wells with the shallowest perforations. Table 4 of the Groundwater Conditions Report found as Appendix H indicates that alpha activities in water from all of the deeper CWS Selma wells were less than 3 picocuries per liter.

TRACE ORGANICS

DBCP was applied in some irrigated lands in the eastern San Joaquin Valley to control nematodes, particularly for vineyards on sandy soils, until it was banned in 1977. CSUF (1994) evaluated the distribution of DBCP in the Kings Basin, which includes the Plan Area. High DBCP concentrations in groundwater usually coincide with sandy topsoils, coarse-grained under-lying alluvium, and vineyards. DBCP in the groundwater has been found to be primarily above a depth of about 250 feet in the Selma area. Tables 3 and 4 of the Groundwater Conditions Report found as Appendix H also show DBCP concentrations in water from CWS Selma wells in 2007-08. DBCP was detected in water from four of the shallower CWS Selma wells at concentrations ranging from 0.05 to 0.15 ppb, below the MCL of 0.2 parts per billion (ppb). Water from CWS Well 14-01 is treated for DBCP removal. CWS Selma cable-tool wells that draw water from below a depth of about 290 feet appear to normally have had no detectable DBCP concentrations in the pumped water. DBCP concentrations in water from three deeper CWS Selma wells were non-detectable (Table 4 of the Groundwater Conditions Report found as Appendix H). Water from the other three of the deeper wells had DBCP concentrations ranging from 0.02 to 0.05 ppb, below the MCL.

Goal 4 of the Plan Update Open Space, Conservation and Recreation Element states, “preserve groundwater quality and encourage reduction of overdraft conditions.” To protect water quality from new development, the Plan Update includes policies 5.16 and 5.17 which state that areas with high erosion potential or soil instability that cannot be mitigated shall be designated for open space land uses and channel and slope modification shall be discouraged where they increase the rate of surface runoff and increase the potential for erosion.

Conclusion: The quality of groundwater in most of the Plan Area is generally suitable for public supply. Although the Plan Update would allow new development that could contribute to erosion and create additional urban pollutants that could end up in the surface or groundwater systems, implementation of the above referenced policies and adherence to Federal, State and local regulations will reduce potential water quality impacts to a **less than significant** level.

Mitigation Measure: No mitigation measures are required.

Impact #3.8.3.2 - Storm Water Drainage and Disposal: New development in the Selma Planning Area as a result of the proposed General Plan could introduce elevated levels of urban pollutants. Those pollutants could be carried in storm water runoff to drainage courses. Surface and groundwater quality degradation could be significant unless actions are taken to reduce the volume of pollutants generated and/or to adequately remove pollutants from storm water.

Selma's Storm Water Management Plan outlines ponding and facilities for the City's storm runoff which either currently depends upon or proposes use of CID facilities. Rockwell Pond, Walnut Pond, Benight Pond and the Selma Branch Ditch are all owned and operated by CID. A large majority of Selma's existing development is reliant upon CID Facilities for storage of stormwater run-off. New development which would occur from the Plan Update could result in potential water quality impacts resulting from oils and chemicals that are spilled through storm run-off without filter or catch basins.

Most of the storm water runoff collected in the City's drainage system is discharged to irrigation ditches operated by the CID. Discharge limitations have been established through mutual agreements between the City and CID. The standards and discharge criteria for NPDES Phase II programs are becoming more stringent, and when applicable would require an amendment to current agreements for discharge quality and quantity standards.

The Land Use Element of the Plan Update includes policies to require residential development to be located where services and facilities can be provided or within a master Plan Area where they have been planned for (Policies 1.92 and 1.94 of the Land Use Element). As a means of offsetting increased storm water runoff from urbanization, the City implements and administers the Master Plan for Storm Drainage (Policy 4.18 of the safety Element). Goal 4 of the Public Services and Facilities Element states, "coordinate required improvements of the sewer and storm drainage systems." Policy 6.1 of the Public Services and Facilities Element calls for the City to coordinate sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms.

Conclusion: Adherence to Federal, State and local regulations and implementation of the above referenced policies of the Draft General Plan will help to reduce potential storm water drainage impacts resulting from development under the 2035 Plan; however, the impact remains **potentially significant**. In addition to the above mentioned policies, the following new policies are required to lessen the impact:

Mitigation Measure #3.8.3.2:

- The City shall provide storm drainage facilities, per the Storm Water Management Plan and CID regulations, with sufficient capacity to protect the public and private property from stormwater damage. The facilities will also be implemented in a manner that reduces public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required drainage improvements (i.e., drainage basins, etc.) and does not provide a net increase in the quantity or water or contaminants currently entering the CID system from the site. *[New Policy – Draft EIR Analysis]*.

- During the development review process, the City shall not approve new development unless the following conditions are met:

  - The applicant can demonstrate that all necessary infrastructure to serve the project will be installed or adequately financed;

  - Infrastructure improvements are consistent with City infrastructure plans and applicable plans of affected agencies (i.e., CID); and

  - Infrastructure improvements incorporate a range of feasible measures that can be implemented to reduce public safety and/or environmental impacts associated with the construction, operation, or maintenance of any required improvement. *[New Policy – Draft EIR Analysis]*.

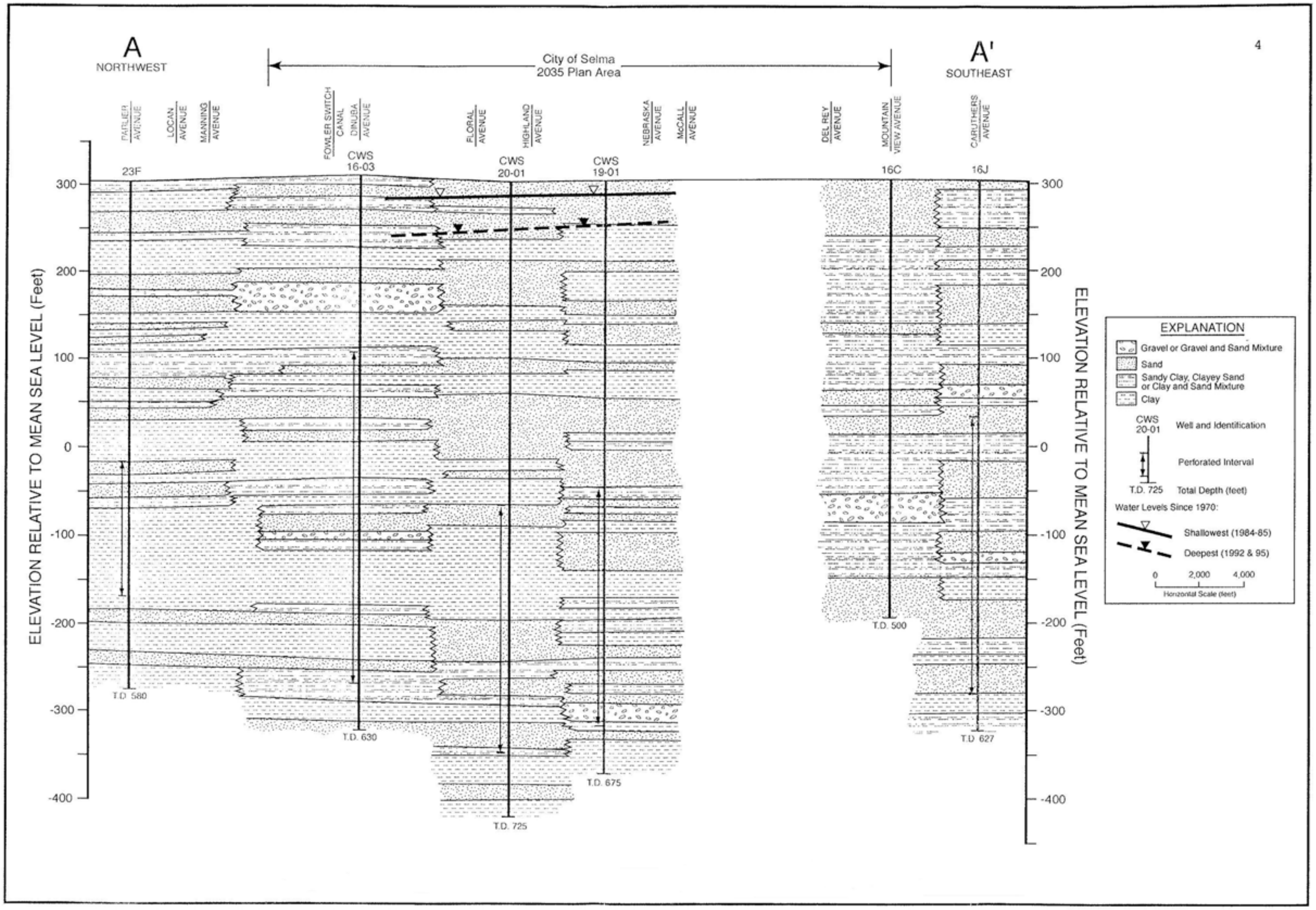
Effectiveness of Mitigation: Implementation of the existing adopted regulations and the additional policies and standards above will result in no net additional storm water being disposed of into CID facilities, and construction of additional facilities that are in conformance with the Storm Water Management Plan, and in conformance with the state and local regulations. Conformance with these requirements will render these impacts **less than significant**. Individual projects that cannot meet this standard should be reexamined in a subsequent CEQA document.

Impact #3.8.3.3 – Groundwater Depletion: To assist in the analysis of the proposed Plan Update impact on groundwater, Kenneth D. Schmidt and Associates has prepared an evaluation of groundwater conditions in the City of Selma dated June, 2009. The complete report is found as Appendix H and summarized below.

SELMA AREA GROUNDWATER OVERVIEW

Highly permeable alluvial deposits are present in the Selma area, and these are tapped by numerous water supply wells in the area. Prior to the 1980s, private domestic, city, and irrigation wells tapped deposits within the uppermost 350 feet of the alluvium, which is termed the Quaternary Older Alluvium. Somewhat finer-grained deposits are usually present below a depth of about 350 feet, and these are termed the Tertiary-Quaternary continental deposits. Starting in the 1980's, deeper CWS Selma wells began to be drilled, due to water quality problems with the shallow groundwater. These newer wells tap strata below a depth of 340 feet and above a depth of 650 feet.

Two subsurface geologic sections were developed for this study and are illustrated in Figure 3.8-1. The first (Section A-A') extends from the northwest to the southeast, generally along Highway 99 and is illustrated in Figure 3.8-2. This section extends from a deep City of Fowler well near Parlier Avenue, to the southeast through three deep City wells, to a deep test well and deep supply well that are south of Mountain View Avenue. This section is oriented perpendicular to the inferred dip of the alluvial deposits, and thus the layers of deposits appear to be relatively flat. The color of the deposits above a depth of about 600 to 700 feet along this section is indicated to primarily be brown. Sand and gravel layers are common, and many clay layers are discontinuous along this section. One fairly continuous clay layer averages about 80 feet deep beneath the part of the section north of Nebraska Avenue. Another fairly continuous clay layer averages about 180 feet deep in the same area. A third fairly laterally extensive fine-grained layer is at an average depth of about 300 feet along most of this section. This deep layer is indicated to be important in terms of groundwater quality, which is described in a later part of this report.



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SUBSURFACE GEOLOGIC CROSS SECTIONS A – A[1]

Figure 3.8-2

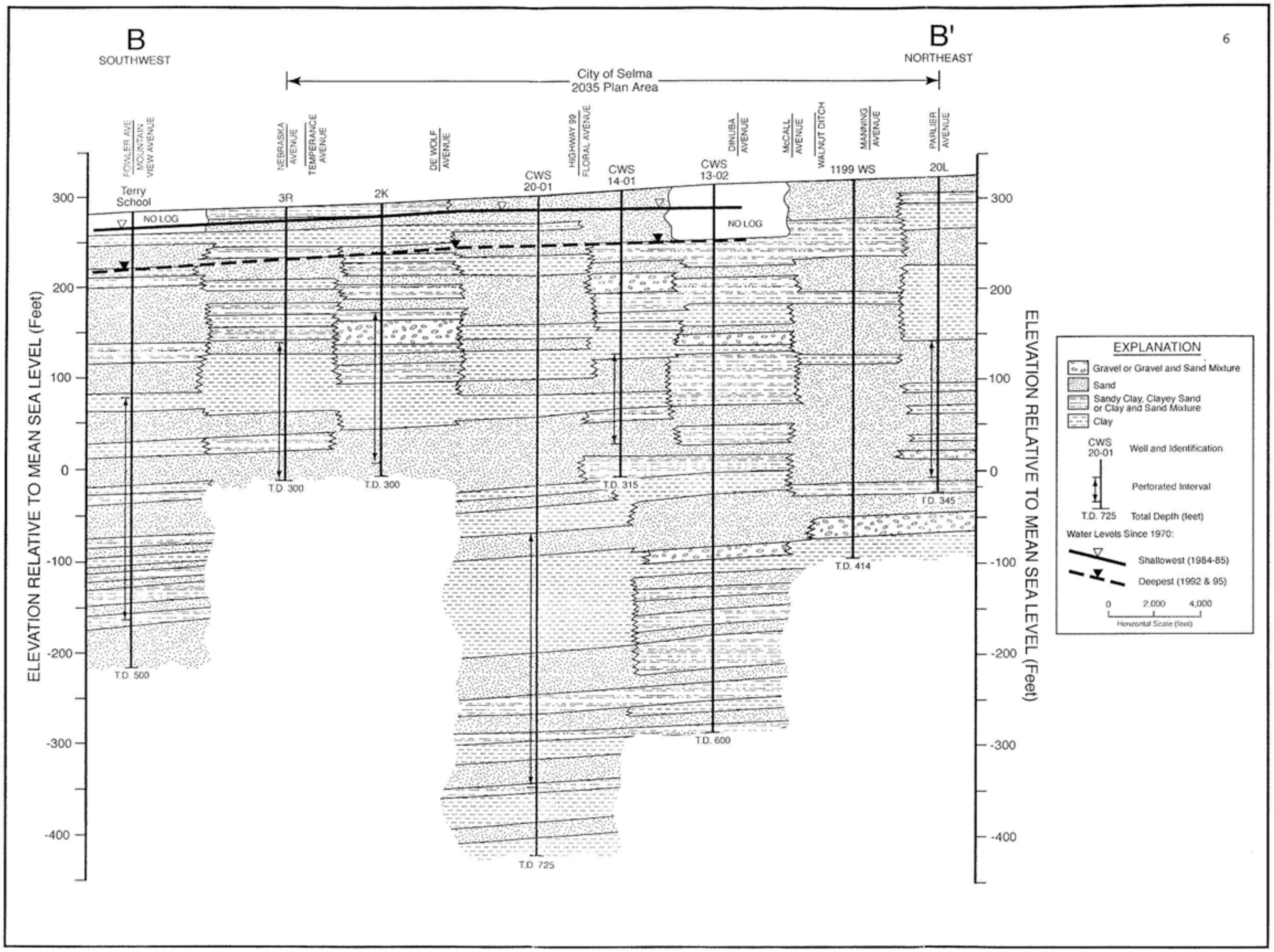
Cross Section B-B' (Figure 3.8-3) extends from near Fowler and Mountain View Avenue, to the northeast through two deep CWS wells, thence further north-northeast through a moderately deep water system well, to near Parlier Avenue, east of McCall Avenue. This section is oriented along the inferred dip of the alluvial deposits, and the layers slightly dip to the southwest. Coarse-grained strata are also predominant above a depth of about 350 feet along this section. Apparently continuous clay layers are present at average depths of about 60 feet, 200 feet, and about 350 feet along most of the section. The deepest of these is indicated to be important in terms of groundwater quality. Fine-grained strata appear to be predominant below a depth of about 400 feet along this section. However, enough interbedded sand layers are also present that highly productive wells tapping only deep strata can be developed.

SELMA AREA WATER LEVELS

Water levels in eight wells in or near the study area have been regularly measured since 1946. Table 2 of the Groundwater Conditions Report found as Appendix H provides water-level data for January 11, 2006. The water levels ranged from 46 to 60 feet deep on January 11, 2006 and were shallowest in two wells (T15S/R22E-32N1 and 33R1) in and east of the City. The deepest water levels on January 11, 2006 were in two wells along Fowler Avenue to the west (T15S/R21E-27D1 and T16S/R2lE-l5Dl). Figure 3.8-4 shows water-level elevations and the direction of groundwater flow for January 11, 2006. The highest water-level elevation was at Well T15S/R2lE-33Rl, east of the City, and the lowest was at Well T16S/R21E-l5Dl, to the southwest near Mountain View and Fowler Avenues. The direction of groundwater flow was generally to the southwest, and the influence of CID pond recharge was apparent, due to the curvature of the contours in their vicinity.

Water-level hydrographs were prepared for the wells and are shown on Figure 3.8-4 and are provided in Appendix A of the Groundwater Conditions Report found as Appendix H. Water levels in wells in the Selma vicinity rise and fall, largely depending on Kings River water deliveries to the CID. Since 1960, there has been an overall decline in the water levels in Well 32N1 averaging about 0.2 foot per year. Except for two wells near the west boundary of the Plan Area (T15S/R21E-27Dl and T16S/R21E-l5Dl), water-levels in the other wells in the Plan Area with long-term records have fallen an average of 0.3 foot per year since 1960. Water levels in Well 27D1 and 15D1 have decreased an average of 0.5 to 0.6 foot per year since 1960. There have been greater water-level declines in the area west and southwest of the Plan Area than farther east.

There are a number of CID recharge ponds in the Selma area, and these have been used to recharge the groundwater, along with seepage from canals and deep percolation of applied canal water. According to Summers Engineering (2007), the average rate of water-level decline in the CID has been about 1.5 feet per year.



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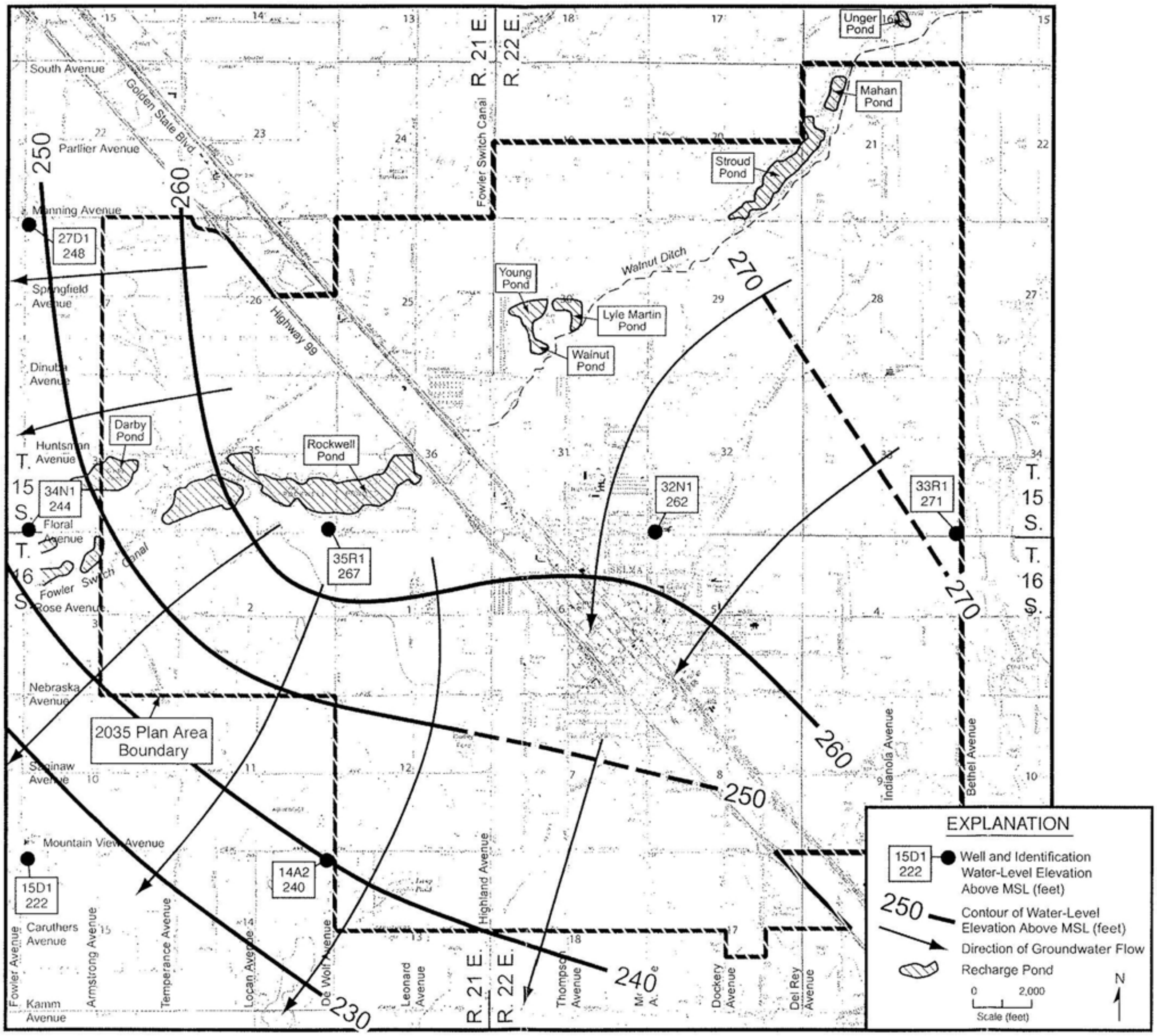
SUBSURFACE GEOLOGIC CROSS SECTIONS B – B[1]

Figure 3.8-3



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WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW (JANUARY 11, 2006)

Figure 3.8-4

WELL PRODUCTION

Records of the California Department of Health Services (CDOHS) indicate that operational pumping rates for most of the cable-tool drilled CWS Selma wells have ranged from about 500 to 800 gallons per minute (gpm). For the deeper gravel packed wells, operational pumping rates have usually ranged from about 700 to 1,200 gpm.

DOHS records indicate that total CWS Selma water system production in 2006 was about 6,300 acre-feet. This was for a total of 6,315 connections serving a population of about 24,000 residents for an average of approximately 235 gallons per day per person. Approximately 110 gallons per day per person is for potable household usage that is eventually sent to the treatment plant, with the balance (125 gallons per day per person) presumably for irrigation and outdoor use. There are also several industries in the City of Selma that have their own wells for water supply. The annual production from these wells is estimated to be about 500 acre-feet per year.

RECHARGE

Summers Engineering, Inc. (2002) described water supplies in the CID. The two main canals are the Fowler Switch Canal, which passes through the Plan Area near the northwest corner of the City, and the Centerville and Kingsburg (C&K) Canal, which passes through the east and south parts of the City. Canal water deliveries normally begin in April and end in mid-August. The CID conducts recharge to the groundwater by seepage from the canals and dedicated recharge basins. There is typically basin recharge when there are excess flows or flood releases in the Kings River. Plate D-1 of Summers Engineering shows locations of recharge ponds near Selma, and these are shown in Figure 3.8-4. Summers Engineering (2007) indicated that pond deliveries in the CID averaged about 31,000 acre-feet per year over the period of record with an estimated 20,000 acre-feet per year of canal seepage and pond deliveries during the irrigation season. In addition, Summers Engineering (2007) estimated that deep percolation losses from water applied to irrigated fields in the CID were about 30 percent.

Data from the Selma-Kingsburg-Fowler County Sanitation District (SKFCSD) indicate a wastewater flow from Selma of about 3,000 acre-feet in 2008 for a wastewater generation rate of approximately 110 gallons per day per persons. The effluent is sent to a series of ponds south of Conejo Avenue, and 2,700 acre-feet of it from Selma percolates to the groundwater, while the remainder evaporates.

GROUNDWATER OVERDRAFT

Based on the water-level hydrographs for the wells in the 2035 Plan Area with long-term records, the average rate of water-level decline since 1960 has been about 0.35 foot per year.

Using an estimated average specific yield of 0.15 for the shallow deposits, the amount of groundwater overdraft in the Plan Area has averaged about 800 acre-feet per year since 1960.

EXISTING WATER BUDGET

Urban

CDOHS records indicate that pumpage from CWS Selma wells was 6,300 acre feet in 2006, or an average of about 2.6 acre-feet per acre per year for the 2,400 acres in the City limits. There is an additional estimated pumpage of 500 acre-feet per year from several industries in the City of Selma. Information from the SKFCSD indicates a dry weather wastewater influent amount from the City of Selma of 2,600 acre-feet in 2008. The estimated outdoor water use in the City was thus about 3,700 acre-feet per year. Assuming an average irrigation efficiency of 60 percent in the urban area, the consumptive use of applied water in the urban area would be about 2,200 acre-feet per year, or about 0.9 acre-foot per acre per year.

Information on SKFCSD effluent ponds evaporation and percolation is submitted by the SKFCSD to the Regional Water Quality Control Board on an annual basis. Of the City of Selma contribution to wastewater effluent from the SKFCSD Waste Water Treatment Facility (WWTF), an estimated 200 acre-feet per year (rounded), has been lost to pond evaporation, when the ponds have been allowed to gradually plug. Thus the total consumptive use for the City of Selma was about 2,400 acre-feet per year, or about 1.0 acre-foot per acre per year. In 2009 the percolation ponds were deep ripped, and after this was completed, the pond water surface area decreased from about 110 acres to 15 acres (Ben Munoz, personal communication). Thus infiltration rates from the ponds can be increased and evaporation rates decreased in the future by periodic maintenance. Recharge of storm water in the City hasn't been exactly determined, but is estimated to be less than 100 acre-feet per year.

Rural

Summers Engineering (2007) summarized canal water deliveries in the CID. The CID delivers an average of 239,000 acre-feet per year of water to 95,000 acres in the CID. Assuming that two-thirds of the 9,900 irrigated acres in the Plan Area were provided canal water by the CID (based on the District-wide average), the canal water delivery to the Plan Area would average 15,000 acre-feet per year. According to Summers Engineering (2007), the CID recharges an average of about 51,000 acre-feet per year in recharge ponds and canals in the District. An estimated 500 acres of these ponds are in the 2035 Plan Area. The estimated recharge from the ponds and canals in the Plan Area averages about 10,000 acre-feet per year.

Aerial photos were reviewed for the 2035 Plan Area by Kenneth D. Schmidt and Associates when preparing the groundwater conditions evaluation found as Appendix H. The part of the area east of Locan Avenue was covered by a photo taken August 20, 2004, and the part of the area to the west was covered by a photo taken March 30, 2007. The Plan Area encompasses about 15,200 acres of land. Of this land, the aerial photos revealed that a total of about 9,900 acres was irrigated, 3,100 acres were urban, 500 acres were recharge basins, and 1,700 acres were idle land, agricultural residences, and ancillary land in the rural area.

Based on a review of the aerial photos, there were about 8,040 acres of vineyards, 1,540 acres of deciduous orchards, and 400 acres of other irrigated crops in the 2035 Plan Area. Using California Department of Water Resources Bulletin 113-3 values for evapotranspiration of applied water by crops, the consumptive use of applied water in the Plan Area was 21,000 acre-feet per year. The average consumptive use in the rural area was thus 2.1 acre-feet per acre per year, or about twice the estimated urban consumptive use (including evaporation of the City's share of sewage effluent from SKFCSD ponds). Using an estimated irrigation efficiency of 60 percent, the applied water requirement for irrigation in the Plan Area would be about 35,000 acre-feet per year. If an average of 15,000 acre-feet per year of irrigation water has been delivered in this area from canals, then the groundwater pumpage for irrigation in the Plan Area has averaged about 20,000 acre-feet per year.

In the CID as a whole, canal water deliveries (for irrigation and recharge) have been less than the crop consumptive use and the groundwater outflow to the west. This is demonstrated by the history of water-level declines shown by water-level hydrographs for numerous wells in the District. The larger water-level declines aren't associated with urban areas, rather they are associated with pumpage for agricultural irrigation, both in and west of the CID. Average rates of water-level decline in the City of Selma Plan Area have been much less than the reported average decline in the CID. Using an average water-level decline in the 2035 Plan Area of about 0.35 foot per year since 1960, and a specific yield of about 0.15 for the shallow deposits, the average annual groundwater overdraft in the Plan Area has been about 800 acre-feet per year.

IMPACTS OF DEVELOPMENT OF PLAN AREA ON GROUNDWATER

Based on the Plan Update land use diagram, about 14,700 acres of land would ultimately be urban (excludes CID canals and recharge ponds). California Water Service (2006) has estimated the water requirement for year 2030 would be about 27,600 acre-feet per year. If groundwater pumpage alone is used to supply the urban demand for the 2035 planning area, the increased pumpage would be about 8,000 acre-feet per year compared to existing conditions for a total urban consumptive use of about 15,000 acre-feet per year under full development of the Plan Area. This would be about 13,000 acre-feet per year less than the estimated present consumptive use in the Plan Area. The amount of wastewater generated in the Plan Area would be about 13,000 acre feet per year. If all of this was exported out of the Plan Area, there would be an average water deficit of about 15,000 acre-feet per year in the Plan Area. If the canal water formerly used for irrigation in the Plan Area (15,000 acre-feet per year) were used or recharged in the Plan Area under full development, then the deficit would be eliminated. If the 10,000 acre-feet of additional wastewater was used or percolated in the Plan Area, this would reduce the deficit significantly.

Goal 4 of the Public Services and Facilities Element states, “coordinate required improvements of the sewer and storm drainage systems.” Recognizing that the new development envisioned by the proposed Plan Update cannot occur without an adequate supply of water, the proposed Open Space, Conservation and Recreation Element of the Plan Update includes policy 5.18 which says the City shall endeavor to mitigate, to the fullest extent possible, activities which will exacerbate groundwater overdraft.

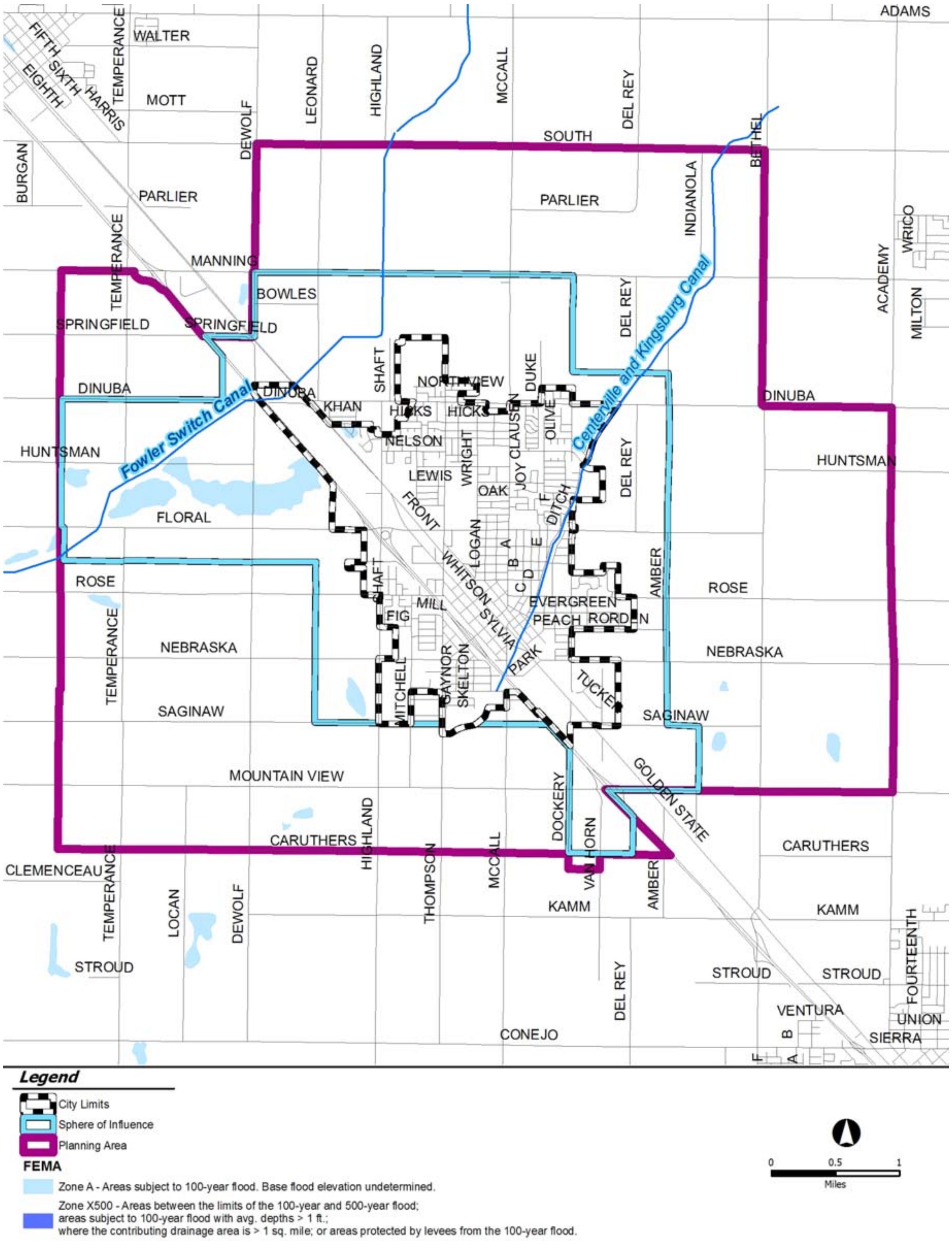
Conclusion: Based on the Plan Update land use diagram, about 14,700 acres of land would ultimately be urban (excludes CID canals and recharge ponds) within the Plan Area. California Water Service (2006) has estimated the associated water requirement would be about 27,600 acre-feet per year. If groundwater pumpage alone is used to supply the urban demand for the Planning Area, the increased pumpage over current usage would be about 8,000 acre-feet per year. There would be an estimated urban consumptive use of about 15,000 acre-feet per year under full development of the 2035 Plan Area. This would be about 13,000 acre-feet per year less than the estimated present consumptive use in the Plan Area. The amount of wastewater generated in the Plan Area would be about 10,000 acre feet per year. If all of this was exported out of the Plan Area, there would be an average water deficit of about 15,000 acre-feet per year in the Plan Area. If the canal water formerly used for irrigation in the Plan Area (15,000 acre-feet per year) were used or recharged in the Plan Area under full development, then the deficit would be eliminated. If the 10,000 acre-feet of additional wastewater was used or percolated in the Plan Area, this would reduce the deficit significantly. The ground water assessment herein and in Appendix H concludes that buildout under the Plan Update would result in about 13,000 acre-feet per year less water groundwater consumption than the estimated present consumptive use in the Plan Area.

Although CID has indicated that future growth as a result of the proposed General Plan along with future growth from the other incorporated and unincorporated communities within CID's service area could result in a potentially significant impact with regard to groundwater depletion and recharge, the ground water analysis prepared for the Plan Update supports a finding of **less than significant** impact. Implementation of the following mitigation measure will further reduce the impact.

Mitigation Measure #3.8.3.3: The City of Selma shall adhere to CID's Groundwater Mitigation and Banking Program as defined in the *Upper Kings Basin Integrated Regional Water Management Plan* (June 2007), which is available for review at the City of Selma. The CID program includes multiple recharge projects and facilities located on individual properties generally in the area east of SR 99. The program includes acquiring as many as 350 acres of land to develop direct recharge facilities (percolation ponds); development of necessary easements and rights of way; improvements to existing canal facilities and conveyance; development of secondary connector canals, pipelines, and related facilities; installation of measuring equipment; and percolation of Kings River and other waters at the new facilities or existing recharge sites. The CID will develop, own, operate, and maintain the groundwater banking facilities and manage the banked groundwater on behalf of co-sponsors or subscribers in the bank. As an alternative to the above, the City shall develop, own, operate, and maintain groundwater recharge basins in the Plan Area.

Effectiveness of Mitigation: Implementation of the mitigation measure above will further ensure a **less than significant** impact.

Impact #3.8.3.4 – Potential Flooding and Dam Inundation Hazards: Only a small portion of the Planning Area is within the 100-year floodplain (see Figure 3.8-5). However, the proposed General Plan would allow additional development within those areas that are subject to flooding.



Quad Knopf

100-YEAR FLOODPLAIN

Figure 3.8-5

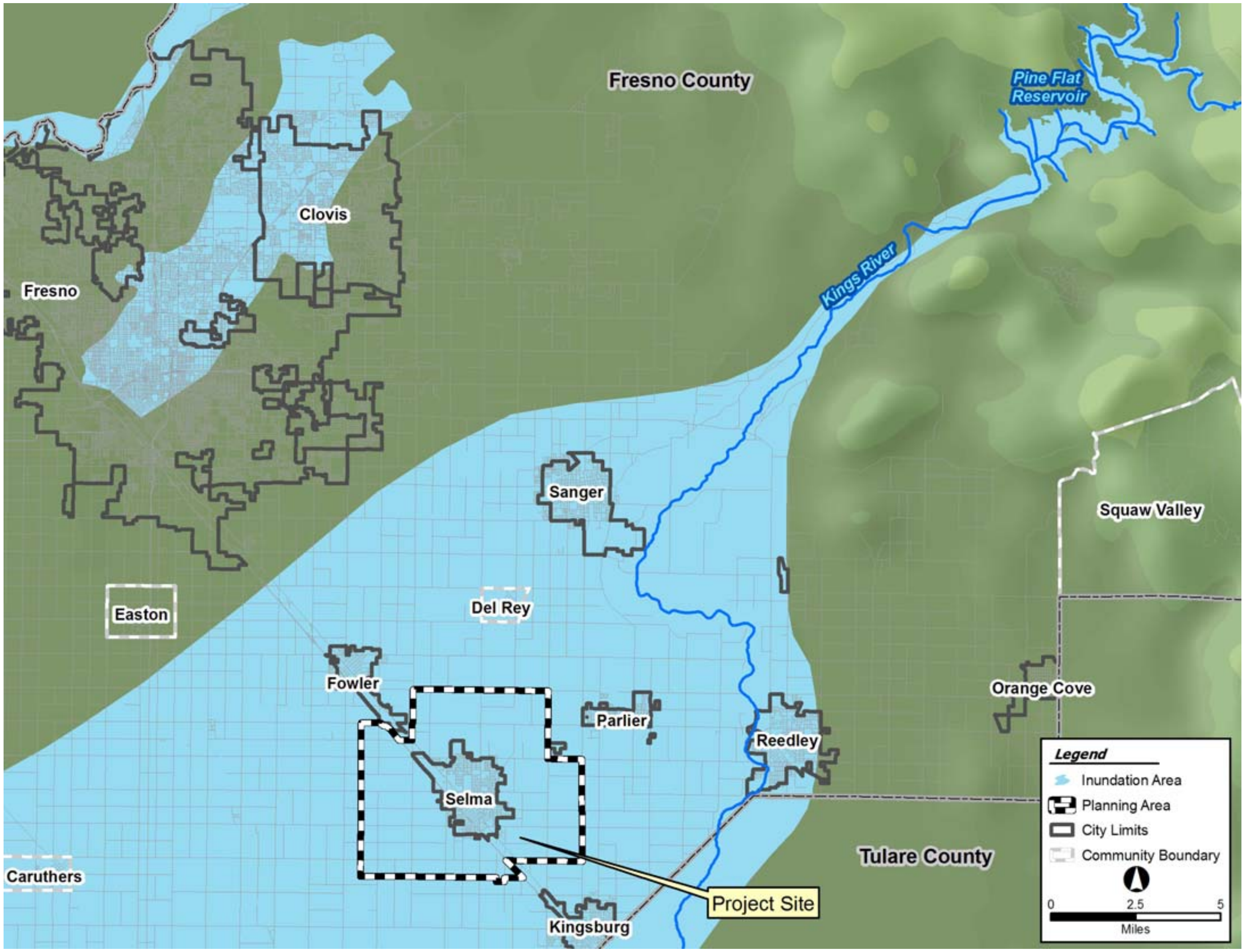
The Draft Safety Element of the Plan Update includes Policy 4.17 which requires that areas identified as being potentially subject to flooding, and where the exact area and depth of flooding is uncertain, the applicant or developer of an annexation or development proposal be responsible for determining the 100-year flood elevation through the preparation of a civil engineering report. Policy 4.18 says that the City shall continue to implement and administer the Master Plan for Storm Drainage as a means of offsetting increased storm water runoff from urbanization. Policy 4.19 says that the City shall develop and maintain a map using GIS technology that identifies all flood hazard areas within the Planning Area. Policy 4.20 says that the City shall encourage new development to avoid floodplains or to mitigate and protect against flood impacts if development is to be located in such areas.

The proposed General Plan also includes policies, as noted previously, to prevent groundwater depletion, minimize impacts from storm water drainage and to ensure that the City has high water quality standards.

Figure 3.8-6 shows that the City is within the dam inundation zone of Pine Flat Dam if it were to fail. The proposed General Plan would allow additional development to occur in areas of dam inundation risk. The risk of dam inundation is low and the Department of Water Resources is responsible for completing annual inspections of each dam for the purpose of safeguarding life and destruction of property. However, dam failure and resulting inundation can occur due to unforeseen events, which could result in severe flooding throughout the City. Government Code §65032(g) requires that jurisdictions include measures to reduce the risk of loss of life and property when the potential for dam inundation exists.

The Safety Element of the Plan Update includes Policy 4.21 which states the City will seek and petition the County of Fresno, Council of Fresno County Governments and other agencies and cities impacted by potential dam failure, to participate in the completion of a disaster plan in the event of failure of Pine Flat Dam. Policy 4.22 states the City shall prepare a local emergency evacuation plan responding to the complete failure of Pine Flat Dam at peak capacity. The evacuation plan shall be coordinated with other responsible and impacted jurisdictions.

In October 2007, the State of California enacted Assembly Bill 162 amending Government Code Section 65302 requiring cities and counties to increase their attention to flood-related matters in the land use, conservation, safety, and housing elements of their general plans.



Quad Knopf	PINE FLAT DAM FAILURE INUNDATION AREA	Figure 3.8-6

Conclusion: Although the potential for flooding and inundation is **potentially significant,** adherence to the Municipal Code and implementation of policies of the General Plan will reduce the flood hazard potential in the City. Once mitigation measures have been implemented to comply with Government Code §65302(g), potential flood hazards will be reduced to a **less than significant** impact. The risk of loss of life and property can be reduced to **less than significant** with the implementation of the above referenced policies and the following mitigation measures:

Mitigation Measure #3.8.3.4a: The City shall revise Policy 4.22 to include the following, "The City shall maintain a list that may be included in the Emergency Services Plan, or may be maintained by the City's Public Works Department, of pubic agencies with which it cooperates, especially those with responsibility for flood protection. This list will include for each agency, the general responsibility of the agency and when it may be called upon for assistance.

Mitigation Measure #3.8.3.4b: The City shall revise Policy 4.16, in compliance with Government Code §65302(g) to read, "The City shall evaluate areas within its Planning Area to identify areas of potential localized flood hazards using an official flood insurance rate map issued by the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program maps published by FEMA, information about flood hazards available from the U.S. Army Corps of Engineers, dam failure inundation maps available from the Office of Emergency Services, Awareness Floodplain Maps and 200-year flood plain maps available from the Department of Water Resources, historical data available from the City, County of Fresno, and any other sources as appropriate."

Define "Essential Facilities" according to Government Code 65302(g)(A)(iv) to include hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities.

Mitigation Measure #3.8.3.4c: The City shall revise Policy 4.21 to include the statement, "Essential services, when feasible, shall be located outside of flood hazard zones, or construction methods and other methods to minimize damage from flood hazards identified, so that structural and operational integrity is maintained during flooding."

Mitigation Measure #3.8.3.4d: The City shall revise Policy 4.22 to include, "The emergency plan shall include a means for notifying residents of the need to evacuate because of a potentially severe hazard, such as fire, flooding, or dam inundation. This means of notification is to be implemented as soon as possible after a hazard has been recognized as having the potential to harm or destroy property or human life."

Mitigation Measure #3.8.3.4e: The City shall add a policy, "The City shall develop a program with criteria to determine when construction of essential public facilities and other critical facilities will be permitted in flood hazard zones or areas with other geologic hazards."

Mitigation Measure #3.8.3.4f: The City shall add a policy, "The City Shall develop and maintain relationships with local jurisdictions, water districts, state agencies, and federal agencies for the purposes of 1) providing information for the public, 2) utilizing current data (e.g., National Flood Insurance Program maps), and 3) determining appropriate regulatory requirements for development in high hazard areas. This policy can be fulfilled by maintaining the multi-jurisdictional hazard mitigation plan."

Mitigation Measure #3.8.3.4g: The City shall add a policy, "The County should review the floodplain improvement projects identified in the County Multi-Jurisdictional Hazard Mitigation Plan annually for progress and necessary revisions

Mitigation Measure #3.8.3.4h: The City shall add a flood safety objective to the General Plan Safety Element "Develop and maintain cooperative relationships and mutual aid agreements with jurisdictions and agencies in the region."

Mitigation Measure #3.8.3.4i: The City shall add a flood safety objective to the General Plan Safety Element "Limit future development in areas in areas with high flooding risk to open space, green belts, and other natural areas, recreational use or agricultural use. Maintain public safety and sustainable development in areas prone to risk of flooding."

Effectiveness of Mitigation: Implementation of the mitigation measures above will result in a **less than significant** impact.

3.9 Land Use and Planning

INTRODUCTION

This section presents information on existing land use in the City of Selma, its Sphere of Influence (SOI) and Urban Development Boundary (UDB), and describes the effects the proposed Update would have on these areas.

3.9.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no specific Federal regulations pertaining to Land Use and Planning.

STATE AND LOCAL

Land use regulations set forth by the City of Selma, Fresno County and the State of California are applicable to areas within the City limits, SOI and Planning Area. This section describes the most important of these regulations.

California Government Code Sections 65000-66037, Title 7 Planning and Land Use

These regulations provide the foundation for the organizational and regulatory structures adopted by cities and counties in the State of California. It is through this legislation that cities and counties are required to prepare, adopt and amend General Plans.

In California, a General Plan is the foundation and central feature of the local planning process. Each city and county is required to prepare, adopt, and maintain a General Plan to govern the physical development of all of the land area under its jurisdiction. The purposes that are intended to be served by a General Plan include the following important functions:

- The identification of the community's physical development goals, and goals relating to environmental, economic, and other factors.

- Policies for maintaining or improving the character of existing developed uses and for guiding the location and nature of future development in order to ensure that the community's goals are achieved.

- The consideration of all aspects of local conditions affecting physical development and change, in order to ensure that problems and opportunities are analyzed and addressed adequately within the context of local, regional, statewide, and national goals and policies.

By their nature, general plans possess great potential for environmental impacts by providing for new growth and development.

Fresno County Regulations

Unincorporated land located outside the city limits of Selma but within the SOI and Planning Area is under the jurisdiction of Fresno County. Any future development taking place within this area, prior to it being annexed by the City would be subject to the provisions set forth in the Fresno County General Plan, Zoning Ordinance and applicable provisions of the Fresno County Ordinance Code.

Fresno County General Plan

The Fresno County General Plan identifies the types and intensities of uses that are permissible in relation to different land use designations. Any future development in the Planning Area that occurs on unincorporated Fresno County land would be subject to the provisions of the Fresno County General Plan and relevant ordinances. Fresno County has designated most of the land outside the Selma City limits as Agriculture and zoning is primarily Exclusive Agriculture (AE 20) with a few areas zoned Limited Agriculture (AL 20).

City of Selma Zoning Code

In addition to the Selma General Plan, the City of Selma Municipal Code, Title XI Chapters 1-31, contains the zoning regulations that determine the location of residential, commercial, and other land uses within the incorporated areas of the City. It also determines what type of permit would be necessary for a specific land use, and what development standards would apply to development in a particular zone. The City's Zoning Ordinance must be consistent with the General Plan so that any land use, subdivision, or development approved in compliance with the Zoning Ordinance will also be consistent with the General Plan.

Sphere of Influence

Selma has an identified SOI established beyond its City limits that has been approved by the Fresno County LAFCO. SOI's are often revised as part of a General Plan update process. Although the City does not have legal jurisdiction outside of its own City limits, an SOI indicates the area where the City anticipates annexing land and urbanizing in the future. It is a way to encourage cities and counties to work together to control and plan for growth. In Fresno County, the SOI may be expanded when the existing SOI reaches a particular buildout level, or when there is a shortage of a particular land use.

San Joaquin Valley Blueprint

The San Joaquin Valley Blueprint is an unprecedented planning effort to improve the quality of life in the San Joaquin Valley. The Blueprint process is providing the eight counties of the San Joaquin Valley an opportunity to work together to develop better land use and transportation patterns by developing a regional plan that will be used to guide growth over the next four decades. Funding for this effort is being provided by grants received from the California Department of Business, Transportation and Housing and the San Joaquin Valley Air Pollution Control District.

Four Valley-wide scenarios were developed by UC Davis' Information Center for the Environment (ICE) in consideration of the preferred scenarios submitted by each of the eight counties and residents input from throughout the Valley. Each of these scenarios is a projection of what the San Joaquin Valley will be like in 2050 if the region follows certain trends in land use patterns, transportation options, economic development and goods movement patterns, greenhouse gas emissions, agricultural land consumptions, and habitat protection. The four scenarios are described as follows:

- **Scenario A**. The "recent trends" scenario is an effort to portray a continuation of development patterns from the recent past forward into the future. Each county defined its own starting point and development trends. This scenario provides limited protections for agriculture and environmental open space policies would be implemented county by county. Under this scenario average dwelling units per acre for new residential development would be 4.3.

- **Scenario B.** The "locally combined" scenario is an assembly of scenarios created by each county to represent a desired new direction for the future. This scenario, like the "recent trends" scenario, has unique inputs and target densities for each county. This scenario places a greater emphasis on protection of agricultural land and environmental resources. Under this scenario average dwelling units per acre for new residential development would be 6.8.

- **Scenario B+.** (Included based on direction from the San Joaquin Policy Council in December, 2008) Reflects the land use assumptions of Scenario B and provides more transportation infrastructure that cross county boundaries. Under this scenario average dwelling units per acre for new residential development would be 6.8.

- **Scenario C.** The “valley-wide hybrid” scenario is a unified projection of what the San Joaquin Valley might look like if all the counties chose more compact growth forms emphasizing safe, walkable, bikeable communities to accommodate significant transit opportunities and protect open space. New urban growth is encouraged to remain within existing spheres of influence or specifically selected planning areas. Under this scenario average dwelling units per acre for new residential development would be 6.8.

On April 1, 2009 the San Joaquin Valley Policy Council, an advisory group consisting of two elected officials from each of the eight counties in the San Joaquin Valley, voted to adopt Scenario B+ as the policy scenario that will guide the San Joaquin Valley's future growth. This scenario will guide the Valley's local land use planning jurisdictions as they update their general plans. Growth within the San Joaquin Valley that follows this broad scenario will result in new residential growth that is more than 50% denser than recent growth trends. With local implementation, these policies will result in reduced impacts to the region's economy, environmental health, vehicle use, and natural resources.

Senate Bill 375

Senate Bill 375 (SB 375) is the nation's first law to control greenhouse gas emissions by curbing sprawl. SB 375 provides emissions-reducing goals for which regions can plan, integrates previously disjointed planning activities, and provides incentives for local governments to change growth patterns. SB 375 enhances the Air Resources Board's ability to reach AB 32 goals.

SB 375 requires the regional governing bodies in each of the state’s major metropolitan areas to adopt, as part of their regional transportation plan, a “Sustainable Communities Strategy” (SCS) that will meet the region’s target for reducing Greenhouse Gas (GHG) emissions. These strategies are designed to reduce vehicle trips and vehicle trip lengths through such strategies as development near public transit, mixing residential and commercial use, and implementation of affordable housing goals. SB 375 creates incentives for implementing the SCS by requiring that decisions relating to the allocation of transportation funding be consistent with the SCS and allowing projects that are shown to conform to the SCS (and therefore contribute to GHG reduction) to have a more streamlined environmental review process.

General Plan Consistency

All development within the City limits must conform to the land use designations outlined in the Selma General Plan. Goals, objectives, policies and standards contained in each Element of the General Plan provide direction on how the various land use designations should be developed in order to contribute to the overall character of Selma. Per State law, the City’s General Plan is the primary planning document and all other City plans and policies must be consistent with the General Plan. The Selma General Plan Update contains a number of policies that apply to land use impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the General Plan Update are designed to ensure that land use related impacts are minimized as development occurs.

Land Use Element

Policy 1.8 New development in the community shall be sequential and contiguous to existing development, to ensure the orderly extension of municipal services and preservation of an adequate circulation system.

Policy 1.9 While the City prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development greater than ½ mile from existing urban uses shall be discouraged. Such development shall be required to submit an analysis of the fiscal and service impacts the development would have upon the City.

Policy 1.12 In cooperation with Fresno County and the Fresno Local Agency Formation Commission, the City shall adopt and maintain a Sphere of Influence consistent with this General Plan. The Sphere of Influence shall serve the mutual interests of the County and City by preserving agricultural uses in areas vulnerable to development while protecting the ultimate growth area of the City from potential incompatible or unplanned urban uses.

Policy 1.14 The City shall oppose untimely urban development in the unincorporated areas of the Sphere of Influence.

Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall not develop or annex areas designated as "Reserve" within the Planning Area until additional land is needed.

Policy 1.100 The City shall discourage leapfrog development (defined as urban development more than ½ mile from existing urban development) and development of peninsulas extending into agricultural lands to avoid adverse effects on agricultural lands, and to avoid adverse effects on agricultural operations that contribute to premature conversion.

Policy 1.103 The City shall work with neighboring jurisdictions to prevent development on lands designated Reserve that would create potential inconsistencies with their future annexation into the City of Selma. When the development of lands designated Reserve becomes necessary for further growth of the City, the City will pursue their annexation and place them under a land use designation and zoning district appropriate to their intended use.

Policy 1.104 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas for a period of at least five years from the adoption of this general plan update.

Policy 1.105 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas until a minimum of 80 percent of all non-reserve property with the same general designation within the general plan boundaries have been developed or have approved development entitlements.

Circulation Element

Policy 2.8 All street and roadway improvements shall be designed and constructed in accordance with the Circulation Element, the Conceptual Circulation Plan (Figure 2-1) and the Circulation Plan.

Policy 2.37 The City will continue to collect development impact fees for the circulation system (streets, signals and bridges) and shall revise and update the development impact fees as needed.

Noise Element

Policy 3.2 Policy 3.2 of the proposed Noise Element states, in summary, that the City shall update its Noise Regulations (Title VI: Police Regulations, Chapter 17: Noise Regulations) to be consistent with the Noise Element.

Safety Element

Policy 4.3 The City shall maintain and continue to update, with the County of Fresno and other agencies, an Emergency Services Plan. The plan should include:

a. Provision for control and direction of emergency operations.

b. Provision for continuity of governmental services.

c. Program to coordinate the repair and restoration of essential systems and services.

d. Coordination of emergency operations with other jurisdictions.

Open Space, Conservation and Recreation Element

Policy 5.1 The City shall review the Conservation and Open Space Element regularly to ensure its compatibility with State guidelines and related plans developed by the Council of Fresno County Governments and Fresno County.

Policy 5.19 Coordinate with other local and regional jurisdictions, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Air Resources Board (CARB), in the development of regional and county clean air plans and incorporate the relevant provisions of those plans into City planning and project review procedures. Also coordinate with the SJVAPCD and CARB in:

- Enforcing the provisions of the California and Federal Clean Air Acts, state and regional policies, and established standards for air quality;
- Utilizing clean fuel for city vehicle fleets, when feasible; and
- Developing consistent procedures for evaluating project-specific and cumulative air quality impacts of projects.

Public Facilities and Services Element

Policy 6.1 Coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms including assessment district, property owner's association's user fees, development impact fees, mitigation payments, reimbursement agreements and/or other mechanisms which provide for equitable distribution of development and maintenance costs.

Physical

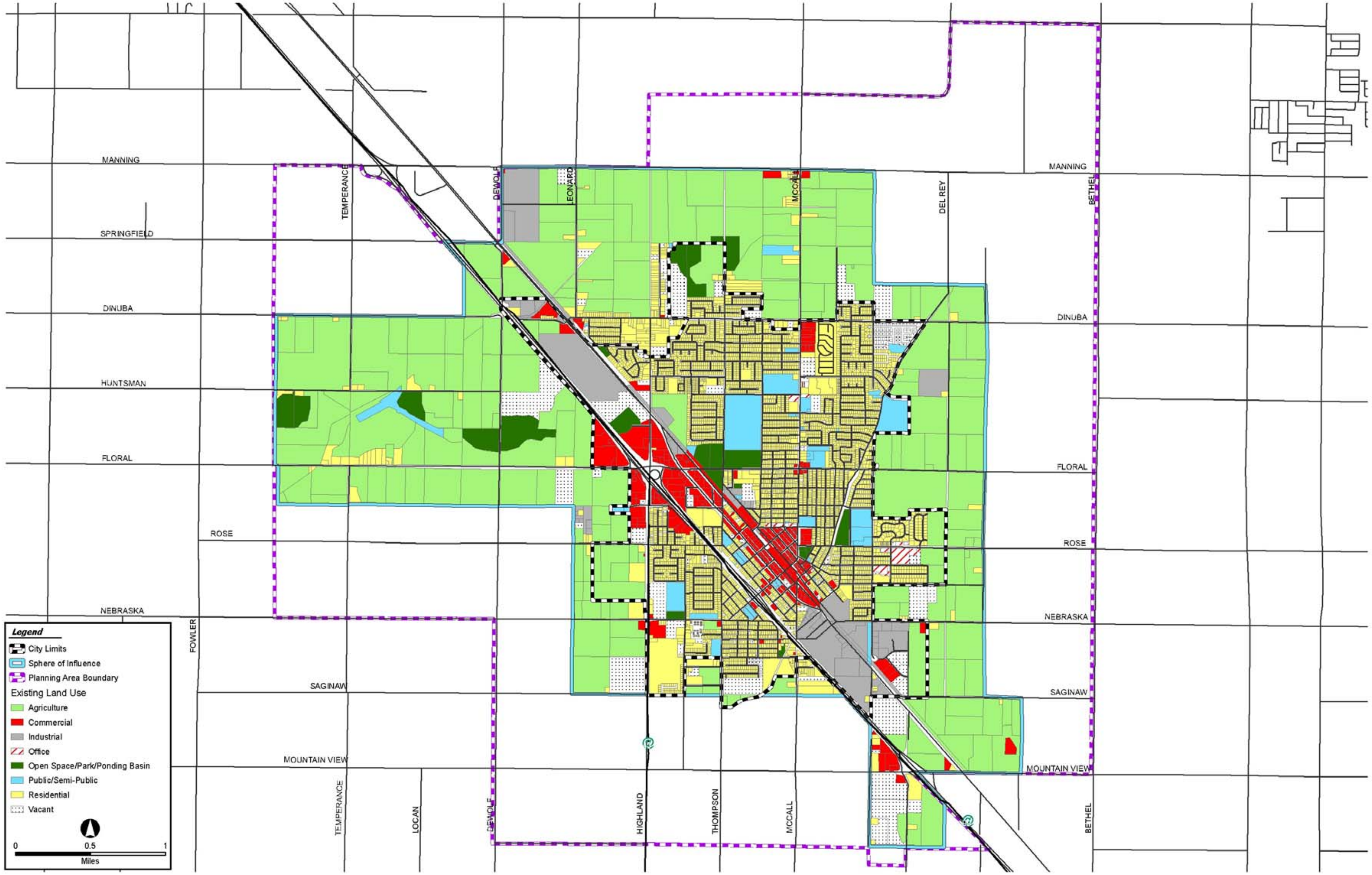
EXISTING LAND USE

A land use survey was conducted in May, 2007 and included all parcels within the SOI in effect at that time. Table 3.9-1 shows that the existing land uses within the City limits included 1,152 acres of residential, 144 acres of commercial, 292 acres of industrial, 108 acres of park/ponding basin, and 202 acres of public/semi-public facilities. Figure 3.9-1 illustrates the distribution of these existing land uses. As with most cities in the San Joaquin Valley, the detached single-family home is the predominant residential unit in Selma.

Table 3.9-1
Existing Land Uses (Acres)
Within Selma City Limits, May 2007

Land Use	Acres
Agriculture	4
Commercial	144
Office	22
Industrial	292
Park/Ponding Basin	108
Public/Semi-Public	202
Residential	1,152
Vacant/Undeveloped	186
Total	2,110

Source: Windshield Survey, May 2007. Quad Knopf



Quad Knopf

EXISTING LAND USE

Figure 3.9-1

Residential

Residential uses comprise about 54 percent of the land within the City limits and accommodate approximately 6,787 housing units. Existing residential density is estimated to be approximately 5.95 units per acre. The vast majority of the housing stock is single-family housing. Single-family housing refers to parcels that contain a single residence and related structures, such as second units, garages or other ancillary uses. Single-family residential areas are spread throughout town with the exception of commercial and industrial areas along SR 99.

Multifamily housing is scattered throughout the urban area and represents about 18 percent of the housing stock. This land use category refers to parcels that contain more than one housing unit and includes duplexes, triplexes, four-plexes, townhomes, condominiums and apartment buildings.

Commercial

Commercial uses include downtown (Central District), community, general, neighborhood and professional office and comprise approximately seven percent of developed land use in Selma. The majority of the commercial land uses are concentrated along the SR 99 corridor and downtown, with pockets of neighborhood and community commercial spread throughout town. Regional commercial uses are also found along SR 99, and future regional commercial areas are planned at the SR 99 and Mountain View and SR 99 and Dinuba Avenue intersections. There is limited office land use (parcels that contain buildings used for office-based businesses) within Selma.

Industrial

Industrial development refers to parcels used for manufacturing and production and also includes warehouses, self-storage facilities, automobile garages, and production-oriented small businesses. Industrial uses in Selma are concentrated in the northwest and southeast parts of the City, generally along the east side of SR 99.

Agriculture

Agriculture is by far the most predominant land use within the Planning Area as a whole, particularly outside of the city limits. This category includes uses such as row crops and orchards.

Public Facilities

Public facilities include a number of uses including libraries, schools, police and fire stations, and utilities. These uses are distributed throughout Selma and are generally integrated with surrounding land uses.

Other Land Uses

Other land uses not described above include: park/ponding basins located throughout town and vacant properties that contain abandoned or vacant structures, or are void of any structures and are not used for agriculture use.

SPECIFIC PLANS

The City of Selma has two adopted specific plans and three additional specific plans are in various stages of development. Reference Figure 2-4 for the boundaries and land uses for each specific plan area. A specific plan is an implementation tool of the General Plan and effectively establishes a link between the policies of the General Plan and the individual development proposals in a defined area.

3.9.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally have significant adverse land use impact if it would:

a) Physically divide an established community.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan.

The Initial Study prepared for the proposed project (Appendix A) concluded that there would be no impact to physically divide the community. Therefore, this issue will not be discussed further in this Draft EIR.

3.9.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.9.3.1 - Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect: By State law, the General Plan is the primary planning document of the community and the blueprint for future growth. The Plan Update would supersede the 1997 General Plan once adopted. Therefore, upon approval and implementation of the Plan Update, other City plans and documents, like the Zoning Ordinance, will be updated as necessary to ensure consistency.

As referenced above, Policies 1.8, 1.9, 1.12, 1.14, 1.95, 1.100, 1.103 through 1.105, 2.8, 2.37, 3.2, 4.3, 5.1, 5.19, and 6.1 within the proposed General Plan Update are designed to ensure that various City plans and regulations are updated to be consistent with the General Plan, that conflicts between the General Plan and other plans and policies are minimized, and that appropriate land use coordination takes place as the General Plan is implemented.

After the General Plan Update, the Zoning Code will specifically be revised to address the following issues:

- Ensure consistency with the General Plan in terms of the permitted land uses and development standards.
- Ensure consistency with the General Plan in terms of the distribution and boundaries of zoning districts.
- Create new zoning districts as needed.

Implementation of the proposed Plan Update will necessitate eventual expansion of the City's SOI and annexation of additional lands. The proposed General Plan Land Use Element includes policies designed to reduce the demand for annexations, such as discouraging leapfrog development and development of peninsulas extending into agricultural land (Policy 1.9 and 1.100). Future annexations will be limited to lands located within the Urban Development Boundary (UDB) and in accordance with Land Use Element Policy 1.95 pertaining to timing of annexations. The City of Selma UDB designation was designed to be compatible with policy language currently used in the County's General Plan (Fresno County General Plan Agriculture and Land Use Element, Section G, Incorporated City, City Fringe Area, and Unincorporated Community Development).

Although not a regulatory document, the Blueprint Scenario recommendations provide a guideline for regional conformity of land use planning in the Valley. The principal recommendation of the advisory group was an increase in residential densities to 6.8 dwelling units per acre, and approximate increase of 14 percent over existing densities.

The proposed General Plan land use designations beyond the proposed SOI are not consistent with the existing Fresno County General Plan land use designations. The City will encourage the County of Fresno to adopt its General Plan designations within the Planning Area to ensure consistency. In the meantime, this inconsistency already exists since the adopted General Plan has urban uses for areas which the County has designated for non-urban uses. As a result, the proposed General Plan would not create a new significant impact that does not already exist. Please see Section 3.2 Agriculture of this EIR for a discussion of the potential impacts related to conflicts between existing County agricultural designations and the proposed General Plan.

There is potential for the Plan Update to be internally inconsistent, however, if adequate land is not designated in a timely manner, and the balanced land uses and economic goals prescribed by the Plan Update may be confounded if land is not provided in a timely manner. In particular, the

City should provide an adequate zoned supply of commercial, residential and industrial property to provide for the needs of the community.

Conclusion: Implementation of the policies and standards in the Plan Update and compliance with the LAFCo process as the proposed General Plan Update is implemented would ensure that conflicts between the General Plan and other plans, policies, and regulations applicable to the Selma area are reduced to be **less than significant.** However, failure to zone an adequate quantity of land for particular uses as they are needed would compromise the basic goals of the Plan Update. A minor increase in density is also needed to conform with Blueprint recommendations.

Mitigation Measure #3.9.3.1: Policy 1.95 should be modified as follows:

Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall maintain an adequate supply of zoned residential land to meet 10 years of its Regional Housing Needs Allocation, a 10-year supply of zoned commercial land, and a 20-year supply of industrial land. The City shall amend the SOI, UDBs, annex areas meeting LAFCo criteria, and redesignate "Reserve" lands within the Planning Area as necessary to maintain such supply.

Effectiveness of Mitigation: Modification of Policy 1.95 will ensure that an adequate quantity of land for commercial, industrial and residential uses will be maintained for development as they are needed in conformance with the basic goals of the Plan Update. This impact will be **less than significant.**

Impact #3.9.3.2 – Conflict with any applicable Habitat or Natural Community Conservation Plan: There are currently no locally or State-established habitat or natural community conservation plans applicable to the City of Selma. However, there is a *Recovery Plan for Upland Species of the San Joaquin Valley* (1998), but its recommendations are programmatic, not geographic.

Conclusion: New development resulting from implementation of the proposed General Plan would potentially result in the loss of special-status species habitat. With application of the mitigation measures presented in Section 3.4, Biological Resources, this impact is **less than significant**.

Mitigation Measure: No additional mitigation measures are required.

3.10 Mineral Resources

INTRODUCTION

According to the Background Report of the General Plan, Selma has no significant mining resources or mining operations. As discussed in Chapter One, Introduction, the Initial Study concluded that the proposed project would not result in a loss of availability of a known mineral resource or locally-important mineral resource recovery site.

Conclusion: There are **no impacts** to mineral resources as a result of the Selma 2035 General Plan.

3.11 Noise

INTRODUCTION

This section analyzes the proposed project's potential impacts associated with noise. Noise generation and exposure to noise is generally of greatest concern for residential land uses, schools, libraries, hospitals, and other uses that are highly sensitive to noise. Within the Planning Area noise from motor vehicles, the two small airports, the heliport, as well as the railroad are issues. Potential long-term and short-term noise concerns are discussed in this section based on information obtained from the General Plan Update Noise Element and the General Plan Update Background Report (2007). Analysis is based on the existing and future conditions completed by Brown-Buntin Associates. The existing conditions Noise Study is in Appendix C of the General Plan Update Background Report and the future conditions Noise Study is in Appendix I of this Draft EIR.

3.11.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

The Federal Department of Housing and Urban Development (HUD) and the Federal Transit Administration (FTA) both provide standards related to noise.

Department of Housing and Urban Development

HUD environmental noise regulations, presented in the Code of Federal Regulations (24 CFR Part 51B) require that new HUD-financed housing construction meet the following noise standards. Exterior noise levels are considered:

- Acceptable at 65 A-weighted decibels (dB(A)) day-night average level (DNL also known as L_{dn}) or less.
- Normally unacceptable if they exceed 65 dB(A) L_{dn} but not 75 dB(A) L_{dn}, unless appropriate sound attenuation measures are provided which include 5 decibels additional attenuation over standard construction in the 65 to 70 dB(A) L_{dn} zone or 10 dB of additional attenuation in the 70 to 75 dB(A) L_{dn} zone.
- Unacceptable if they exceed 75 dB(A) L_{dn}.

Interior noise levels and attenuation requirements are geared toward achieving an interior noise level of 45 dB(A) L_{dn}. The HUD guidelines assume that standard construction will provide sufficient attenuation to achieve interior levels of 45 dB(A) L_{dn} or less if the exterior noise level is 65 dB(A) L_{dn} or less. These regulations apply to new residential projects that receive federal funding. If housing developed in Selma receives federal funding, the federal noise standards will be applicable.

Federal Transit Administration (FTA)

Ground-borne vibration impacts are typically associated with fast moving railroad operations and large industrial equipment. The FTA of the U.S. Department of Transportation has developed vibration impact assessment criteria for evaluating vibration impacts associated with train and rapid transit projects.

FTA criteria are based primarily on passenger train operations such as rapid transit and commuter rail systems. The main difference between passenger and freight operations is the time duration of individual events. A passenger train passing lasts a few seconds whereas a long freight train passing may last several minutes depending on speed and length. Although the criteria are based on shorter duration events reflected by passenger trains, they are used in this EIR analysis to evaluate the potential of vibration annoyance due to large freight trains as well.

STATE AND LOCAL

The State of California has adopted standards which regulate noise levels of motor vehicles and freeway noise affecting classrooms, set standards for sound transmission control and occupational noise control, and identify noise insulation standards. The State has also developed land use compatibility guidelines for community noise environments.

State of California General Plan Guidelines

Published by the State Office of Planning and Research (OPR), this document provides guidance for the acceptability of projects within specific Community Noise Level Equivalent (CNEL)/L_{dn} contours. Generally, residential uses are considered to be acceptable in areas where exterior noise levels do not exceed 60 dB(A) CNEL/L_{dn}. Residential uses are normally unacceptable in areas exceeding 70 dB(A) L_{dn} and conditionally acceptable within 60 to 70 dB(A) L_{dn}. Schools, libraries, churches, hospitals, and nursing homes are treated as noise-sensitive land uses requiring acoustical studies within areas exceeding 60 dB(A) L_{dn}. Additionally, a 45 dB(A) L_{dn} is prescribed as a suitable interior noise environment for noise-sensitive uses. However, the state stresses that these guidelines can be modified to reflect sensitivities of individual communities to noise.

California Building Code

New multi-family housing in California is subject to the environmental noise limits set forth in Title 24, part 2 of the State Building Code, The interior noise level limit in Title 24 is 45 dB(A) CNEL which is consistent with the HUD standard. Where exterior noise levels exceed 60 dB(A) L_{dn}, a report must be submitted to the local building department with the building plans describing the noise control measures that have been incorporated into the design of the proposed project to achieve an interior noise level of 45 dB(A) CNEL in interior living spaces. If the windows must remain closed in order to meet the required noise level, an alternate means of ventilation such as air-conditioning must be provided.

The City of Selma regulates noise-related land use issues though its Noise Element of the General Plan (Chapter 3) and its adopted Noise Regulations (Title VI: Police Regulations, Chapter 17: Noise Regulations). The Noise Regulations of the Municipal Code specify location restrictions for different land uses, measurement criteria, monitoring procedures and noises prohibited. Construction, repair or remodeling work noise and the hours of its duration are also addressed by the Noise Regulations.

General Plan Consistency

The Plan Update contains a number of policies that apply to noise impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use and Noise Elements are designed to ensure that noise impacts are minimized as development occurs.

<u>Land Use</u>

Policy 1.22 Residential neighborhoods should be protected from encroachment of incompatible activities or land uses which may have a negative impact on the residential living environment.

Policy 1.28 To provide additional security, privacy and noise reduction, all new residential development shall require minimum setbacks of 20 feet for structures abutting arterial streets and 10 feet for structures abutting collector streets.

Policy 1.45 A minimum six-foot high, grout reinforced, solid masonry wall shall be constructed between all new commercial developments and land designated for residential use. A wall taller than six feet may be allowed when required for sound reduction as identified in a noise study or as determined to be necessary for security of commercial property. Openings in the wall may be provided at appropriate locations to allow for pedestrian connectivity.

Policy 1.76 A minimum of a six-foot high, grout reinforced, solid masonry wall shall be constructed between all new industrial developments and land designated for non-industrial use. Walls higher than six feet may be permitted when required for sound reduction as identified in a noise study or as determined by the Planning Commission as necessary for site security.

<u>Circulation</u>

Policy 2.24 Residences shall not be permitted to have direct access onto arterials, particularly where traffic volumes are likely to create excessive noise levels or safety hazards.

Policy 2.33 The circulation system shall be designed and developed to minimize excessive noise impacts on sensitive land uses and traffic congestion which would increase the rate of vehicle emissions. New Development shall mitigate noise and emission impacts [e.g. by constructing sound walls (where warranted), designing to minimize emissions (such as roundabout or traffic circle), etc.].

Noise

Policy 3.1 It shall be deemed unlawful for any noise-producing devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses to operate between the weekday hours of 7:00 p.m. and 6:00 a.m. and between the weekend hours of 7:00 p.m. and 9:00 a.m. unless such equipment or vehicles are related to emergency repairs of utilities or other essential public services.

Policy 3.3 The City shall utilize the noise/land use compatibility standards in Figure 3-2 as a guide for future planning and development decisions.

Policy 3.4 Areas within Selma shall be recognized as noise impacted if exposed to existing or projected future noise levels at the exterior of buildings in excess of 65 dB L_{dn} (or CNEL).

Policy 3.5 Noise sensitive land uses shall be discouraged in noise impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce exterior noise levels to 65 dB DNL (or CNEL) or less and 45 dB L_{dn} (or CNEL) or less within interior living spaces.

Policy 3.6 The City shall enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.

Policy 3.7 Industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) shall be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary of areas of planned or zoned for noise sensitive land uses.

Policy 3.8 The City shall review all relevant development plans, programs and proposals to ensure their conformance with the policy framework outlined in this Noise Element.

Policy 3.9 The preferred method of noise control used is thoughtful site design. Secondarily, noise control should be achieved through the use of artificial noise barriers. Site and building design guidelines may include:

a. Noise sensitive land uses should not front onto the primary noise source. Where this is not possible, the narrow portion of the building should face the primary noise source, and the interior layout should locate the most sensitive areas away from the noise source by placing garages, storage facilities, carports or other such areas nearest the noise source.

b. Site design should permit noise to pass around or through a development. This can be achieved by placing the narrow or convex portion of the structure toward the primary noise source.

c. Commercial and industrial structures shall be designed so that any noise in excess of 65dB DNL (or CNEL) generated from the interior of the building is focused away from noise sensitive land uses.

d. Two story residential construction should be avoided, where possible, immediately adjacent to arterials or collectors unless adequate combinations of noise attenuation procedures are used.

e. When feasible, residential cul-de-sacs should be perpendicular to adjacent arterials or collectors.

f. Loading and unloading activities for commercial uses should be conducted in an enclosed loading dock, preferably with a positive seal between the loading dock and trucks.

Policy 3.10 Prior to the approval of a proposed development in a noise impacted area, or the development of an industrial, commercial or other noise generating land use in or near an area containing existing or planned noise sensitive land uses, an acoustical analysis may be required if any of the following findings are made:

a. The existing or projected future noise exposure at the exterior of buildings which will contain noise sensitive uses or within proposed outdoor activity areas (patios, decks, backyards, pool areas, recreation areas, etc.) may exceed 65 dB DNL (or CNEL).

b. Interior residential noise levels resulting from offsite noise may exceed 45 dB DNL.

c. It may not be feasible to reduce projected noise levels to the noise exposure limitations specified in this Noise Element by the application of standard noise reduction methods.

When an acoustical analysis is required it shall:

a. Be the responsibility of the applicant.

b. Be prepared by an individual or firm with demonstrable experience in the fields of environmental noise assessment and architectural acoustics.

c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe and assess local conditions.

d. Include estimated noise levels in terms of dB DNL (or CNEL) for existing and projected future (10-30 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

e. Include recommendations for appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.

f. Include estimates of noise exposure after the prescribed mitigation measures have been implemented.

g. The acoustical analysis should be prepared as early in the project review or permitting process as possible so that noise mitigation measures may be an integral part of the project design rather than an afterthought.

Policy 3.11 The City shall seek to reduce impacts from ground borne vibrations associated with rail operations by requiring that habitable buildings are sited at least 100-feet from the center-line of the tracks, whenever feasible.

Policy 3.12 Require new development of habitable buildings within 100-feet from the centerline of the railroad tracks to provide a study demonstrating that ground borne vibration issues associated with rail operations have been adequately addressed (i.e., through building siting or construction techniques).

Policy 3.13 New equipment and vehicles purchased by the City should comply with noise level performance standards consistent with the best available noise reduction technology.

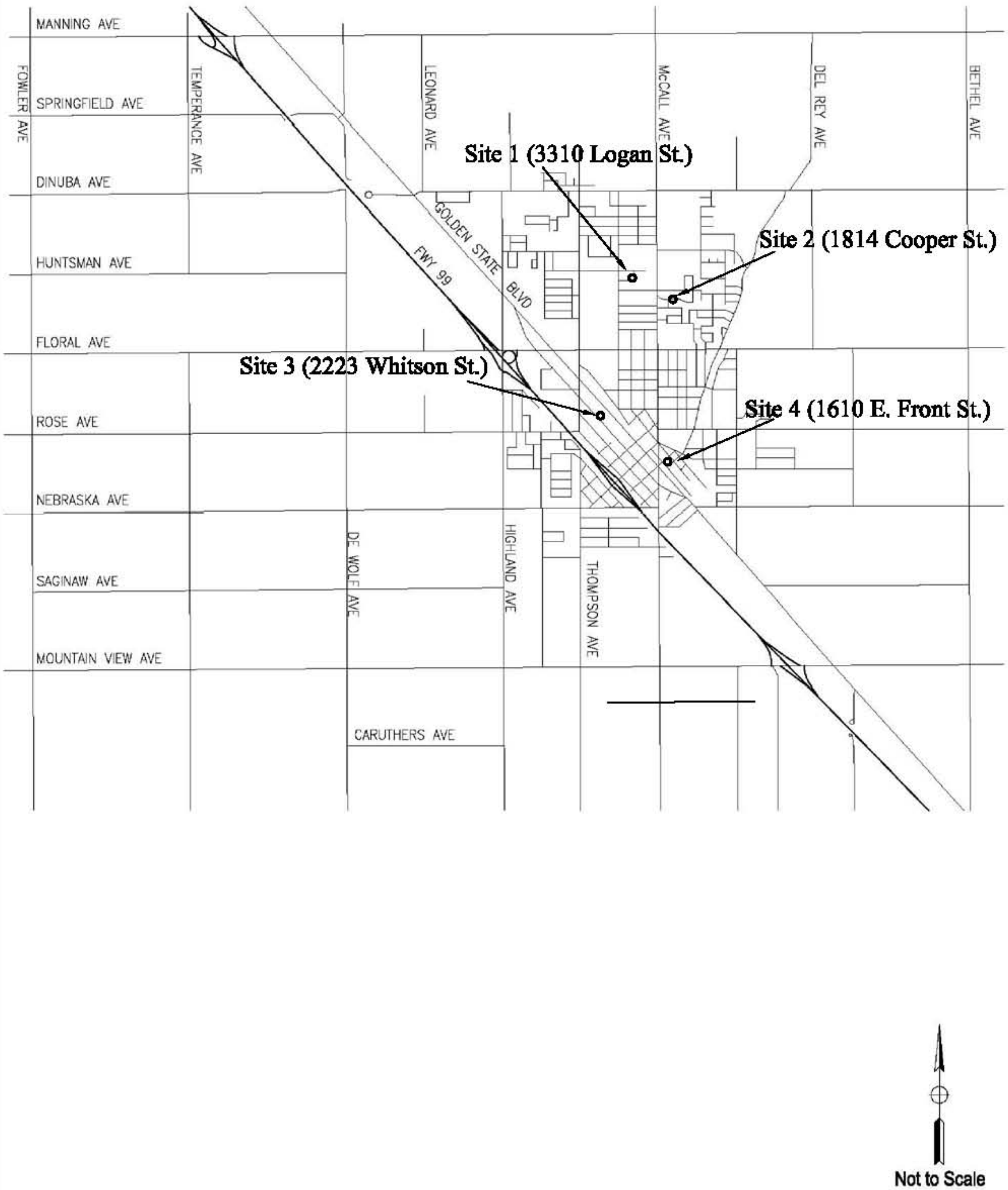
Policy 3.14 All projects within the impact area of the airports and heliport shall be evaluated for potential noise impacts from aircraft over-flights based on the standards in the Fresno County Airports Land Use Policy Plan and this Noise Element.

Physical

The principal noise sources in the City of Selma are traffic on local roads and state highways, railroad noise, industrial noise, aircraft and heliport noise. The existing noise environment in the City was determined by a combination of noise level measurements and noise modeling. Following is a discussion of the background noise level survey results in residential areas of the City, and a description of the studied noise sources in the City.

BACKGROUND NOISE LEVEL SURVEY

A background noise report was prepared for the Selma General Plan Update in August 2007 by Brown-Buntin Associates. The purpose of the background noise level survey was to determine the baseline noise environment in those parts of the City that are removed from obvious noise sources. Four residences were selected for the survey. Their locations are shown in Figure 3.11-1. Noise measurements were conducted continuously for 24 hours using unattended sound level analyzers. The results of the monitoring are shown in Figures 3.11-2a and 3.11-2b.



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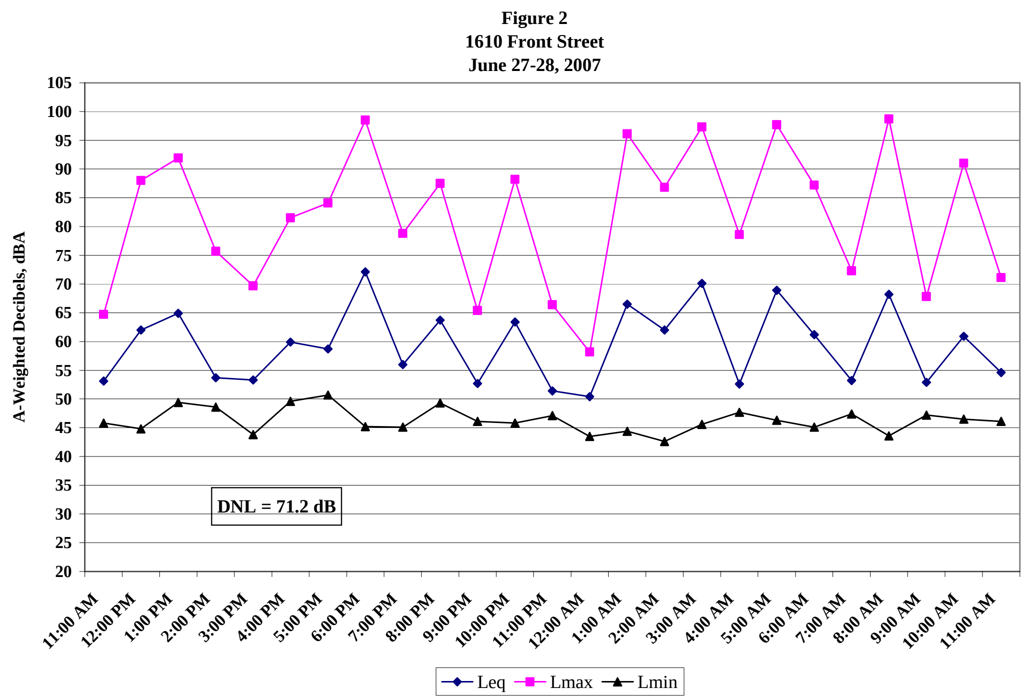
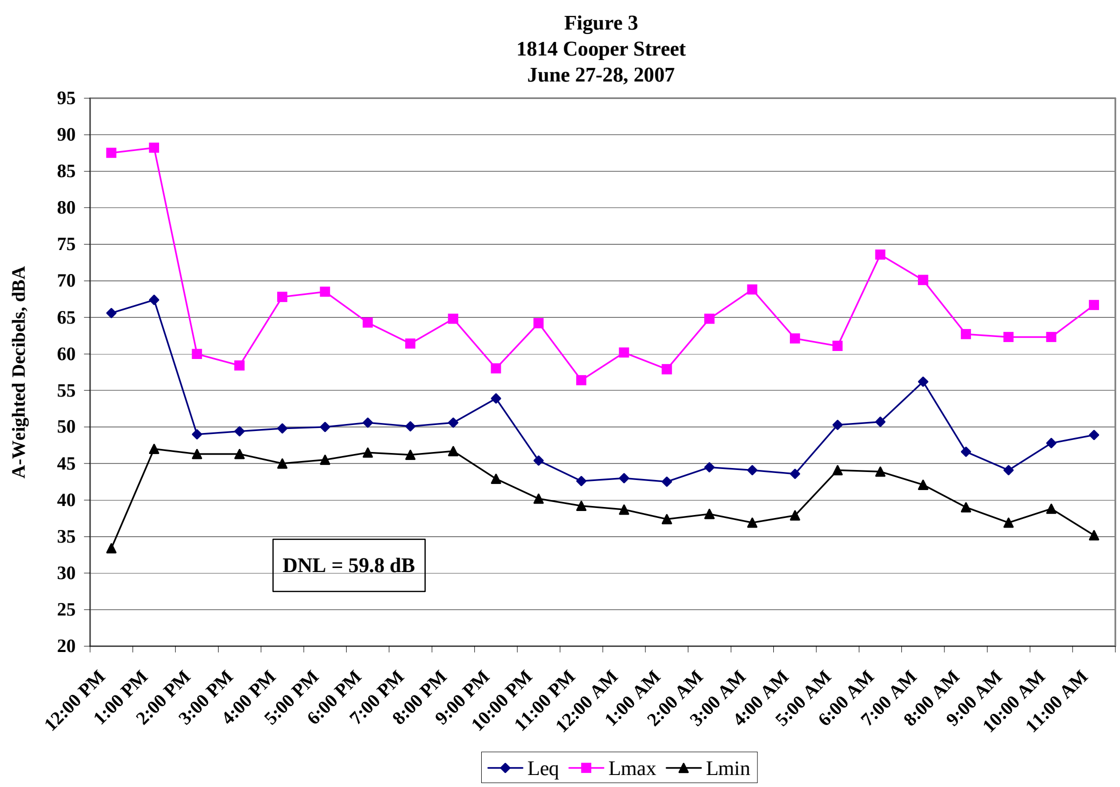
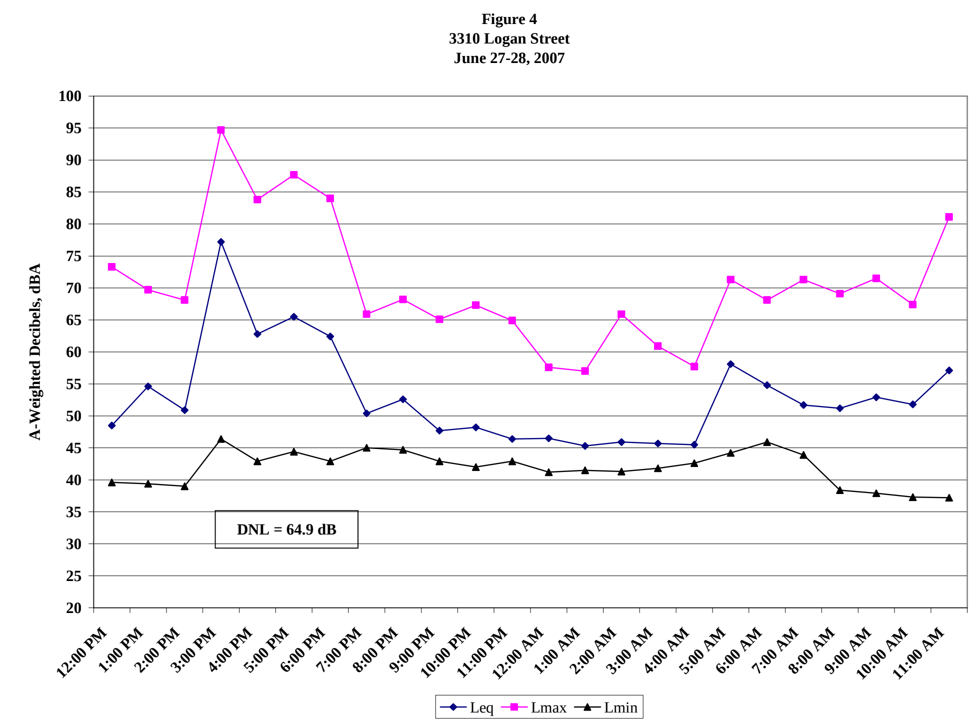
BACKGROUND NOISE
MEASUREMENT LOCATIONS

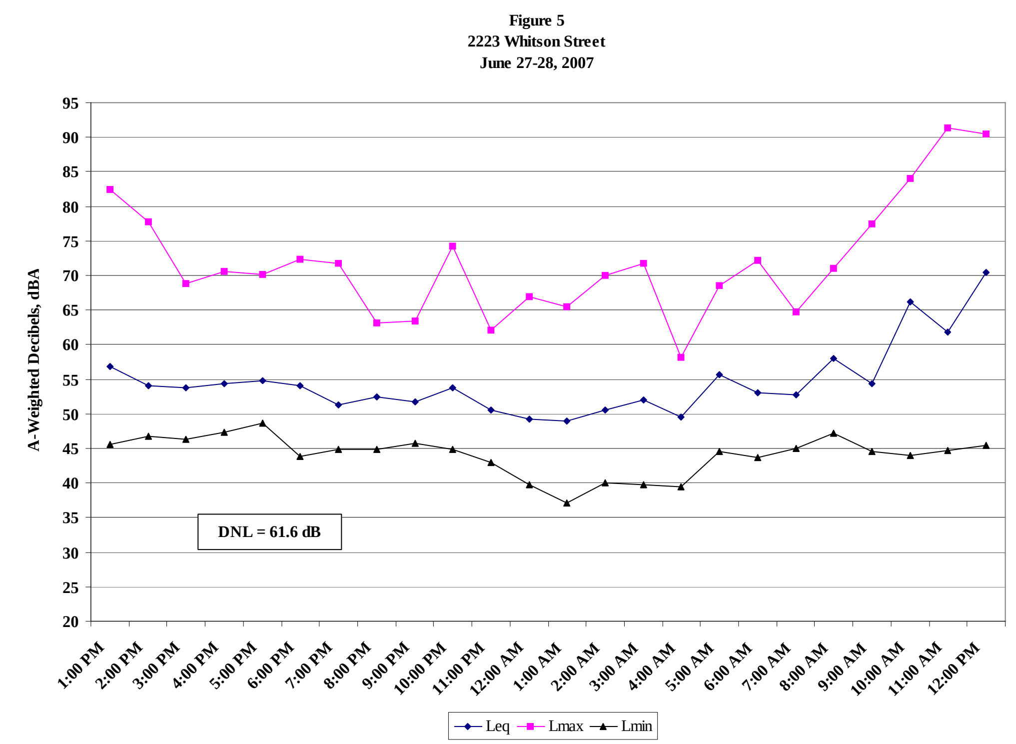
Figure
3.11-1





Quad Knopf	MEASURED HOURLY NOISE LEVELS	Figure 3.11-2a





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MEASURED HOURLY NOISE LEVELS

Figure 3.11-2b

The background noise levels in terms of the Day/Night Average Level (Ldn) at the four residences ranged from approximately 59 to 71 dB. The range of these noise levels is fairly typical of small communities at locations near and away from major noise sources.

In Figures 3.11-2a and 3.11-2b the Lmax and Lmin represent the highest (maximum) and minimum noise levels occurring during an hour. The Leq is the energy average noise level during an hour.

MAJOR STATIONARY NOISE SOURCES

The production of noise is an inherent part of many industrial, commercial and agricultural processes, even when the best available noise control technology is applied. Noise production within industrial or commercial facilities is controlled indirectly by Federal and State employee health and safety regulations but exterior noise emissions from such operations have the potential to exceed locally acceptable standards at nearby noise-sensitive land uses.

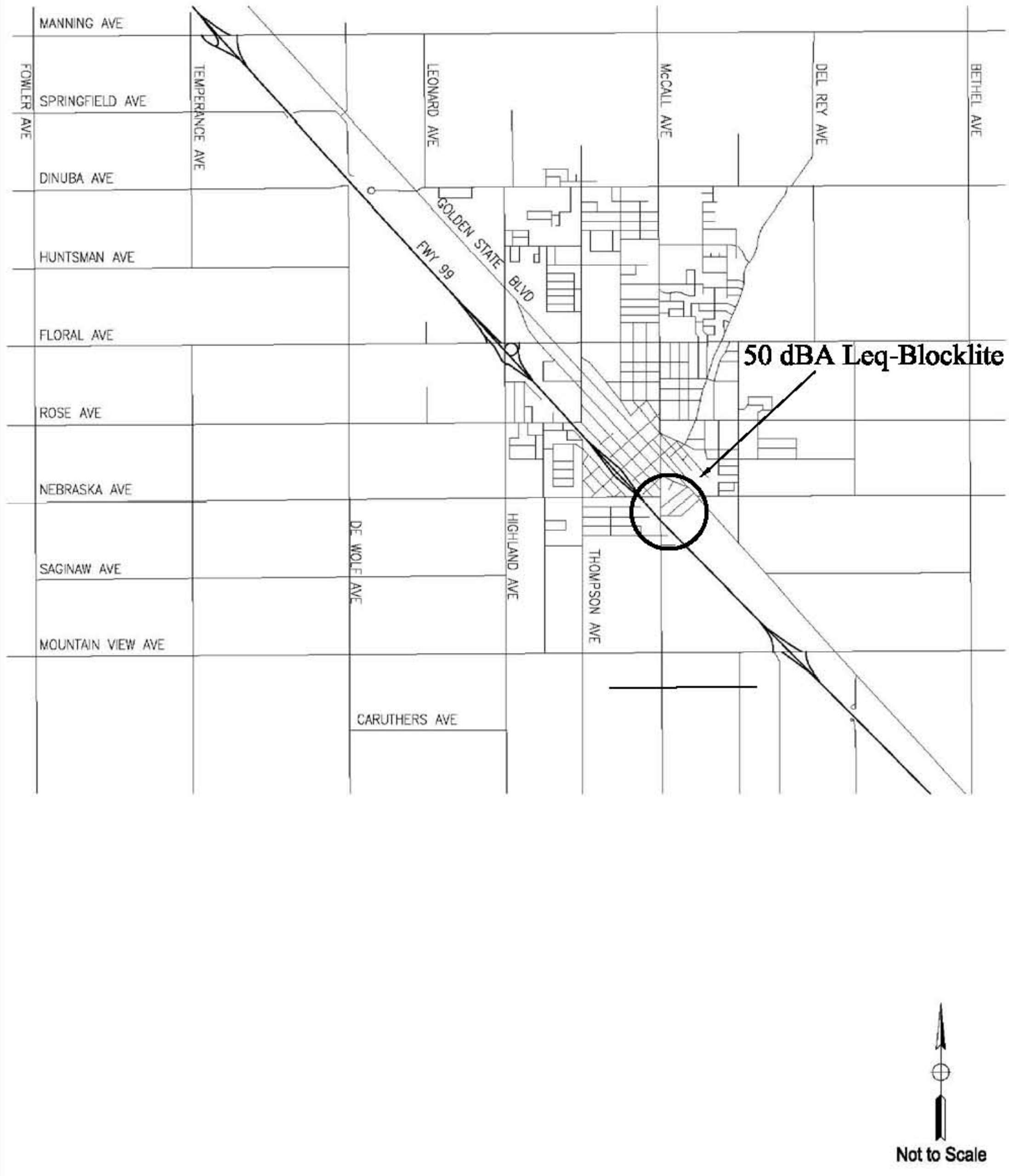
Worst-case 50 and 55 dB(A) hourly L_{eq} noise contours were calculated for the major stationary noise sources. The 50 dB(A) contours are included in Figure 3.11-3. The generalized contours contained within Figure 3.11-3 should be used as a screening device to determine when potential noise-related land use conflicts may occur, and when site-specific studies may be required to properly evaluate noise at a given noise-sensitive receiver location. Table 3.11-1 summarizes noise levels from each industry.

Table 3.11-1 shows that the 50 dB(A) L_{eq} contour can be as far as 2,440 feet from the Blocklite industrial plant. In practice, it may not be possible to discern plant noise at distances greater than 500 feet during most times of the day because of other community noise sources (traffic, etc.), and the effects of the atmosphere.

Table 3.11-1
Summary of Noise Levels Measured From Industries
July 3, 2007

Industry	Distance	Leq, dB(A)	Lmax, dB(A)	Distance to 50 dB(A), Leq	Distance to 55 dB(A), Leq
Blocklite Park St. & McCall Ave.	**300’**	**68.2**	**71.9**	**2,440’**	**1,371’**
Selma Disposal & Recycling Golden State & Dockery	**100’**	**55.1**	**57.0**	**180’**	**101’**
Selma Cold & Dry Storage* Park St. & Front St.	**---**	**---**	**---**	**---**	**---**
Sunmaid Plant #8* Nebraska Ave. & Golden State Ave.	**---**	**---**	**---**	**---**	**---**

*Sporadic noise from trucks, but not audible at property line
Source: Brown-Buntin Associates, Inc.



INDUSTRY
NOISE CONTOUR

Figure 3.11-3

Traffic Noise

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop Day-Night Average Level (DNL, also known as L_{dn}) contours for SR 99 and major local roadways. The FHWA Model is an analytical method favored by most state and local agencies, including Caltrans, for highway traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ±1.5 dB. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Existing traffic volumes were provided by Peters Engineering Group. Table 3.11-2 shows existing traffic noise level contours in tabular form. Figure 3.11-4 shows the streets where existing noise level contours were calculated. The streets are color coded to show the approximate distance to the 60 dB DNL noise contour.

Table 3.11-2
Distance (Feet) To Generalized Traffic Noise Exposure Contours
Existing Conditions

Roadway	Segment	60 dB DNL	65 dB DNL
Manning	SR99 to DeWolf	179	83
	DeWolf-McCall	181	84
	McCall-Del Rey	187	87
	Del Rey-Indianola	188	87
Dinuba	Temperance-DeWolf	12	6
	DeWolf-SR99	--	--
	SR99-Golden State	8	4
	Golden State-Highland	86	40
	Highland-McCall	95	44
	McCall-Dockery	83	39
Floral	DeWolf-Highland	54	25
	Highland-Whitson	124	58
	Whitson-McCall	85	39
	McCall-Orange	70	32
	Orange-Del Rey	101	47
	Del Rey-Amber	100	47
Whitson/Golden State	Mtn. View-Second	114	53
	Second-Thompson	110	51
	Thompson-Floral	145	67
	Floral-Highland	110	51
	Highland-Dinuba	114	53
	Dinuba-Manning	152	70
McCall	Mtn. View-Second	46	21
	Second-Floral	54	25
	Floral-Dinuba	70	32
	Dinuba-Manning	92	43

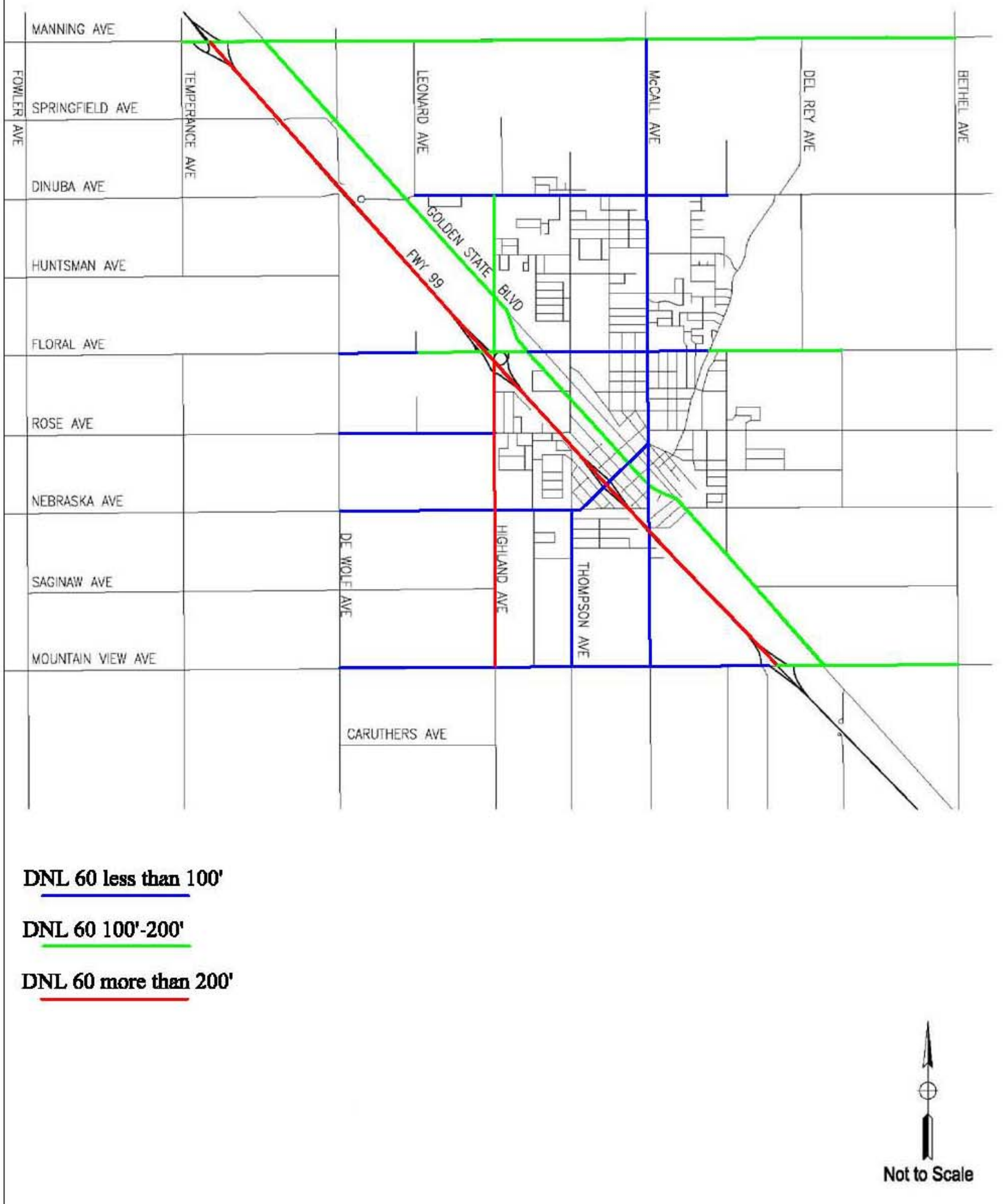
Roadway	Segment	60 dB DNL	65 dB DNL
Nebraska	DeWolf-Highland	55	26
	Highland-Thompson	70	32
	Thompson-Second	53	24
	Dockery-Del Rey	17	8
Second	Nebraska-SR99	73	34
	SR99-Whitson	89	42
	Whitson-McCall	89	42
Highland/SR43	Mtn. View-Nebraska	235	109
	Nebraska-Rose	254	118
	Rose-Floral	273	127
	Floral-Dinuba	145	67
Thompson	Mtn. View-Nebraska	50	23
Rose	DeWolf-Highland	60	28
Del Rey	Nebraska-Floral	0	0
	Floral-Dinuba	23	11
	Dinuba-Manning	22	10
Mtn. View	DeWolf-Highland	48	22
	Highland-McCall	61	28
	McCall-SR99	76	35
	SR99-Golden State	151	70
	Golden State-Bethel	153	71
SR99	South of Jct. SR43	2062	957
	North of Jct. SR43	2471	1147

Source: Brown-Buntin Associates, Inc.

Railroad Noise

The Union Pacific Railroad (UPRR) mainline passes through Selma in a northwest-southeast direction adjacent to Golden State Boulevard/Front Street. According to the UPRR, about 22 freight trains daily pass through Selma. Grade crossings are located at several locations within the city. Train engineers are required to sound the warning horn when approaching within approximately 1000 feet of a grade crossing. Train noise levels are therefore higher at locations near grade crossings.

Railroad noise exposure within the City of Selma was calculated based upon the above-described operations data from the UPRR and noise level data from similar studies conducted by Brown-Buntin Associates, Inc. (BBA) along the UPRR in the central San Joaquin Valley. It was assumed for the calculations that train operations may occur at any time of the day or night and that operations are equally distributed over a 24-hour day. At locations within 1000 feet of a grade crossing, the calculated distance to the 60 dB DNL contour is 760 feet from the center of the tracks. At distances greater than 1000 feet from a grade crossing, the calculated distance to the 60 dB DNL contour is 160 feet from the center of the tracks. Calculated distances are generalized and do not take into consideration site-specific conditions such as acoustic shielding or reflections caused by nearby buildings.



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DNL CONTOUR DISTANCES –
EXISTING TRAFFIC CONDITIONS

Figure 3.11-4

Aircraft Noise

There are two privately owned airports within the City's Sphere of Influence. The Quinn Airport is located near Golden State Boulevard and Dinuba Avenue and the Selma Aerodrome is located near Huntsman and Temperance Avenues. Only a few aircraft are based at the Quinn Airport and there are no records of annual operations or noise contours at that airport known to BBA. Occasional aircraft operations at the Quinn Airport may be audible at times within the community, but it is unlikely that noise from the airport is of concern in terms of the CNEL noise metric.

According to FAA records, there were 15,000 annual operations at the Selma Aerodrome in 2007. The only noise exposure contours on record were prepared in 1980. Both the data and the methodology used to prepare those contours are considered by BBA to be out of date. The 1980 contours on file in the Fresno County Airport Land Use Commission Adopted Plans & Policies should therefore not be used for land use compatibility planning purposes at this time. New contours should be prepared to update the 1980 contours at the time future development warrants.

Construction Noise

Construction activities generate considerable amounts of noise, especially during the demolition phase and the construction of project infrastructure when heavy equipment is used. Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise sensitive receptors.

The highest maximum noise levels generated by project construction would typically range from approximately 90 to 105 dB(A) at a distance of 50 feet from the noise source. Typical hourly average construction-generated noise levels are about 81 dB(A) to 89 dB(A) measured at a distance of 50 feet from the center of the site during busy construction periods, such as when earth moving equipment and impact tools are being used. Construction-generated noise levels drop off at a rate of approximately 6 dB(A) per doubling of distance between the source and receptor. Shielding by buildings or terrain often result in much lower construction noise levels at distant receptors.

Typically, small residential, commercial, or office construction projects do not generate significant noise impacts when standard construction noise control measures are enforced at the project site and when the duration of the noise-generating construction period is limited to one construction season (typically one year) or less. Construction noises associated with projects of this type are disturbances that are necessary for the construction or repair of buildings and structures in urban areas. Reasonable regulation of the hours of construction, as well as regulations of the arrival and operation of heavy equipment and the delivery of construction materials, are necessary to protect the health and safety of persons, promote the general welfare of the community, and maintain the quality of life.

Larger construction projects are typically built out over more than one construction season, and some construction methods, such as pile driving, generate higher noise levels and noise that would be considered impulsive. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction durations last over extended periods of time. Limiting the hours when construction can occur to daytime hours is often a simple method to reduce the potential for noise impacts. In areas immediately adjacent to construction, controls such as constructing temporary noise barriers and utilizing "quiet" construction equipment can also reduce the potential for noise impacts.

3.11.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, the Plan Update would result in a significant noise impact if it would result in:

a) *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.*

b) *Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.*

c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

d) *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.*

f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.*

The Initial Study concluded that the proposed project would have less than significant impacts associated with a public airport or private airstrip. Therefore, this issue is not addressed further in this Draft EIR. Reference the Initial Study in Appendix A for more information.

3.11.3 IMPACTS

Project Impacts and Mitigation Measures

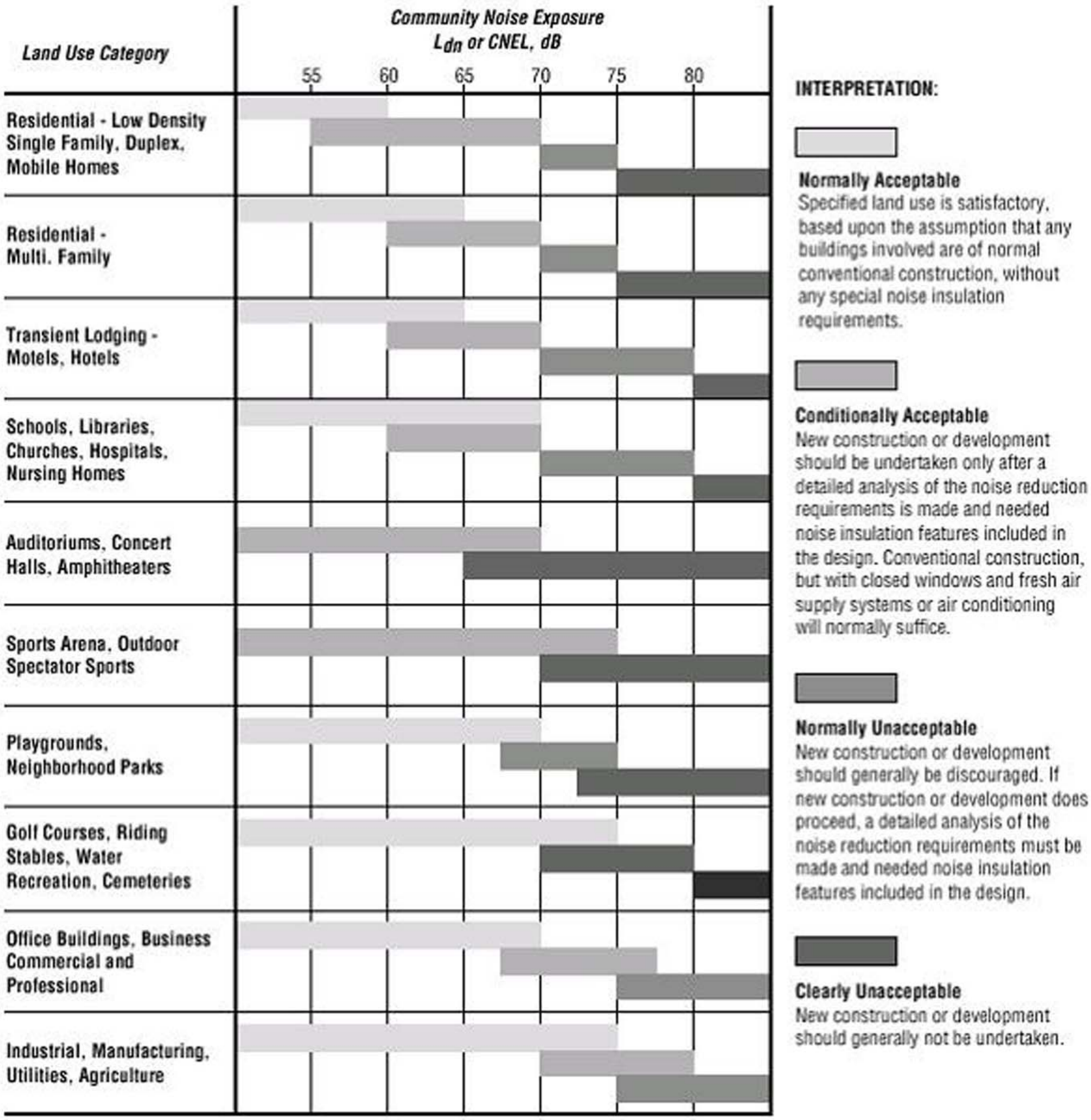
Impact #3.11.3.1 – Result in a substantial permanent, temporary or periodic increase in ambient noise levels in the project vicinity above standards established in the local general plan or noise ordinance, or applicable standards of other agencies: Traffic on local roads, railroad noise, and industrial noise are expected to continue to be the major noise sources. Increased traffic due to population growth will result in increased noise levels along area roadways.

The proposed Plan Update establishes Noise Compatibility Criteria of exterior ground transportation noise for various land uses in Selma and provides definitions of compatibility standards. The matrix in Figure 3.11-5 defines noise in terms of a community noise equivalent level (CNEL) expressed in decibel units (dB or dB(A)). As noted in the definitions, these measures account for noise levels which occur over a 24-hour period. When computing the CNEL, noise levels occurring during evening and night-time hours are weighted more heavily than daytime noise in recognition of increased sensitivity to sound during these hours.

As shown in Figure 3.11-5, the General Plan guidelines establish a maximum "normally acceptable" exterior noise level of 60 dB(A) L_{dn} for new noise sensitive land uses including single family development and mobile homes, and 65 dB(A) L_{dn} for new multi-family residential uses and transient lodging such as motels and hotels. The maximum "normally acceptable" exterior noise level for hospitals, schools, libraries, churches, congregate care facilities, parks and playgrounds, office buildings, business and commercial uses is shown as 70 dB(A) L_{dn}, but the City has identified 65 dB(A) L_{dn} as the exterior limit to be maintained for noise sensitive uses without specific acoustic mitigation.

General Plan Policy 3.4 states that areas with *exterior* noise levels exceeding 65 dB(A) L_{dn} will be designated as noise impacted within the City of Selma. General Plan Policy 3.5 discourages development of noise sensitive land uses in noise impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce *exterior* noise levels to 65 dB(A) L_{dn} or less and 45 dB(A) L_{dn} or less within *interior* living spaces. General Plan Policy 3.7 limits noise levels at the project boundary to 65 dB(A) L_{dn} for industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) when adjacent to planned or zoned noise sensitive land uses. General Plan Policy 3.9 states the preferred method of noise control used is thoughtful design; with use of artificial noise barriers a second choice. General Plan Policy 3.10 states that prior to approval of a proposed development in a noise impacted area, or the development of an industrial, commercial or other noise generating land use in or near an area containing existing or planned noise sensitive land uses, an acoustical analysis may be required.

Future 2035 traffic noise levels are listed in Table 3.11-3 and graphically presented in Figure 3.11-6. The noise exposure figures and tables are intended as screening devices to determine when a proposed development may be exposed to excessive noise levels which require mitigation and to provide guidance in the long range planning processes. Generally, the noise exposure figures and tables provide a conservative (worst-case) assessment of noise exposure for the major noise sources identified for study. It is possible that other major sources of noise will be identified during the project review process. This will be especially true of stationary noise sources, since only a representative sample of such sources was evaluated during the preparation of this document.



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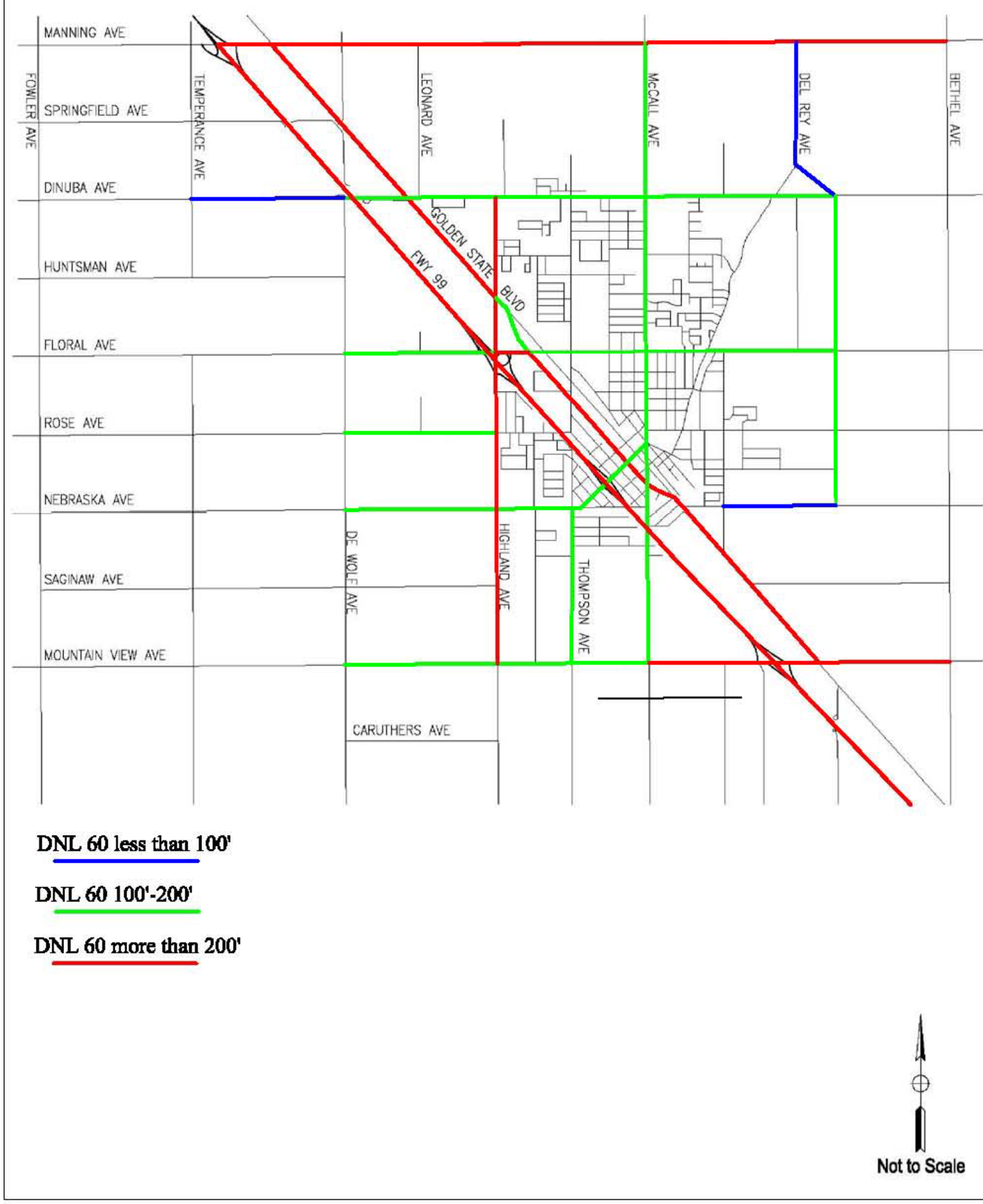
COMMUNITY NOISE EXPOSURE

Figure 3.11-5

Table 3.11-3
Distance (Feet) To Generalized Traffic Noise Exposure Contours
Future Conditions - 2035

Roadway	Segment	60 dB DNL	65 dB DNL
Manning	SR99 to DeWolf	269	125
	DeWolf-McCall	301	140
	McCall-Del Rey	300	139
	Del Rey-Indianola	272	126
Dinuba	Temperance-DeWolf	96	44
	DeWolf-SR99	165	77
	SR99-Golden State	112	52
	Golden State-Highland	175	81
	Highland-McCall	172	80
	McCall-Dockery	175	81
Floral	DeWolf-Highland	158	73
	Highland-Whitson	212	98
	Whitson-McCall	186	87
	McCall-Orange	149	69
	Orange-Del Rey	189	88
	Del Rey-Amber	173	80
Whitson/Golden State	Mtn. View-Second	361	168
	Second-Thompson	286	133
	Thompson-Floral	239	111
	Floral-Highland	196	91
	Highland-Dinuba	290	135
	Dinuba-Manning	313	145
McCall	Mtn. View-Second	172	80
	Second-Floral	103	48
	Floral-Dinuba	132	61
	Dinuba-Manning	175	81
Nebraska	DeWolf-Highland	156	73
	Highland-Thompson	159	74
	Thompson-Second	122	57
	Dockery-Del Rey	77	36
Second	Nebraska-SR99	132	61
	SR99-Whitson	152	71
	Whitson-McCall	147	68
Highland/SR43	Mtn. View-Nebraska	401	186
	Nebraska-Rose	382	178
	Rose-Floral	444	206
	Floral-Dinuba	266	123
Thompson	Mtn. View-Nebraska	108	50
Rose	DeWolf-Highland	136	63
Del Rey	Nebraska-Floral	122	57
	Floral-Dinuba	132	61
	Dinuba-Manning	74	35
Mtn. View	DeWolf-Highland	163	76
	Highland-McCall	188	87
	McCall-SR99	274	127
	SR99-Golden State	398	185
	Golden State-Bethel	323	150
SR99	South of Jct. SR43	2531	1175
	North of Jct. SR43	3033	1408

Source: Brown-Buntin Associates, Inc.



Quad Knopf

DNL CONTOUR DISTANCES –
FUTURE (2035) TRAFFIC CONDITIONS

Figure
3.11-6

Conclusion: With implementation of the proposed 2035 General Plan Policies, build-out under the General Plan would result in **less than significant** noise related impacts. To clarify that noise-generating uses proposed adjacent to existing noise-sensitive uses would be acceptable with incorporation of effective noise mitigation, Policy 3.7 of the General Plan Noise Element should be modified as follows:

Mitigation Measure #3.11.3.1: Policy 3.7 should be modified as follows:

Policy 3.7 New Industrial, commercial or other noise-generating land uses (including roadways, railroads, and airports) shall be discouraged if resulting noise levels will exceed 65 dB DNL (or CNEL) at the boundary areas of planned or zoned noise-sensitive land uses unless effective noise mitigation is incorporated into the design of the new noise producing land use.

Effectiveness of Mitigation: Modification of Policy 3.7 will ensure that noise-generating uses proposed adjacent to existing noise-sensitive uses would be in conformance with General Plan policy with incorporation of effective noise mitigation measures reducing the noise level at the property line to 65dB DNL or less. This impact would remain **less than significant.**

Impact #3.11.3.2 – Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels: Development occurring under the Plan Update would not introduce new sources of significant ground-borne vibration. However, impacts to new development could result from railroad operations if vibration-sensitive development such as residential land uses, are proposed within 100 feet of the railroad tracks. Such development could expose residents to vibration levels in excess of Federal standards. To address this potential impact, the Plan Update includes Policy 3.12 in the Noise Element, which would require new development of habitable buildings proposed to be placed within 100-feet of the centerline of the railroad tracks to provide a study demonstrating that ground borne vibration issues will be adequately addressed (i.e., through building siting or construction techniques), or that such development will not take place.

Conclusion: With implementation of the proposed Plan Update, build-out under the General Plan would be **less than significant** in regards to ground-borne vibration related impacts.

Mitigation Measure: No mitigation measures are required.

Impact #3.11.3.3 – Construction Noise: Development allowed under the proposed 2035 General Plan may result in new construction activity which could temporarily elevate noise levels at adjacent noise-sensitive uses by as much as 15-20 dB(A) or more during construction activities. Construction-related noise levels typically range from about 90-105 dB(A) at a distance of 50 feet from the noise source. Construction-generated noise levels drop off at a rate of about 6 dB(A) per doubling of distance between the source and receptor.

The Noise Ordinance deems it unlawful for any excessive noise-generating devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses to operate between the hours of 7:00 p.m. and 7:00 a.m.

Conclusion: With implementation of the proposed 2035 General Plan Policies, build-out under the General Plan would result in **less than significant** construction-related noise impacts.

Mitigation Measure: No mitigation measures are required.

3.12 Population and Housing

INTRODUCTION

This section presents information on existing and projected population, employment and housing within Selma and analyzes the effects that the Plan Update would have on them.

3.12.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no specific federal regulations applicable to population and housing.

STATE AND LOCAL

Housing policy in Selma is primarily addressed through the General Plan Housing Element, which is updated every five years in accordance with State Housing Element law, while housing development is regulated by the City Zoning and Subdivision Ordinances. The current Housing Element is being updated separately and will not be adopted concurrent with the Plan Update, but is an integral part of the complete General Plan.

General Plan Consistency

The Selma General Plan Update contains a number of policies that apply to population and housing impacts in conjunction with ultimate build-out of the city in accordance with the General Plan. The specific policies listed below contained in the proposed Land Use and Public Facilities and Services Elements are designed to ensure that impacts related to population growth and provision of housing are minimized as development occurs in accordance with the Plan Update.

<u>Land Use Element</u>

Policy 1.41 The City shall monitor the availability of vacant lands for each commercial land use designation. When the amount of available land is less than required for three years of average growth, the City shall initiate applications, such as zoning and general plan amendments, excluding annexation, to ensure that at least a three-year supply of commercial lands are available for development.

Policy 1.93 In any given three-year period where the average annual growth rate exceeds 4.0 percent, the City shall enact measures which control the number of building permits issued for new residential construction. At the time the average annual population growth rate exceeds 4.0 percent, the City shall determine the number of residential permits which will be needed to be issued over the next two years to establish a 4.0 percent growth rate for that 5-year period. The number of annual permits may be prorated on a monthly basis and adjusted for traditional seasonal construction. Residential units constructed or reconstructed by funds provided in full or part by the Selma Redevelopment agency shall be exempt from this policy.

Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall not develop or annex areas designated as "Reserve" within the Planning Area until additional land is needed.

Public Services and Facilities Element

Policy 6.1 Coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms including assessment district, property owner's association's user fees, development impact fees, mitigation payments, reimbursement agreements and/or other mechanisms which provide for equitable distribution of development and maintenance costs.

Policy 6.2 Require the development and extension of infrastructure to proposed developments according to adopted elements and master plans. Projects that are not contiguous to existing urban development shall be required to assess the cumulative impact of all non-contiguous development.

Physical

The following provides a description of the current conditions with regard to population, employment, and housing in Selma.

POPULATION AND DEMOGRAPHICS

The City has grown to a population of 23,286 as reported in 2008 by the California Department of Finance (DOF). In 1980, the population of Selma was 10,972, by 1990 the population had increased to 14,757 and by 2000 the population had increased to 19,314. Population growth from 1990 to 2000 represented an increase of 31.8 percent, while the neighboring cities of Reedley, Kingsburg, Sanger, and Fowler grew by 31.4, 27.7, 12.4, and 24.0 percent, respectively.

Table 3.12-1 shows population estimates and projections for Selma and Fresno County for the years 2010 through 2040. The DOF estimates that there will be 983,478 persons in Fresno County by 2010. Assuming a 4% growth rate for the City, Selma is projected to have a population of 23,621 by 2010 and a potential population of 70,000 by 2040, at which time Fresno County could have a population of 1,670,542. A 4% growth rate is assumed for Selma based on the City's historical population growth. However, there is no guarantee the city of Selma's population growth rate will be 4.0% on average for the next 25+ years.

Table 3.12-1
Population Estimates and Projections, 2010-2040
Selma and Fresno County

	2010	2020	2030	2040
Selma[1]	24,233	35,870	53,097	78,597
Fresno County[2]	983,478	1,201,792	1,429,228	1,670,542

Source: California Department of Finance
[1] Based on DOF January 1, 2009 population estimate, projections assume 4% growth rate
[2] CA DOF, *Population Projections by Race/Ethnicity for California and Its Counties 2000-2050*

Table 3.12-2 shows Selma's annual potential population in consideration of a population growth rate range of between 2.5% and 5.0% per year to 2035. The 4% growth rate assumed for the proposed General Plan Update is mid range between the conservative and aggressive ends of this spectrum.

Table 3.12-2
Growth Rate Comparison
City of Selma
(2010-2035)

Year	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%
2010	23,884	24,000	24,117	24,233	24,350	24,466
2015	27,022	27,822	28,643	29,483	30,344	31,226
2020	30,572	32,254	34,018	35,870	37,814	39852
2025	34,590	37,391	40,403	43,642	47,123	50,863
2030	39,136	43,346	47,986	53,097	58,724	64,915
2035	44,278	50,250	56,933	64,601	73,181	82,850

Source: California Department of Finance, Quad Knopf analysis

Employment and Commuting Patterns

The types of occupations held by Selma residents are shown in Table 3.12-3, which reveals that 25.6 percent of Selma's labor force in 2000 worked in sales and office occupations, which was similar to the County. The percentage of Selma's second largest occupation group, production, transportation, and material moving occupations was 20.5 percent compared with only 13.3 percent for the County.

Table 3.12-3
Employment by Occupation, 2000
Selma and Fresno County

Selma		
Employed civilian population 16 years and over	7,090	100%
Management, professional, and related occupations	1,384	19.5%
Service occupations	1,056	14.9%
Sales and office occupations	1,818	25.6%
Farming, fishing, and forestry occupations	851	12.0%
Construction, extraction, and maintenance occupations	530	7.5%
Production, transportation, and material moving occupations	1,451	20.5%
Fresno County		
Employed civilian population 16 years and over	301,306	100%
Management, professional, and related occupations	88,796	29.5%
Service occupations	48,655	16.1%
Sales and office occupations	78,299	26.0%
Farming, fishing, and forestry occupations	19,780	6.6%
Construction, extraction, and maintenance occupations	25,698	8.5%
Production, transportation, and material moving occupations	40,068	13.3%

Source: 2000 U.S. Census

Referencing Table 3.12-4, 75.9 percent of workers 16 years and over in Selma drove alone to work, compared to 74.2 percent for the County. Workers in carpools in Selma were 17.2 percent compared to 16.7 percent for the County. Just 0.2 percent of workers in Selma, and only 1.7 percent of workers in Fresno County as a whole reported using public transportation to commute to work. The average travel time to work was 21.0 minutes for Selma and 22.2 minutes for the County as a whole.

Table 3.12-4
Commute Patterns, 2000
Selma and Fresno County

	Selma		Fresno County	
	Number	**Percent**	**Number**	**Percent**
Workers 16 Years and Over	6,886	100.0%	294,942	100.0%
Car, Truck, or Van-Drove Alone	5,226	75.9%	218,785	74.2%
Car, Truck, or Van-Carpooled	1,183	17.2%	49,265	16.7%
Public Transportation (Including Taxicab)	14	0.2%	5,116	1.7%
Walked	131	1.9%	7,028	2.4%
Other Means	200	2.9%	5,699	1.9%
Worked at Home	132	1.9%	9,049	3.1%
Mean Travel time to Work (Minutes)	21.0	-	22.2	-

Source: 2000 U.S. Census

The Plan Update would allow for needed new commercial, industrial and office development opportunities. Additional employment would be associated with these uses providing jobs as well as essential goods and services for Selma residents.

Household Size

Trends in household size is an important indicator when considering the growth pattern of a community. Average household size will increase if there is an influx of larger families or a rise in the local birth rate such as may be attributed to more children in a single family or teenage parents living at home. Household size will decline where the population is aging, or when there is an immigration of single residents outside childbearing age.

Table 3.12-5 shows Selma and Fresno County's Total Households, Population in Households, and Average Household Size for 1990 and 2000. In 1990, Selma's Average Household Size was 3.21, while the County's Average Household Size was 2.97. Average Household Size in 2000 was 3.45 persons per household for Selma and 3.07 persons per household for the County. The rate of increase in the average household size from 1990 to 2000 was 6.7 percent for Selma and 3.3 percent for the County, indicating that larger or extended family/households are increasing at a faster rate in Selma than the County.

Table 3.12-5
Average Household Size, 1990-2000
Selma and Fresno County

	1990			2000			
Area	**Number of Households[1]**	**Population**	**Average Household Size**	**Number of Households[1]**	**Population**	**Average Household Size**	**Rate of Increase in Average Household Size**
Selma	4,696	14,609	3.21	5,596	19,314	3.45	6.7%
Fresno County	235,563	654,970	2.96	252,940	781,740	3.09	4.2%

Source: 1990 and 2000 U.S. Census
[1] Occupied housing units

Table 3.12-6 shows the household age distribution in Selma in 1990 and 2000. The largest age group in Selma in 2000 was the 25 to 34 age group, making up 15.2 percent of the population. The percentage of the population in 2000 under the age of 15 was 28 percent, suggesting that the City has a high percentage of children and teenagers. Conversely, the age groups with the lowest percentage of the population are the 55 and over groups. These factors suggest there is a high birth rate and a high percentage of families with children.

Table 3.12-6
Household Age Distribution, 1990 and 2000
City of Selma

	1990		2000	
	Number	**Percent**	**Number**	**Percent**
Under 5	1,430	9.7%	1,805	9.3%
5 to 9	1,427	9.7%	1,884	9.7%
10 to 14	1,316	8.9%	1,756	9.0%
15 to 19	1,202	8.1%	1,693	8.7%
20 to 24	1,180	8.0%	1,581	8.1%
25 to 34	2,325	15.7%	2,953	15.2%
35 to 44	1,881	12.8%	2,615	13.5%
45 to 54	1,252	8.5%	1,894	9.7%
55 to 59	486	3.3%	699	3.6%
60 to 64	523	3.5%	558	2.9%
65 to 74	940	6.4%	1,014	5.2%
75 to 84	572	3.9%	722	3.7%
85 and Over	223	1.5%	270	1.4%
Total	**14,757**	**100.0%**	**19,444**	**100.0%**

Source: 1990 and 2000 U.S. Census

Race/Ethnicity Characteristics

Table 3.12-7 shows the ethnic composition of Selma's population for the years 1990 and 2000. In 2000, the white population totaled 8,536 (43.9%), while the "Some Other Race" population totaled 8,962 (46.1%). The "Two or More Races" population totaled 871 (4.5%), and all other races totaled 5.6% combined. Selma's ethnic composition is reflective of the statewide trend in recent decades, in that the number of individuals claiming Hispanic or Latino ethnicity is steadily increasing. In Selma, 71.8% of the population reported Hispanic or Latino ethnicity in 2000 as opposed to 61.3% in 1990.

Table 3.12-7
Household Race and Ethnicity, 1990-2000
City of Selma

	1990		2000	
	Number	**Percent**	**Number**	**Percent**
White	9,514	64.5	8,536	43.9
Black or African American	205	1.3	146	0.8
American Indian and Alaskan Native	180	1.2	304	1.6
Asian, Native Hawaiian, Pacific Islander	493	3.3	625	3.2
Some Other Race	4,365	29.7	8,962	46.1
Two or More Races	N/A		871	4.5
Total	**14,757**	**100%**	**19,444**	**100%**
Hispanic or Latino (of any race)	9,043	61.3%	13,952	71.8%

Source: 1990 and 2000 U.S. Census

Household Type

The U.S. Census Bureau defines a household as all persons who occupy a housing unit. This may include single persons living alone, families related by blood or marriage, and unrelated individuals living together. Persons living in retirement or convalescent homes, dormitories, or other group living situations are enumerated separately and are not counted as households.

Table 3.12-8 shows household characteristics for the City of Selma for the years 1990 and 2000. Family Households increased in the City of Selma from 79.3 percent of total households in 1990 to 82.9 percent in 2000. Non-family households decreased from 1990 to 2000 by 3.6 percentage points (from 20.7 percent to 17.1 percent), and Married-Couple Families decreased 0.6 percentage points (from 60.4 percent to 59.8 percent) during the same period.

Table 3.12-8
Household Type Characteristics, 1990-2000
City of Selma

	1990		**2000**	
	Number	**Percent**	**Number**	**Percent**
Total Households	3,733	100.0	4,493	100.0
Family households (families)	2,961	79.3	3,724	82.9
Married-couple families	2,256	60.4	2,688	59.8
Non-family households	772	20.7	769	17.1
Householder living alone	669	17.9	647	14.4
Householder 65 years and over	441	11.8	378	8.4
Average Household Size	3.21		3.45	
Total Persons in Households	**12,373**		**16,714**	

Source: 1990 and 2000 U.S. Census

As shown in Table 3.12-8, average household size in Selma was 3.21 persons per household in 1990 with an increase to 3.45 persons per household in 2000.

Housing Characteristics

Currently, Selma is primarily comprised of two types of housing stock: the older residential neighborhoods that surround the downtown area and the newer subdivisions of larger homes further out. As shown in Table 3.12-9, the majority of units built between 1990 and 2000 were single family. However, there were also a significant number of properties with 20 or more multiple-family units built during the same time period. The percentage of single family housing units (both attached and detached) increased from 68.0 percent in 1990 to 75.5 percent in 2000, and the percentage of properties with 20 or more units increased from 7.7 percent in 1990 to 9.2 percent in 2000.

According to the DOF, as of January 1, 2009, Selma had a total of 6,830 housing units. Of that total, 5,112 were detached single family homes, 148 were attached single family homes, 1,143 were duplex and multifamily homes and 427 were mobile homes. As of January 1, 2009 there were 3.525 persons per household with a vacancy rate of 3.75.

Table 3.12-9
Housing Inventory Trends by Unit Type, 1990-2000
City of Selma

	1990		2000	
	Units	**Percent of Total**	**Units**	**Percent of Total**
Total Housing Units	4,696	100.0	5,766	100.0
1-Unit Detached	3,088	65.8	4,211	73.0
1-Unit Attached	103	2.2	147	2.5
2 Units	150	3.2	110	1.9
3 or 4 Units	249	5.3	134	2.3
5 to 9 Units	239	5.1	96	1.7
10 to 19 Units	127	2.7	119	2.1
20 or More Units	362	7.7	531	9.2
Mobile Home	337	7.2	412	7.1
Other (Boat, RV, Van, etc.)	41	0.9	6	0.1

Source: 1990 and 2000 U.S. Census

Occupied Housing Units

Table 3.12-10 shows Total Occupied Housing Units and Owner-Occupied and Renter-Occupied Housing Units for 1990 and 2000. The 2000 U.S. Census reported that the total number of occupied housing units in the City was 5,596 including 3,476 (62.1 percent) Owner-Occupied Housing Units and 2,120 (37.9 percent) Renter-Occupied Housing Units.

Table 3.12-10
Occupied Housing Units, 1990-2000
Selma and Fresno County

	Total Occupied Housing Units	Owner Occupied Housing Units	Owner Occupied Housing Units (%)	Renter Occupied Housing Units	Renter Occupied Housing Units (%)
1990					
Selma	4,556	2,545	55.9	2,011	44.1
Fresno County	220,993	119,876	54.2	101,057	45.8
2000					
Selma	5,596	3,476	62.1	2,120	37.9
Fresno County	252,940	142,795	56.5	110,145	43.5

Source: 1990 and 2000 U.S. Census

In Selma, the number of Owner-Occupied Housing Units increased from 55.9 to 62.1 in the period of 1990 to 2000, while the number of Renter-Occupied Housing Units decreased from 44.1 to 37.9 from 1990 to 2000. As Table 3.12-10 shows, the County's percentage of Owner-

Occupied housing units was approximately five percentage points lower than Selma's in the year 2000.

Age of Housing Stock

As illustrated in Table 3.12-11, in 2000, 40.3 percent of Selma's housing stock was built prior to 1970. By 2010, approximately 60 percent of the City's housing stock will be more than 30 years old. This indicates the need for the City to consider implementing rehabilitation programs as maintenance costs for these units increase. The decade with the most new construction was the 1990's, with 1,299 (22.5 percent of the total) units added to the City's housing stock.

Table 3.12-11
Age of Housing Stock
City of Selma

Year Structure Built	Number of Units	Percent of Total
1990 to March 2000	1,299	22.5
1980 to 1989	917	15.9
1970 to 1979	1,228	21.3
1960 to 1969	643	11.2
1940 to 1959	1,206	20.9
1939 or Earlier	473	8.2
Total	5,766	100.0

Source: 2000 U.S. Census

3.12.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project would normally be considered potentially significant if it would:

a) *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).*

b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.*

c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.*

As discussed in Chapter One, Introduction, the Initial Study found that the proposed project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere. These issues are therefore not discussed further in this Draft EIR. Reference the Initial Study in Appendix A for additional information.

3.12.3 IMPACTS

Project Impacts and Mitigation Measures

This section discusses the potential impacts of the proposed adoption of the 2035 General Plan on population, employment and housing in the City of Selma. Implementation of the Plan could result in an increase of dwelling units and population within the City, and an increase in employment-generating commercial and industrial uses. The 2035 General Plan is designed to help Selma address growth pressures, in part by providing a policy framework to control and direct growth as it occurs.

The 2035 General Plan seeks to provide new employment opportunities for Selma residents and to allow residents to work, shop and live within the community. A range of housing types are allowed and encouraged by the 2035 General Plan and the Specific Plans currently being prepared, and provide housing to meet the varying income levels and housing needs of the city's residents. Policies of the 2035 General Plan would support the comprehensive range of policies and standards included in the Draft Housing Element as it was updated in 2003. Overall, growth is limited to areas within and adjacent to the existing City Limits and generally in proximity to existing developed areas in order to limit unnecessary infrastructure expansions, limit traffic impacts and protect open space and agricultural lands surrounding Selma.

Impact #3.12.3.1 – Induce substantial population growth in an area, either directly or indirectly: Regional and statewide growth pressures will cause Selma to continue to grow into the future. The population growth rate is planned at 4% annually, which reflects a higher growth rate than reported by U.S. Census and Department of Finance estimates from 2000 to 2007. Population projections assume a 4% annual growth rate as determined by the City Council of Selma. Establishment of quantitative criteria to ensure that adequate land is available for each planned land use will avoid any unexpected impacts.

This growth would occur even without adoption of the Plan Update, since the existing 1997 General Plan allows for growth within the City limits and the SOI. Table 2-2, in Chapter Two, summarizes the total acreage of new development that is proposed under the 2035 General Plan. While the City uses a four percent growth rate for planning purposes, actual growth rate would depend on a variety of factors including demographic, economic and market conditions that could cause growth to occur at a faster or slower rate than four percent.

The 2035 General Plan includes numerous policies to accommodate growth in a planned and orderly fashion, focusing the highest intensities of development within existing urban areas. The following goals and policies are from the proposed Land Use element. Goal 20 states the City will maintain a viable population growth rate in Selma over the planning period that provides for orderly growth with minimal adverse impacts upon City services. Land Use Element Policy 1.93 states the City shall enact measures which controls the number of building permits issued for new residential construction if in any given three year period the average annual growth rate exceeds 4.0 percent. Land Use Element Policy 1.41 states the City shall monitor the availability of vacant lands for each commercial land use designation. When the amount of available land is less than required for three years of average growth, the City shall initiate applications, such as zoning and general plan amendments, but excluding annexation, to ensure that at least a three year supply of commercial lands are available for development. Land Use Element Goal 22 states the City shall maintain reserve areas in an undeveloped state until their development becomes required for further growth of the City.

The purpose of the proposed Public Services & Facilities Element is to ensure that sufficient levels of public services are provided as Selma develops. Public Services and Facilities Element Policies 6.1 and 6.2 state the City will require the development and extension of infrastructure to proposed developments according to adopted elements and master plans and the City shall use reimbursement agreements or other financing techniques to reimburse developers for any over sizing costs.

In addition to the above policies, Selma also has an adopted General Plan Housing Element. This document considers projected future population, growth and housing demand, and seeks to increase the amount of housing that would be affordable to all sectors of the community and special needs groups.

Conclusion: The proposed Plan Update would provide adequate capacity for expected growth over the next 25 years and would therefore have **no impact** in terms of substantial, unplanned population growth.

Mitigation Measure: No mitigation measures are required.

Impact #3.12.3.2 - Employment and Job Growth: The Plan Update would allow for needed new commercial, industrial and office development opportunities. Additional employment would be associated with these uses providing jobs as well as essential goods and services for Selma residents. Strict implementation of Policy 1.41, however, may lead to a shortage of needed jobs-related land uses, causing a jobs-housing imbalance in the community. Commercial and Office projects require a 5-10 year lead time from initial planning to construction to come to fruition.

Conclusion: There may be a potentially significant shortage of commercial and industrial land unless adequate lead time is provided for these land uses.

Mitigation Measure #3.12.3.2: Policy 1.41 shall be amended as follows:

Policy 1.41 The City shall monitor the availability of vacant lands for each commercial and industrial land use designation. When the amount of available commercial or office zoned land is less than 10 years supply, or where the supply of industrial zoned land is less than 20 years supply, the City shall initiate necessary applications, such as SOI, UDB, zoning, annexation and other necessary amendments, to ensure an adequate supply of such land for development.

Effectiveness of Mitigation: Modification of Policy 1.41 will ensure that ample land is available to provide jobs and housing for the community. This impact would be **less than significant.**

3.13 Public Services

INTRODUCTION

This section presents information on public services in Selma, including fire and police protection, schools, electricity, and gas and describes the potential effects of the proposed Plan Update related to the provision of these services. Parks and recreation is discussed in the following Section, 3.14.

3.13.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no specific federal regulations applicable to public services.

STATE AND LOCAL

Mitigation for school facilities impacts is limited by the California Legislature to the payment of mitigation fees under Government Code Sections 65995, 65995.5, or 65995.7, as applicable, and the payment of such fees is deemed to be full and complete mitigation of the impacts of any local agency action involving the planning, use, or development of real property.

While current state law limits the consideration by cities and counties of school facilities issues in the land use approval process, local governments still have the power to use the General Plan and zoning to reserve and designate areas for schools. For example, California Government Code Section 65302 mandates that General Plans include a Land Use Element that designates the proposed general distribution, location, and extent of various land uses, including educational facilities. The Plan Update accomplishes this through a set of policies and designations on the General Plan Land Use Diagram.

General Plan Consistency

The Plan Update contains a number of policies that apply to public services impacts in conjunction with ultimate build-out of the City in accordance with the 2035 General Plan. The specific policies listed below contained in the Land Use, Circulation, Safety and Public Services and Facilities Elements of the proposed 2035 General Plan are designed to ensure that public services impacts are minimized as development occurs in accordance with the proposed Plan Update.

<u>Land Use Element</u>

Policy 1.8 New development in the community should be sequential and contiguous to existing development, to ensure the orderly extension of municipal services and preservation of an adequate circulation system.

Policy 1.9 While the City prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development greater than ½ mile from existing urban uses should be discouraged. Such development should be required to submit an analysis of the fiscal and service impacts the development would have upon the City.

Policy 1.10 The in-fill of existing vacant lands within the City limits should be encouraged over development on the periphery of the community.

Policy 1.13 The City shall discourage extension of urban services to land which will not be annexed into the City for greater than one year, except when required to eliminate health and safety problems in existing developments.

Policy 1.14 The City shall oppose untimely urban development in the unincorporated areas of the Sphere of Influence.

Policy 1.18 The City shall work closely with the school district in monitoring housing, population, school enrollment trends and in planning for future school facility needs, and shall assist the school district in locating appropriate sites for new schools.

a. The City will involve the school district as early as possible in the planning process to ensure that the analysis of and provision for adequate school facilities are an integral part of any project review.

b. New schools should be located as close as possible to housing developments so children can walk/bike to school, and to minimize district transportation costs.

c. New school sites should be located adjacent to public parks and/or open space to allow joint use of public land.

d. New school sites should be located to minimize the need for young children to cross major roadways, railroads or other physically challenging barriers.

e. The City shall assist the school district in finding sites for the elementary schools, middle schools and high schools which the school district indicated would be necessary to serve the population growth projected in this General Plan update.

Policy 1.19 The City will work closely with the school district to ensure that school facilities will keep pace with new development. The City may assist the school district in securing funding for new school facilities and, where legally feasible, the City may provide a mechanism which, along with state and local sources, requires development projects to satisfy the school district's financing program based upon evidence of their impact.

a. The school district will impose fees as legally allowed by the state on residential development projects for the construction and/or reconstruction of school facilities. The fees on residential development projects may be adjusted every two years for inflation.

b. The City will encourage the school district to take actions necessary to qualify for state school funds.

Policy 1.44 The City shall assist in the planning of privately owned public utilities.

Policy 1.74 The City shall monitor and update plans for public streets and utilities, particularly as they pertain to new industrial areas. The City shall also assist in the planning of privately owned public utilities. Provision of planning services and infrastructure is essential to providing adequate land for industrial development.

Policy 1.92 Residential development at urban densities shall be located only where services and facilities can be provided.

Policy 1.94 Development shall be allowed only in areas that already have urban services or are within a master plan to provide those services. Development of lands outside of current service or master plan areas (such as the SKF Sewer District, City of Selma Master Plan for Storm Drainage Area, etc.) may be considered if the following findings can be made:

a. The development will not cause a shortfall, either short- or long-term in the financing of any public facility.

b. The development will not significantly delay the provision of a public improvement.

c. The development will not accelerate the need for a public improvement beyond the ability of the improvement fund to adjust for the improvement.

d. Expansion of the master plan area and/or public facility will not result in the City being unable to maintain existing facilities at their current service levels.

Policy 1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall not develop or annex areas designated as "Reserve" within the Planning Area until additional land is needed.

Policy 1.97 The City shall consider the appropriateness of opening up lands designated as Reserve for development based upon the following factors:

- Availability of land for development within the UDB has become limited. This is defined as when the City's population, as measured by the California Department of Finance, exceeds 40,000 individuals.
- Proximity of reserve lands to existing developed land (to minimize leapfrog development).
- Implications for overall community form and relationship to the existing community.
- Market feasibility of development in this area, including the expected rate of absorption.
- Infrastructure availability and impact to existing infrastructure and other public services.
- Consideration of circulation patterns and improvements.
- Implications of providing public services, including law enforcement and fire protection services.

Policy 1.98 The City shall evaluate the UDB annually to ensure there is enough capacity to accommodate anticipated growth.

Policy 1.105 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas until a minimum of 80 percent of all non-reserve property with the same general designation within the general plan boundaries have been developed or have approved development entitlements.

Circulation Element

Policy 2.28 The street network should provide a quick and efficient route for emergency vehicles, including police, fire and other vehicles, when responding to calls for service. The length of single-entry access routes shall be restricted.

Safety Element

Policy 4.2 The City shall develop and adopt an Emergency Operations Plan which shall include action plans in the event of an earthquake or other disaster. Emergency evacuation routes shall be included in the plan.

Policy 4.3 The City shall maintain and continue to update, with the County of Fresno and other agencies, an Emergency Services Plan. The plan should include:

a. Provision for control and direction of emergency operations.

b. Provision for continuity of governmental services.

c. Program to coordinate the repair and restoration of essential systems and services.

d. Coordination of emergency operations with other jurisdictions.

Policy 4.6 Emergency communication centers, fire stations and other emergency service or critical facilities should be examined to determine earthquake resistance. A program to mitigate deficient facilities should be established.

Policy 4.24 New public use buildings, such as schools and hospitals, should be located a minimum of 1,000 feet from mainline rail or highway routes.

Policy 4.29 The City shall maintain an efficient fire department operation and strive to keep the staffing and equipment levels in line with the growth of the City.

Policy 4.30 The City will strive to reduce the demand for fire service by emphasizing fire prevention and public education. The Selma Fire Department will continue to conduct annual fire prevention inspections for commercial uses.

Policy 4.31 The City will require installation, maintenance and inspection of automatic fire detection and suppression devices in structures as required by City Code.

Policy 4.32 Encourage the installation of a system of heat and/or smoke detection devices and encourage a sprinkler system and other fire suppression equipment including fire hoses and water storage tanks or fire hydrants for all structures that exceed 5,000 square feet in floor area for the following facilities:

a. Critical facilities (public buildings).

b. Permanent industrial facilities employing ten or more people on a year-round basis.

c. Housing for the elderly, children and mentally infirm.

d. Nursing homes and hospitals.

e. Structures where large amounts of chemicals or fuels are known to be stored and are considered to be significantly dangerous by the Fire Chief.

f. As required by the Fire Chief or other legislation.

Policy 4.33 New development in the City of Selma shall conform to existing fire codes, including the provision of adequate ingress and egress for fire response vehicles.

Policy 4.34 The City shall continue to monitor and coordinate the water supply system with California Water for fire protection purposes to include the water supply for both peak load and emergency use. Areas of substandard water supply should be identified, and system improvements completed prior to and in conjunction with new development in the area.

Policy 4.35 The City shall continue to enforce its weed abatement program limiting the amount of combustible vegetation throughout the Planning Area.

Policy 4.36 The City should encourage public and private agencies, especially schools and social service groups to become involved in promoting fire protection and prevention education.

Policy 4.37 The City's Fire Services response goal shall be five minutes from "tone-out" to arrival on scene.

Policy 4.44 The City shall continue to staff, train and equip an emergency response team to respond and coordinate public safety activities. The Selma Fire Department is designated as the City's emergency response team for hazardous materials incidents.

Public Services and Facilities Element

Policy 6.5 Potential school sites shall be designated on the land use plan in locations convenient to their service populations. Future school site locations on the adopted Land Use Diagram are approximate and subject to change.

Policy 6.6 Adequate space and facilities shall be provided for City services and administrative functions including senior citizen centers, community centers, and a civic center complex.

Policy 6.7 The City shall continue to review fire call response time and other factors relating to ISO ratings and strive to maintain the current ISO rating.

Policy 6.8 Adequate facilities shall be provided for law enforcement and fire suppression and prevention programs.

Policy 6.9 Police and fire staffing levels shall be reviewed on an annual basis to determine appropriate and feasible staffing ratios.

Physical

FIRE PROTECTION

The City of Selma Fire Department provides fire protection services, hazardous materials response, emergency medical services, including first response and transportation, and technical rescue to a 6-square-mile area including all areas within the City limits. The Department, as part of the Fresno County Emergency Services System, also covers 150 square miles of Fresno County for paramedic ambulance service. In addition, the fire department maintains mutual aid agreements whereby secondary fire service response can be provided upon request from anywhere in the State of California. The Fire Department indicated that it is projected to respond to over 4,700 calls for service in 2008, a 12 percent increase over 2007.

The Selma Fire Department has two fire stations, staffed 24 hours a day. Station 53 is 3,410 square feet in size and is located at 1927 West Front Street. This station is staffed with a minimum of three personnel every day. Two personnel are assigned to one of the department's ambulances and the third person is assigned to either a fire pumper or the department's 75-foot ladder truck. It is not uncommon for one person to respond in a fire apparatus from this station. This station has three apparatus assigned to it: one emergency ambulance, one 1,250 gallon per minute pumper and one 75-foot ladder truck.

Station 54 is 3,327 square feet in size and is located at 2857 A Street. Also located at this station is the 1,360 square foot administrative building. Three personnel are also assigned to this fire station. Two of the personnel are assigned to an ambulance and the other person is assigned to a fire engine. It is not uncommon for this engine to respond with one firefighter. The on-duty supervisor works out of this station. Assigned to this fire station are one 1,500-gpm fire engine, one front-line ambulance and two backup ambulances. According to the Selma Fire Department, the fire station is in a location that is not suitable for future growth and could be moved once City growth advances to the north and east.

Neither fire station is large enough to appropriately house the current staff, equipment or apparatus.

The Fire Department currently is allocated 24 full-time firefighter positions (10 cross-trained as paramedics), one fire chief/fire marshal, one division fire chief/training officer, one fire inspector, one department secretary and 15 reserve firefighters.

The Fire Department budget is derived from general fund revenues and the ambulance enterprise fund, which is revenue from billing ambulance patients. The ambulance enterprise fund pays for half of the current staff.

The Department's response time goal within the City limits is to respond to all emergencies within five minutes, 90 percent of the time, from time of dispatch to arrival.

The industry standard for a normal fire response (weight of attack) to a residential structure fire is 12 to 15 firefighters, within eight minutes, with the first unit with four personnel arriving on scene within five minutes. The Department's current full on-duty strength is eight personnel if everyone is working. The Department normally averages between eight and 10 firefighters per structure fire, including reserve firefighters. Due to the ambulance call volume, it is highly likely that one or both ambulances could be on an ambulance call at the time of a structure fire.

In 2001, the Department responded to 392 fire calls and 2,996 ambulance calls. By 2006, the Department responded to 532 fire calls and 3,638 ambulance calls.

The City's current Insurance Services Office (ISO) fire service rating is 5. The ISO scale goes from 1 (best) to 10 (worst). A higher ISO rating results in higher insurance premiums. The rating is based on an evaluation of a department's fire fighting capability (50% of the score), the water system it uses to fight fires (40% of the score), and the nature of its dispatch area (10% of the score).

In 2008, the City entered into an automatic-aid agreement with Fresno County Fire Protection District. The agreement will send the closest fire engine from either Selma or Fresno County Fire Protection District to medical and fire calls in the County and in return Fresno County Fire Protection District will send two fire engines and one Battalion Chief to all structure fires in Selma.

Other police and fire protection services, both current and planned, are funded by Community Facilities Districts; Development Impact Fees; Measure S (a half-cent sales tax dedicated to public safety that was developed by an ad hoc committee and raises funds for training, equipment, staffing, and apparatus for the police and fire departments); a Federal Assistance to Firefighters Grant, which is a competitive fund; and a State Homeland Security Grant, which is also a competitive fund.

Each of the funds mentioned above provide for the development and expansion of the Selma Fire Department in order to help it protect the City to the best of its abilities. Each fund helps provide financial assistance in purchasing new equipment, training of firefighters and engineers, additional staffing for each fire station, the development and expansion of existing and new facilities required by the Fire Department and additional apparatuses to help combat fires.

POLICE PROTECTION

Law enforcement services within the City of Selma are provided by the City of Selma Police Department headquartered at 1935 E. Front Street. Areas outside the City limits are served by the Fresno County Sheriff's Department. The City of Selma Police Department consists of 54 personnel: 37 sworn officers and 17 non-sworn support staff.

The City is patrolled on a 24-hour basis. Response time goals within the City are based on priority of the call on a scale of one to three. Priority 1 calls, or in-progress calls are of the highest priority with an expected response time of 3 minutes. Priority two calls have an expected response time of 6 minutes and priority three calls have an expected response time of 15 minutes. The patrol force works out of the 1935 E. Front Street facility. A Fresno County Sheriff's Department, Selma sub-station Area 3, is located at 1055 S. Golden State Blvd. Currently patrol officers are assigned to geographical areas (beats) as needed, instead of working on a city-wide basis.

One measure of law enforcement protection services is a desired police officer/population ratio, generally stated in terms of the number of police officers per 1,000 population. Such measures should not be strictly employed as standards or guidelines, because acceptable policing levels also depend on changing community characteristics and needs, the specific types of staffing requirements (e.g., the need for sworn vs. non-sworn personnel), economic conditions, technological advances, and other factors.

Based on a total of 37 sworn officers and the current (2008) city population of 23,286 persons, Selma's current patrol officer/population ration is 1.58:1,000. Conversations with the Selma Police Department indicate that the Selma Police Department does not have adequate manpower and facilities to serve the City's current population. Currently the Police Chief considers the Department staffing to be inadequate in the areas of a School Resource Officer, the Gang unit, the Narcotics Unit, and that additional patrol officers are required to meet the needs of the Selma Police Department. There are also strong concerns about the current facility. Selma Police Department headquarters is a 90 year old train depot building that has been expanded twice to meet the Department's needs, with the last expansion completed more then 25 years ago. With additional officers and associated facilities, the Police Chief believes the Department would be able to better serve and protect the Selma community.

Selma has a holding cell at Police Headquarters at 1935 E. Front Street. All persons arrested for felony offenses are transported to the Fresno County jail in Fresno, which is approximately 30 minutes away. Arrestees are tried in Kingsburg Superior Court in Kingsburg for criminal cases and the Selma Courthouse for traffic cases.

The Police Department also offers the following special programs: Neighborhood Watch Program; Selective Traffic Enforcement Program (STEP), which is designed to help reduce the number of traffic collisions and DUI's and perform court stings and red light enforcement; House Watch; Volunteer in Policing; and Bike Patrols.

EDUCATIONAL SERVICES

Educational services for grades K-12 in Selma are provided by the Selma Unified School District. A number of higher education institutions are located within commuting distance, including:

- Reedley College in Reedley
- College of the Sequoias in Visalia
- Fresno City College
- Chapman University in Hanford and Visalia
- San Joaquin Valley College in Visalia and Fresno
- California State University, Fresno
- Fresno Pacific University

Selma Unified School District

The Selma Unified School District (SUSD) serves Selma and the surrounding area population from grades K–12. The District includes eight elementary schools, one middle school, one high school, one alternative high school and an independent study program. The School District office is located at 3036 Thompson Avenue in Selma. SUSD student enrollment in the 2006-2007 school year was 6,509 students (6,288 not including continuation/alternative schools). This represents an increase of 18.8 percent from 1996-1997, when the District had 5,479 enrolled students. As of 2006-07, SUSD had 625 certificated and classified staff, 307 of which were teachers. Table 3.13-1 summarizes student enrollment by school for the 2006-07 school year. Table 3.13-2 shows SUSD enrollment by school year from 1996-97 through 2006-07.

Table 3.13-1
Selma Unified School District, 2006-07
School Enrollment

School	Grades	Enrollment
George Washington Elementary	K-1	240
James Garfield Elementary	K-6	243
Indianola Elementary	K-6	502
Andrew Jackson Elementary	K-6	680
Theodore Roosevelt Elementary	K-6	754
Terry Elementary	K-6	224
Woodrow Wilson Elementary	K-6	436
Eric White Elementary	2-6	496
Abraham Lincoln Middle School	7-8	997
Selma High	9-12	1,716
Heartland High Alternative School	7-12	82

Sources: Selma Unified School District. Education Data Partnership.

The majority of the District's eight elementary schools serve grades K-6 and include: Eric White Elementary (which serves grades 2-6 only), located at 2001 Mitchell Avenue, with 496 students; James Garfield Elementary located at 2535 "B" Street with 243 students; Indianola Elementary located at 11524 E. Dinuba with 502 students; Andrew Jackson Elementary located at 2220 Huntsman with 680 students; Theodore Roosevelt Elementary with 754 students; Terry Elementary located at 12906 S. Fowler, with 224 students; George Washington Elementary, which serves grades K-1 only, at 1420 Second Street, with 240 students; and Woodrow Wilson Elementary located at 1325 Stillman with 436 students.

Table 3.13-2
Selma Unified School District Enrollment
1996-97 to 2006-07

Academic Year	Number of Students
2006-07	6,509
2005-06	6,347
2004-05	6,304
2003-04	6,082
2002-03	5,948
2001-02	5,783
2000-01	5,661
1999-00	5,663
1998-99	5,635
1997-98	6,488
1996-97	5,479

Source: Education Data Partnership

Selma's only middle school, Abraham Lincoln Middle School, serves grades 7-8 and is located at 1239 Nelson Blvd. Lincoln's total enrollment in 2006-07 was 997 students. Lincoln's average class size in 2006-07 was 27.2 students per class and the student to teacher ratio was 21.3.

Selma's High School, Selma High, serves grades 9-12 and is located at 3125 Wright Street. Selma High's total enrollment in 2006-07 was 1,716. The average class size in 2006-07 was 28.8 students per class and the student to teach ratio was 23.7.

Table 3.13-3 show the existing capacity of schools in the District by grade group and compares that capacity to the number of students the District expects can be accommodated by projects currently being constructed or in the design phase. These figures show that the District's total capacity is 7,724 students. Thus, with a 2006-07 enrollment of 6,288 students (not including continuation/alternative enrollment), the District is at 81.4 percent capacity. The District is also currently building thirteen new classrooms at Selma High with capacity for 416 additional students, ten classrooms at Eric White Elementary with capacity for an additional 250 students, and is in the design phase for eight classrooms at Abraham Lincoln Middle School with capacity for an additional 256 students (Larry Teixeira, SUSD).

Table 3.13-3
Existing Capacity of Selma Schools

Grade Group	2006/07 Capacity	2006/07 Enrollment[2]	Current Capacity	Additional Planned Facilities[1]
K-6	4,418	3,575	843	250
7-8	1,216	997	219	256
9-12	2,090	1,716	374	416
Total	**7,724**	**6,288**	**1,436**	**922**

[1]Facilities currently being constructed or in design phase. [2]Does not include continuation/alternative enrollment.
Source: Selma Unified School District, 2007

ELECTRICITY AND GAS

The Pacific Gas and Electric Company (PG&E) is the provider of electricity for the City of Selma. Existing trunk and transmission facilities are adequate to meet present and projected demand in the community. Selma recently joined a joint powers authority called the San Joaquin Power Authority. Selma is supplied with natural gas by PG&E and Southern California Gas Company. Existing service is good, and company officials indicate no current unforeseeable peak load or pressure deficiencies.

3.13.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project would normally be considered to have a significant impact to public services if it:

a) *Would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire and police protection, schools, parks and other public facilities.*

The Initial Study (Appendix A) concluded that the proposed Plan Update could have potentially significant impacts to fire and police protection, schools and parks, and less than significant impacts to other public facilities. Parks and recreation impacts are discussed in Section 3.14 following this section.

3.13.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.13.3.1 – Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives: The projected build out of the proposed General Plan through 2035 will have a significant impact on fire and emergency services of the City. The projected call volume using a conservative population increase of four percent per year, could increase calls to over 14,000 per year. The current industry standard for fire department staffing is anywhere from between 1.00 to 1.5 firefighters per 1,000 population. The Department is currently at 1.02 firefighters per 1,000.

The increase in population as a result of Plan Update adoption will extend the capabilities of the Department to its maximum and will likely lower the Department's ISO rating. In order to keep pace with future growth, the Department will have to maintain the staffing level at 1.00 firefighters per 1,000 population (approximately 70 firefighters at build out).

New fire stations, or major remodels of current fire stations, and their corresponding apparatus will have to be located in the following locations to maintain response times and weight of attack at build out.

- New fire station located in the north or northeast part of the City, north of Dinuba Avenue and east of McCall Avenue. This station should be able to staff a minimum of one fire engine with three personnel and two ambulances with two personnel each. This station should be able to house utility apparatus such as the Department's two trailers. The station should be a minimum of 7,000 square feet and on a minimum of two acres. The apparatus and staffing from the current station at 2857 A Street should be relocated to this station.

- New fire station in the west near the airport. This station should be able to staff a minimum of one ladder truck with three personnel and one ambulance with two personnel. This station should also be big enough to house a reserve ladder truck and fire engine and up to eight personnel. This station should be a minimum of 7,000 square feet and on a minimum of two acres. If the airport grows and becomes a commercial airport, a crash/fire/rescue apparatus would also have to be located at this station. That could increase the staffing required at this station.

- New fire station in the south near SR 99 and Mountain View. This station should be able to staff a minimum of one fire engine with three personnel and one ambulance with two personnel. This station should be a minimum of 7,000 square feet and on a minimum of two acres.

- Remodel or relocate the current fire station at 1927 West Front Street. This station should be able to staff a minimum of one ladder truck with three personnel, one fire engine with three personnel, two ambulances with two personnel each and one battalion chief.

It is not anticipated that the construction of these new facilities will cause significant environmental impacts in that their locations are in developed, or developing, areas with ample infrastructure to accommodate them.

If the Selma Fire Department cannot meet the needs of Selma residents as a result of growth in accordance with the proposed Plan Update, a potentially significant impact to fire protection services would result.

The proposed Public Services and Facilities Element includes the following goal and policies and standards with regard to fire protection. Goal 2 states "reduce the threat to persons and property resulting from natural and man-made hazards including fire, crime and flooding." Policy 6.7 states the City shall continue to review fire call response time and other factors relating to ISO ratings and strive to maintain the current ISO rating. Policy 6.8 states adequate facilities shall be provided for law enforcement and fire suppression and prevention programs. Policy 6.9 states police and fire staffing levels shall be reviewed on an annual basis to determine appropriate and feasible staffing ratios.

The proposed Safety Element includes the following policies and standards with regard to fire protection. Policy 4.29 states the City shall maintain an efficient fire department operation and strive to keep the staffing and equipment levels in line with the growth of the City. Policy 4.34 states the City shall continue to monitor the water supply system for fire protection purposes to include the water supply for both peak load and emergency use. Areas of substandard water supply should be identified, and system improvements completed prior to and in conjunction with new development in the area. Policy 4.37 states the City's Fire Services response goal shall be five minutes from "tone-out" to arrival on scene.

The City collects fire development impact fees for new residential, commercial and industrial development upon issuance of a building permit. The current fire impact fee per dwelling unit is $398 per single family unit, $544 per multi-family unit, $0.278 per square foot for retail commercial uses, $0.303 per square foot for office/business commercial uses, $0.064 per square foot for light manufacturing uses, and $0.101 per square foot for heavy manufacturing uses.

Conclusion: As stated above, the City will continue to collect development impact fees and implement a variety of policies and standards designed to ensure the City maintains an efficient fire department with adequate staffing levels, facilities and equipment to meet future needs. However, growth anticipated as a result of General Plan implementation could have a **significant** impact on the Fire Department's ability to effectively respond to fires and other emergency situations if adequate finding is not provided. The following mitigation measures are recommended for inclusion in the Plan Update.

Mitigation Measure #3.13.3.1a: The City shall periodically study whether or not current development impact fees are adequate to offset the additional public-service costs of new development. If development fees are found to be inadequate then a development impact fee study should be prepared consistent with AB 1600 to identify appropriate development impact fees.

Mitigation Measure #3.13.3.1b: The City shall evaluate the fiscal impacts of new development and encourage a pattern of development that attracts targeted businesses and a stable labor force with provision and maintenance of a high level of urban services (including but not limited to water, sewer, fire stations, police stations, transportation, libraries, administrative, parks, community facilities, and utility infrastructure).

Effectiveness of Mitigation: Implementation of the above mitigation measures and General Plan policies will result in a **less than significant** impact to fire services.

Impact #3.13.3.2 – Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives: As with fire protection services, new development during the planning period will cumulatively increase the demand for additional police department personnel and the need to purchase more equipment. New development as a result of the proposed Plan Update would be a potentially significant impact to the Selma Police Department and its ability to provide adequate police protection services if police protection infrastructure is not developed in balance with growth.

Policy 6.8 of the proposed Public Services and Facilities Element states adequate facilities shall be provided for law enforcement and fire suppression and prevention programs. Policy 6.9 states police and fire staffing levels shall be reviewed on an annual basis to determine appropriate and feasible staffing ratios. In accordance with Land Use Policy 1.97, one of the factors the City shall consider regarding the appropriateness of opening lands designated as Reserve for new development, is the implication of providing public services, including law enforcement and fire protection services.

The City collects law enforcement development impact fees for new residential, commercial and industrial development. The current law enforcement impact fee is $347 per single-family dwelling unit, $260 per multi-family dwelling unit, $0.196 per square foot for office/business and retail commercial uses, and $0.008 per square foot for both light and heavy manufacturing uses.

Because the General Plan is general in nature and the exact location and timing of future growth is yet to be determined, it is unknown at this time if existing police facilities will be adequate to support future development or if they will need to be expanded or supplemented. Public facilities are an allowed land use in most General Plan land use designations, so an expanded police station or a substation could be constructed wherever it would be most appropriate and would not be expected to cause significant environmental impacts in that their locations would be in developed, or developing, areas with ample infrastructure to accommodate them.

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Conclusion: Adoption and implementation of the General Plan policies noted above and in other sections of this EIR, and payment of development impact fees by new development will help to reduce potential impacts relative to police protection. The Selma Police Department indicates that existing service levels, staffing and facilities are inadequate, and therefore any future development as a result of General Plan implementation, would be a **significant** impact absent provision of additional personnel, equipment and facilities. The following mitigation measures are recommended for inclusion in the proposed Plan Update to reduce the potentially significant impact to a less than significant level and to ensure that an adequate quantity of land for particular uses is maintained to avoid compromising the basic goals of the Plan Update.

Mitigation Measure #3.13.3.2a: Policy 1.97 should be modified as follows:

Policy 1.97 The City shall consider the appropriateness of opening up lands designated as Reserve for development based upon the following factors:

- Availability of land for development within the UDB has become limited. This is defined as when the City's population, as measured by the California Department of Finance, exceeds 40,000 individuals, or upon a determination that the supply of residential, commercial or industrial zoned lands is below the recommended level.
- Proximity of reserve lands to existing developed land (to minimize leapfrog development).
- Implications for overall community form and relationship to the existing community.
- Market feasibility of development in this area, including the expected rate of absorption.
- Infrastructure availability and impact to existing infrastructure and other public services.
- Consideration of circulation patterns and improvements.
- Implications of providing public services, including law enforcement and fire protection services.

Mitigation Measure #3.13.3.2b: The City shall periodically study whether or not current development impact fees are adequate to offset the additional public-service costs of new development. If development fees are found to be inadequate then a development impact fee study should be prepared consistent with AB 1600 to identify appropriate development impact fees.

Mitigation Measure #3.13.3.2c: The City shall evaluate the fiscal impacts of new development and encourage a pattern of development that attracts targeted businesses and a stable labor force with provision and maintenance of a high level of urban services (including but not limited to water, sewer, fire stations, police stations, transportation, libraries, administrative, parks, community facilities, and utility infrastructure).

Effectiveness of Mitigation: Implementation of the above mitigation measures and General Plan policies will result in a **less than significant** impact to police protection. While modification of Policy 1.97 will ensure that an adequate quantity of land for commercial, industrial and residential uses will be maintained for development as they are needed in conformance with the basic goals of the Plan Update.

Impact #3.13.3.3 – Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives: Growth due to implementation of the proposed Plan Update would increase demand for school facilities. Additional staff and equipment would also be required to maintain or exceed the current school service standards. Based on the SUSD student generation factor of 0.89 students per household and the projected increase of approximately 13,340 additional residential units under the proposed General Plan (assumes 4% annual growth per year between 2008 and 2035 and an average household size of 3.45), there would be an increase of approximately 11,872 new students, who would require additional school facilities.

The proposed Land Use Element includes Policy 1.18 stating that the City shall work closely with the school district in monitoring housing, population, school enrollment trends and in planning for future school facility needs, and shall assist the District in locating appropriate sites for new schools. Policy 1.19 states the City will work closely with the school district to ensure that school facilities will keep pace with new development, the City may assist the school district in securing funding for new school facilities and that the City may provide a mechanism which, along with state and local sources, requires development projects to satisfy the school district's financing program based upon evidence of their impaction.

Conclusion: The specific environmental impacts of constructing new schools and related facilities to support new development as a result of proposed General Plan implementation cannot be determined at this first-tier level of analysis. Although development and operation of school facilities, both public and private, that may result in potentially significant impacts are addressed by various policies and mitigation measures found throughout this EIR, as specific school expansion or improvement projects are identified, additional project-specific, second-tier environmental analysis would be completed.

Funding for schools and for school facilities impacts is controlled by State law (Proposition 1A/SB 50, 1998, Government Code Section 65996) which governs the amount of fees that can be levied against new development. These fees are imposed on new development and while not sufficient to build new schools in and of themselves, they are accumulated and used to facilitate construction of new schools. Payment of fees authorized by the statute is deemed "full and complete mitigation." Project proponents of new construction will pay school impact fees per City and District standards at time of application. Implementation of the Plan Update policies referenced above and payment of school impact fees will reduce the impact to public schools to a **less than significant** level.

Mitigation Measure: No mitigation measures are required.

Impact #3.13.3.4 – Result in substantial adverse physical impacts associated with the provision of new or physically altered electrical or natural gas facilities, need for new or physically altered electrical or natural gas facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives: The construction of any future gas and electrical infrastructure could result in a variety of environmental impacts (i.e., light/glare, noise, odors, traffic, etc.) requiring mitigation. Without definitive plans, it cannot be determined at this time whether these impacts would be significant. As presented throughout Chapter Three of this Draft EIR, the Plan Update includes several policies designed to address a variety of environmental impacts that could be associated with the construction of new electrical and natural gas infrastructure. Additionally, Policy 1.44 of the Draft Land Use Element states the City will assist in the planning of privately owned public utilities and Policy 1.74 states the City shall monitor and update plans for public streets and utilities, particularly as they pertain to new industrial areas, and that the City shall assist in the planning of privately owned public utilities. In reality, new projects are not feasible without necessary private utility services, and new development will not take place without the needed facilities.

Conclusion: As stated above, the City will adopt and continue to implement a variety of policies designed to address the range of potential environmental impacts that may be associated with the construction and operation of future electrical and natural gas infrastructure. However, funding and implementation for these facilities is beyond the authority of the City. The impact is therefore determined to be **less than significant**.

Mitigation Measure: No mitigation measures are required.

3.14 Recreation

INTRODUCTION

This section focuses on recreational facilities in Selma. A description of existing facilities is given, as well as an analysis of the potential project-related impacts related to future demand for park and recreational facilities.

3.14.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no specific federal regulations applicable to recreation facilities or services.

STATE AND LOCAL

The 1975 "Quimby Act" (California Government Code §66477) authorizes municipalities to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements in combination with their projects, or pay fees in lieu thereof. The goal of the Quimby Act is to require developers to help mitigate the impacts of new development. The City may also establish impact fees outside of the authority of the Quimby Act based on its police power, its statutory duty to mitigate environmental impacts under the State Impact Fee statutes.

General Plan Consistency

The Plan Update contains a Recreation Element, and a number of additional policies that address recreation facilities and program impacts from build-out of the City. The specific policies listed below are designed to ensure that recreation facility and program impacts are minimized as development occurs.

<u>Land Use Element</u>

Policy 1.18 The City shall work closely with the school district in monitoring housing, population, school enrollment trends and in planning for future school facility needs, and shall assist the school district in locating appropriate sites for new schools.

a. The City will involve the school district as early as possible in the planning process to ensure that the analysis of and provision for adequate school facilities are an integral part of any project review.

b. New schools should be located as close as possible to housing developments so children can walk/bike to school, and to minimize district transportation costs.

c. New school sites should be located adjacent to public parks and/or open space to allow joint use of public land.

d. New school sites should be located to minimize the need for young children to cross major roadways, railroads or other physically challenging barriers.

e. The City shall assist the school district in finding sites for the elementary schools, middle schools and high schools which the school district indicated would be necessary to serve the population growth projected in this General Plan update.

Policy 1.26 The City shall plan new residential areas to be within the recommended distance of ½ mile of school playgrounds and/or recreational open space. Park facilities shall be provided in each quadrant of the City within a recommended ¼-mile walking distance of most residents.

Policy 1.31 In order to meet a portion of the open space and recreational needs generated by higher density residential developments, private recreational facilities should be provided in all residential planned unit developments and multiple family residential projects over five units.

Policy 1.33 Higher density residential developments should be designed in a manner that minimizes the impacts upon adjacent properties. To that end, the following development standards should be incorporated into higher density residential projects:

a. Outdoor recreation areas, game courts, pools and solid waste collection areas on multifamily properties shall be oriented away from adjacent properties planned for single family residential.

b. Parking areas, garages, other non-residential structures and access drives shall be separated from adjacent properties planned for single family residential with a 10-foot landscaped setback containing deciduous and evergreen trees.

c. Exterior area lighting for multiple family residential parking, carports, garages, access drives and outdoor recreation areas shall be shielded to minimize line-of-sight visibility from abutting property planned for single family residential.

d. Multiple family residential buildings greater than 20 feet in height shall be prohibited within 25 feet of property planned for single family residential.

e. Permanent fences or walls shall be provided adjacent to non-street project boundaries.

Circulation Element

Policy 2.21 The City shall increase the intersection efficiency (level of service) at McCall Avenue and Nelson Boulevard by requiring a turning lane for northbound traffic on the north side of Nelson Boulevard. The overall circulation plan for future neighborhoods shall be in conformance with Figure 2-1 and include offset minor collectors, traffic-calming features as needed, a neighborhood park within ¼-mile walking distance per neighborhood, and a commercial/office/transit node.

Policy 2.30 Major arterial, arterial and collector street standards shall be developed which provide adequate capacity for their appropriate function, and these shall be incorporated into the City's Standard Specifications for Public Works. Major arterial, arterial, collector, minor collector, and local street standards shall be developed to provide an increased quality of life for residential neighborhoods, a more attractive bike and pedestrian environment, conservation of natural resources and adequate capacity for their appropriate function. These new standards shall be incorporated into the City's Standard Specifications for Public Works.

Policy 2.44 The City will develop, through various funding mechanisms and sources, a city wide bicycle path/lane/route system in conformance with the City's 2003 Bicycle Transportation Plan. The bicycle path/lane/route system will utilize existing or future railroad right-of-way and water courses. The paths (class I), may also include landscaping, lighting, mileage markers, directional signage and benches. The on-road lanes (class II) would include striping and the on-road routes (class III) would not include striping. Reference Figure 2-3 for the proposed city-wide bike plan. The class I bike paths can also be utilized by pedestrians if the proposed paths are wide enough to allow both bicyclists and pedestrians.

Policy 2.48 Where security walls or fences are proposed for residential developments along major arterials, arterials, or collector streets, pedestrian access should be considered between the major arterial, arterial, or collector, and the development to allow access to transit vehicles, commercial facilities, educational facilities and recreation areas operating on the street.

Open Space, Conservation and Recreation

Policy 5.7 Maintain Rockwell Pond as both a resource management area (water recharge) and community open space.

Policy 5.22 Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following where feasible:

- Consider right-of-way for bike lanes on new arterial and collector streets and in street improvement projects;

- Require that new development be designed to promote pedestrian and bicycle access and circulation; and

- Provide safe and secure bicycle parking facilities at major activity centers, such as public facilities, employment sites, and shopping and office centers.

Policy 5.23 Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following, where feasible:

- Locate air pollution point sources, such as manufacturing and extracting facilities, in areas designated for industrial development and separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals); establish buffer zones (e.g., setbacks, landscaping) within residential and other sensitive receptor uses to separate those uses from highways, arterials, hazardous material locations and other sources of air pollution or odor;

- Consider the jobs/housing/balance relationship (i.e., the proximity of industrial and commercial uses to major residential areas) when making land use decisions;

- Provide for mixed-use development through land use and zoning to reduce the length and frequency of vehicle trips;

- Accommodate a portion of the projected population and economic growth of the City in areas having the potential for revitalization;

- Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities;

- Encourage small neighborhood-serving commercial uses within or adjacent to residential neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhoods schools; minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area; and

- Encourage a development pattern that is contiguous with existing developed areas of the City.

Policy 5.24 Provide adequate park facilities distributed throughout the City to provide organized and informal recreation opportunities and open space for City residents. Table 5-1, to be used as a reference only, classifies various parks and greenways, provides a general description and includes suggested size and service area criteria.

Table 5-1
Parks and Greenways Classifications

Classification	General Description	Size and Service Area Criteria
Neighborhood Park	Neighborhood parks are the basic units of the park system and serve a recreational and social purpose. Focus is on informal recreation.	Typically 5 acres or more; 8 to 10 acres preferred with 3 acres the desired minimum size. Service area is one-fourth to one-half mile uninterrupted by major roads and other physical barriers.
Community Park	Serves a broader purpose than neighborhood parks. Focus is on meeting community-based recreational needs, as well as	Varies, depending on function. A minimum of 20 acres is preferred, with 40 or more acres optimal. Service area can be communitywide

Classification	General Description	Size and Service Area Criteria
	preserving unique landscapes and open spaces.	or several neighborhoods in given area of the community.
Large Urban Park	Large urban parks are generally associated with larger urban centers with large populations. Focus is on meeting wide-ranging community needs and preserving unique and sometimes extensive landscapes and open spaces.	Varies depending on circumstances. A typical minimum size is 50 acres (20.2 hectares), with hundreds of acres not uncommon, such as Central Park in New York City.
Youth Athletic Complex/Facility	Consolidates programmed youth athletic fields and associated facilities to fewer strategically located sites throughout the community. Also can provide some neighborhood use functions.	Varies, with 20 acres or more desirable, but not absolute. Optimal size is 40 to 80 acres (16.3 to 32.4 hectares).
Community Athletic Complex/Facility	Consolidates programmed adult and youth athletic fields and associated facilities to a limited number of sites. Tournament-level facilities are appropriate.	Varies, with 20 acres (8.1 hectares) or more desirable, but not absolute. Optimal size is 40 to 80 acres (16.2 to 32.4 hectares).
Greenway	Lands set aside for preserving natural resources, remnant landscapes, and open space, and providing visual aesthetics/buffering. Also provides passive-use opportunities. Ecological resource stewardship and wildlife protection are high priorities. Suitable for ecologically sensitive trail corridors.	Varies, depending on opportunity and general character of natural systems within the community.
Parkway	Linear park like transportation corridors between public parks, monuments, institutions, and sometimes business centers. Can be maintained green space or natural in character.	Varies.
Special Use	Covers a broad range of parks and recreation facilities oriented toward single-purpose uses, such as a nature center, historic sites, plazas, urban squares, aquatic centers, campgrounds, and golf courses.	Varies, depending on need.
Park-School	School sites that are used in concert with, or in lieu of, other types of parks to meet community park and recreation needs. School sites often provide the majority of indoor recreational facilities within a community.	Varies, depending on specific site opportunities.
Private	Parks and recreation facilities that are	Varies.

Classification	General Description	Size and Service Area Criteria
Park/Recreation Facility	privately owned, yet contribute to the public park and recreation system.	
Regional Parks and Park Reserves	Larger-scale, regionally based parks and open spaces that focus on natural resource preservation and stewardship.	Typically a minimum of 500 acres (202.3 hectares) and up to several thousand acres or several hundred hectares. Service area is regional, which generally encompasses several cities.

Policy 5.25 The standard park acreage in Selma is 5.0 acres per 1,000 people. This acreage may include School District property which is made available through cooperative agreements, park-ponds (to the extent that they are accessible and usable recreational areas), neighborhood parks, pocket parks, community parks and community recreational facilities. Priority should be given to development of property already owned by the City for park programs.

Policy 5.26 Location standards for parks and recreational open space specified in the Background Report of the General Plan, the Land Use Map, and Specific Plans, shall guide the location of future park and open space developments.

Policy 5.27 Neighborhood parks should be from 3 to 5 acres in size and centrally located within each ½ square mile of land. Such parks may be developed alone, in conjunction with school sites, or with ponding basins.

Policy 5.28 Community parks, providing a full range of passive and active recreational areas and facilities, should be from 20 acres and larger in size.

Policy 5.29 Developed public recreation land should be within walking distance of potential users. For purposes of this Element, an optimum walking distance for neighborhood parks is within ¼ mile.

Policy 5.30 Consider the recreational needs of all socio-economic and age groups within the City in accordance with the availability of financial and other resources for these purposes.

Policy 5.31 Seek available state and federal funds, and local grants, for park improvements and recreational programs and land acquisition.

Policy 5.32 Require the dedication of recreational open space land or the payment of fees in lieu thereof as a condition of approval for residential projects. Funds collected shall be expended for the purposes of purchasing and/or developing land for recreational facilities. The amount of land or fee shall be commensurate with demand for recreational land and facilities generated by the residential project.

Policy 5.33 Cooperate with the school district in developing recreational open space land and programs.

Policy 5.34 Develop new parks or recreational facilities at locations which complement existing and planned population centers and, where possible, complement existing school recreational facilities.

Public Services and Facilities Element

Policy 6.6 Adequate space and facilities shall be provided for City services and administrative functions including senior citizen centers, community centers, and a civic center complex.

Physical

CITY PARKS

The City of Selma currently has 6 designated park sites totaling approximately 43 acres. Selma's parks include neighborhood parks, community parks, and a community center. These facilities are listed below:

- **Berry Park** is a 1.1-acre neighborhood and community park at the corner of Whitson and Second Street with a playground, picnic tables, open grass areas, restrooms, and the City Skate Park.

- **Brentlinger Park** is a 10.1-acre neighborhood and community park at the corner of Rose and Orange Avenues with a playground, picnic tables, tennis courts, basketball courts, two lighted baseball diamonds, open grass areas and picnic shelters (which can be reserved one year in advance for the cost of $30 for residents and $60 for non-residents).

- **Lincoln Park** is a 3.5-acre neighborhood park at the corner of Rose and McCall Avenues with picnic tables, gazebo, restrooms and open grass areas.

- **Peter Ringo Memorial Park** is a 4.8-acre neighborhood park at the corner of Mitchell and Nebraska Avenues with a playground, picnic tables, basketball courts, soccer field, open grass areas and picnic shelters (which can be reserved one year in advance for the cost of $30 for residents and $60 for non-residents).

- **Salazar Park** is a 1.7-acre neighborhood park at the corner of Sheridan Street and Valley View Street with a Community Center, playground, picnic tables, basketball courts, restrooms, and a Water Spray Park.

- **Shafer Park** is a 21.1-acre neighborhood and community park located at Floral and Thompson Avenues with a playground, picnic tables, basketball courts, two lighted baseball diamonds, sand volleyball courts, walking trails, and picnic shelters (which can be reserved one year in advance for the cost of $30 for residents and $60 for non-residents).

- **Pioneer Village** is a 14.4-acre historical, recreational and cultural facility located on Highland Avenue at Art Gonzales Parkway. Numerous historical buildings have been moved to this site to serve as a museum and cultural center for the Selma Community. This facility provides open space, restrooms and picnic tables.

CITY ARTS PROGRAMS

The City of Selma's Recreation and Community Services Department offers the following art programs:

Performing Arts

Youth ages 5-15 can join the production of a play or musical with no formal experience required. Participants between 7 and 15 years of age audition for parts in the show. All materials are provided and included in the registration fees. Kids between the ages of 5 and 6 can participate in theatre workshops to learn about the arts. Space is limited and registration is taken on a first-come first-serve basis.

Visual Arts

Youth ages 8-11 can learn to draw, paint and sculpt using ceramic clay or participate in an introduction to arts and crafts. Classes are designed to be a fun and instructional environment with no previous experience needed. All materials are provided and included in the registration fee. Class size is limited and registration is taken on a first-come, first-serve basis.

CITY SPORTS PROGRAMS

The City offers a variety of sports programs for children and adults. A strong emphasis has been placed on community participation in the planning, organization, and implementation of these programs. As these programs grow and participation increases, additional fields and facilities will be needed. Existing facilities will need renovations and there will be an increasing demand for additional staffing and volunteers.

Youth sports programs include boys and girls' T-ball for ages 4-7, girls' softball for ages 8-13, aquatics lessons, and recreational swimming held at the Selma High pool. Adults can find City sponsored programs in co-ed slow pitch softball and basketball.

SENIOR PROGRAMS

The Selma Senior Center is located at 2301 Selma Street with funding from the Fresno-Madera Area Agency on Aging. The Selma Senior Center invites men and women age 55 and over to participate in many activities (City of Selma website). The Center provides a full range of educational programs in health services, recreation, information and assistance, and meals served Monday – Friday to people age 60 and over. Weekly activities at the Center include billiards, cards, games, bingo, ceramics, crafts, exercise, trips and an expansive collection of reading material from the Senior Center Library. The Center also provides a newsletter with tips, trips, Q & A, and important dates, and is available monthly online. The Center also provides free cell phones that can be used to dial 911 only in case of an emergency at no monthly charge.

CITY YOUTH SERVICES

Recreational, educational, and nutritional programs are provided for youth at two locations, Monday through Friday, with after school hours free of charge to participants. One program is located at the Salazar Youth Center at 1800 Sheridan with the other at the Weed and Seed Eric White after School Program at 2099 Mitchell. A third program provides social opportunities and activities for the developmentally disabled. This program is called the Wednesday Night Social Club, which meets on the first Wednesday of each month at the Salazar Center from 6:30 p.m. to 8:30 p.m.

JOINT USE OF SCHOOL FACILITIES

In addition to City-owned park and recreation facilities, Selma residents have access to grounds and playing fields at Selma Unified School District (SUSD) schools. SUSD and the City have established a cooperative relationship encouraging maximum use of public property, facilities, and equipment for the community. Currently the two agencies have a verbal agreement for joint use of facilities; however, as the City and schools experience continued growth, a more formal joint use agreement would be appropriate.

REGIONAL PARK FACILITIES

Kings River Access Park, Laton-Kingston Park and Kearney Park are the closest regional County parks. Kearney Park, the County's first park, is a 225-acre regional county park located on Kearney Boulevard 23 miles northwest of Selma. Kearney Park is the county's most active park, primarily because the Kearney Mansion, built in 1900, is a major attraction. Other activities include picnic tables, soccer, softball, playgrounds and horse shoes. Laton-Kingston Park is a 22 acre developed regional park located along the Kings River in Laton, 13 miles south of Selma. Laton-Kingston Park also offers active recreational opportunities, including picnic areas, playground equipment and soccer fields. The Kings River Access Park is a 7.4-acre regional county park located just off of Highway 180 on the Kings River, 18 miles north of Selma. Kings River Access Park is a passive undeveloped park. There are several other county parks and campsites along and near the Kings River in Fresno County below Pine Flat Dam about 25-40 minutes north of Selma, including the following:

- **China Creek Park** is an undeveloped park covering 120 acres west of Centerville on Highway 180.
- **Kings River Green Belt Park** is an undeveloped 139 acre park off of Piedra Road which is made up of a forested green belt area along the Kings River.
- **Avocado Lake Park** a few miles upstream from the Kings River Greenbelt, is a 210-acre park with full day use facilities including picnic areas, a group reservation area, and swimming and fishing on an 83-acre lake.
- **Winton Park** is a 26-acre day use park a few miles upstream from Avocado Lake at the intersection of Trimmer Springs and Piedra Roads. Major attractions include picnic facilities and fishing.

- **Choinumni Park** is a 170-acre park a few miles upstream from Winton Park near Piedra offering a day-use area, 75 overnight camping units, and one group camping area. Amenities include picnic sites, hiking trails, a trailer dump station, playground area, and fishing.

- **Pine Flat Recreation Area** is a 120-acre campground and day use area at the base of Pine Flat Dam on the Kings River with 52 overnight camping units, five play use areas with picnic facilities, and 60 overflow campsites.

OTHER OPEN SPACE AREAS AND RECREATION FACILITIES

Selma is within driving distance of a wealth of parks and recreation resources. Some of these locations and activities are listed below:

- **Sequoia and Kings Canyon National Parks** and the **Sequoia National Forest** are about an hour and a half drive to the east. These areas offer opportunities for hiking, fishing, boating, camping, sightseeing, and winter activities such as skiing, snowboarding, and sledding.

- **Kings River Nature Preserve** is located two miles east of SR 99 on Road 28 about 8 miles southeast of Selma, on the Kings River Nature Preserve offers school environmental programs.

- **Lake Kaweah:** This lake was formed in 1962 by the construction of Terminus Dam on the Kaweah River by the U. S. Army Corps of Engineers (USACE). It provides opportunities for boating, fishing, camping, and picnicking and is about 44 miles southeast of Selma.

- **Pine Flat Lake:** This lake was formed by construction of Pine Flat Dam in 1954 by the U.S. Army Corps of Engineers (USACE) and also provides opportunities for boating, fishing, camping, and picnicking. It is about 30 miles northeast of Selma.

- **Snowsports:** Sierra Summit ski resort above Huntington Lake in the Sierra Nevada Mountains about two hours northeast of Selma offers downhill skiing and snowboarding. Cross country and backcountry skiing are available at Wolverton in Sequoia National Park about 2 ½ hours to the east of Selma.

- **Spectator Sports:** Local teams include Fresno Grizzlies AAA and Visalia Oaks A minor league baseball, Fresno Falcons minor league hockey, Fresno Fuego minor league soccer and college athletics at Reedley College, Fresno City College, Fresno State, and College of the Sequoias in Visalia.

- **Other Events and Attractions:** Other nearby events and attractions in Tulare and Fresno Counties include the Tulare County Fair and World Ag Expo in Tulare; The Fresno County Fair in Fresno; the Fresno County Blossom Trail, which includes the area around Reedley and is usually visited during the blooming season from February to April; the Woodlake Rodeo, held at the Woodlake Rodeo Grounds every Mother's Day weekend; the Clovis Rodeo, held at the Clovis Rodeo Grounds the last weekend in April; the Tulare County Symphony Orchestra at the Fox Theatre in downtown Visalia; and the Fresno Philharmonic Orchestra in downtown Fresno.

3.14.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally be considered to have a significant impact to recreation if it will:

a) *Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.*

b) *Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.*

3.14.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.14.3.1 – Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated and/or include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment: New development under the proposed General Plan Update has the potential to increase the demand for parks and recreation facilities. The proposed General Plan includes a policy of providing five acres of parkland for every new 1,000 residents (Open Space, Conservation and Recreation Element Policy 5.25), as allowed under the Quimby Act. Based on the projected 2035 population of approximately 64,600 persons (assumes 4% annual growth per year), there would be a need to provide an additional 207 acres of parkland in accordance with Policy 5.25. Without additional park acreage, there could be an increase in the use of neighborhood and regional parks or other recreational facilities, which could contribute to deterioration of these facilities.

The proposed General Plan Open Space, Conservation and Recreation Element includes a number of additional goals and policies and standards designed to ensure that adequate parks and recreation facilities and programs are provided as the City grows: Goals 10 and 11 state the City will provide adequate public and private open space for existing and future residents and provide adequate and accessible open space and park facilities for active and passive recreation. Policy 5.24 states the City will provide adequate parks facilities distributed throughout the City to provide organized and informal recreation opportunities and open space for City residents. Policy 5.30 states the City will consider the recreational needs of all socio-economic and age groups within the City in accordance with the availability of financial and other resources. Policy 5.31 states the City will seek available state and federal funds, and local grants for park improvements and recreational programs. Policy 5.32 states the City will require the dedication of recreational open space land or the payment of fees in lieu thereof as a condition for approval of residential projects. Policy 5.32 also states that funds collected shall be expended for the purposes of purchasing and/or developing land for recreational facilities to serve residents and that the amount of land or fee shall be commensurate with demand.

As a means to further recreational opportunities in Selma, the proposed General Plan also includes Policy 5.33, which states the City will cooperate with the school district in developing recreational open space land and programs. Policy 5.34 states the City will develop new parks or recreational facilities at locations which complement existing and planned population centers and, where possible, complement existing school recreational facilities.

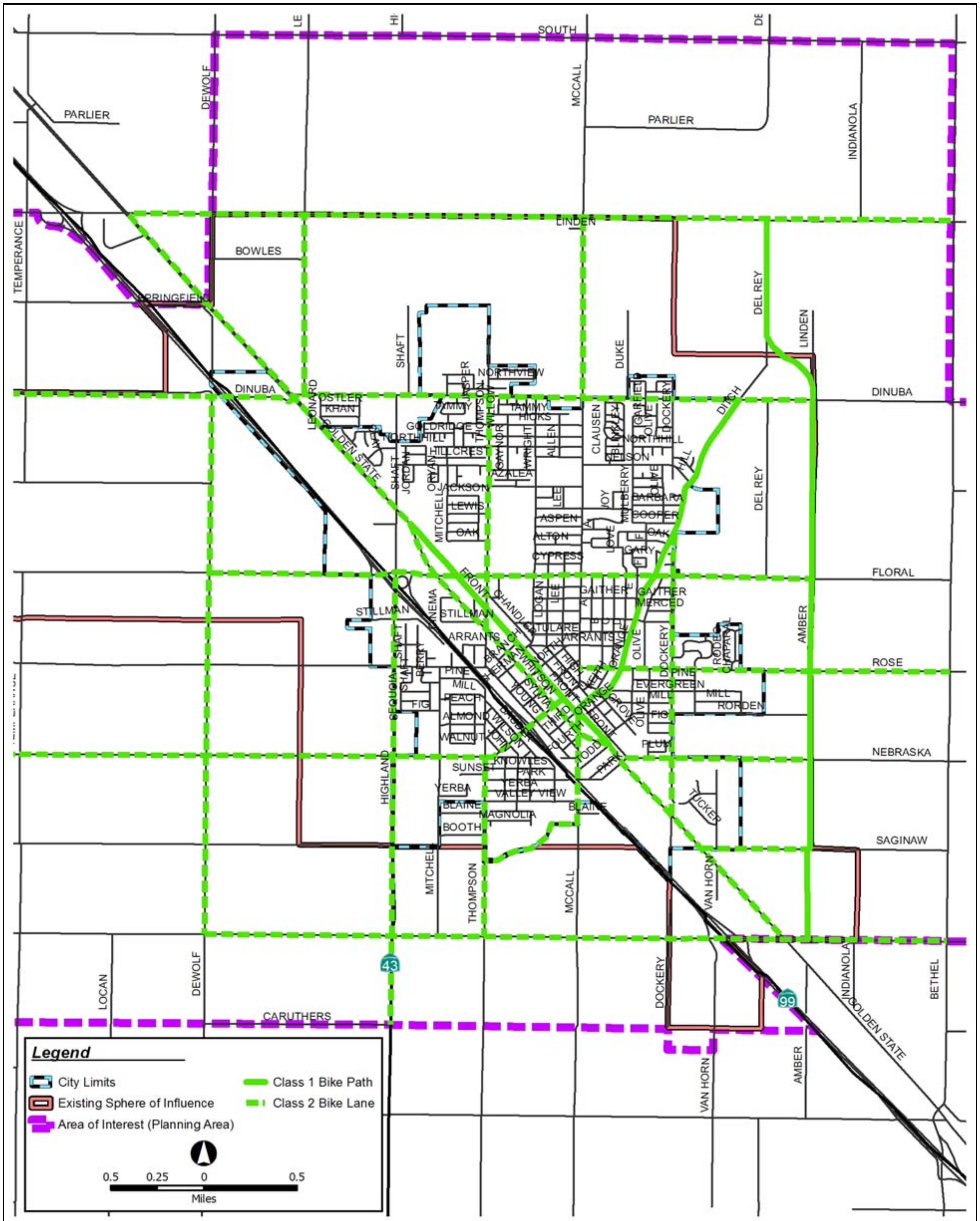
The South Selma, Rockwell Pond, and Amberwood Specific Plans all have ample land area dedicated for future park/open space and recreation facilities (reference Figure 2-4), each with their own design/development standards.

The Circulation Element of the proposed General Plan Update includes Policy 2.44 and figures (2-3a and 2-3b) (Figure 3.14-1 of this Draft EIR) stating the City will develop, through various funding mechanisms and sources, a city wide bicycle path/route system utilizing existing or future railroad right-of-way, water courses, and city streets.

The General Plan Update will not directly result in the construction or expansion of recreational facilities, however; new parks and recreational facilities will eventually be built as the community grows. Future facilities will be funded and built in accordance with policies and standards of the General Plan and it is not anticipated that construction of these facilities will have an adverse physical effect on the environment in that their locations will be in developed, or developing, areas with ample infrastructure to accommodate them. Impacts from parkland construction are speculative at this point and will be assessed at the time new facilities are proposed.

Conclusion: Implementation of the Plan Update policies referenced above will result in a **less than significant** impact as recreational facilities are developed or expanded. The City will annually monitor the adequacy of land dedications or impact fees to ensure that there is continued adequate funding for these facilities.

Mitigation Measure: No mitigation measures are required.



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BIKE PLAN

Figure 3.14-1

3.15 Transportation/Traffic

INTRODUCTION

This section describes transportation and circulation conditions in the Planning Area for the Plan Update and identifies impacts associated with implementation of the proposed General Plan. The analysis was prepared by Peters Engineering Group in May, 2009, and is included as Appendix J. This summary and the technical appendix provide detailed technical analysis used as a basis for this section of the Draft EIR. The traffic analysis was prepared to investigate anticipated traffic conditions with implementation of the proposed Plan Update. The analysis focuses on the projected roadway and intersection operations in the year 2035 and investigates the adequacy of the proposed Circulation Plan, primarily as it pertains to vehicle traffic on the planned roadways and intersections.

Implementation of the Plan Update will generate increased traffic that will affect circulation conditions on the local and regional roadway network. The Plan Update Circulation Element includes a broad range of policies for managing and optimizing the function of the transportation system to accommodate this additional traffic.

The proposed Land Use and Circulation Map included in the Plan Update identifies the locations of the various land uses allowed by the Plan Update and identifies the location of the physical circulation system planned throughout the city. The map is presented as Figure 3.15-1.

3.15.1 REGULATORY AND PHYSICAL SETTING

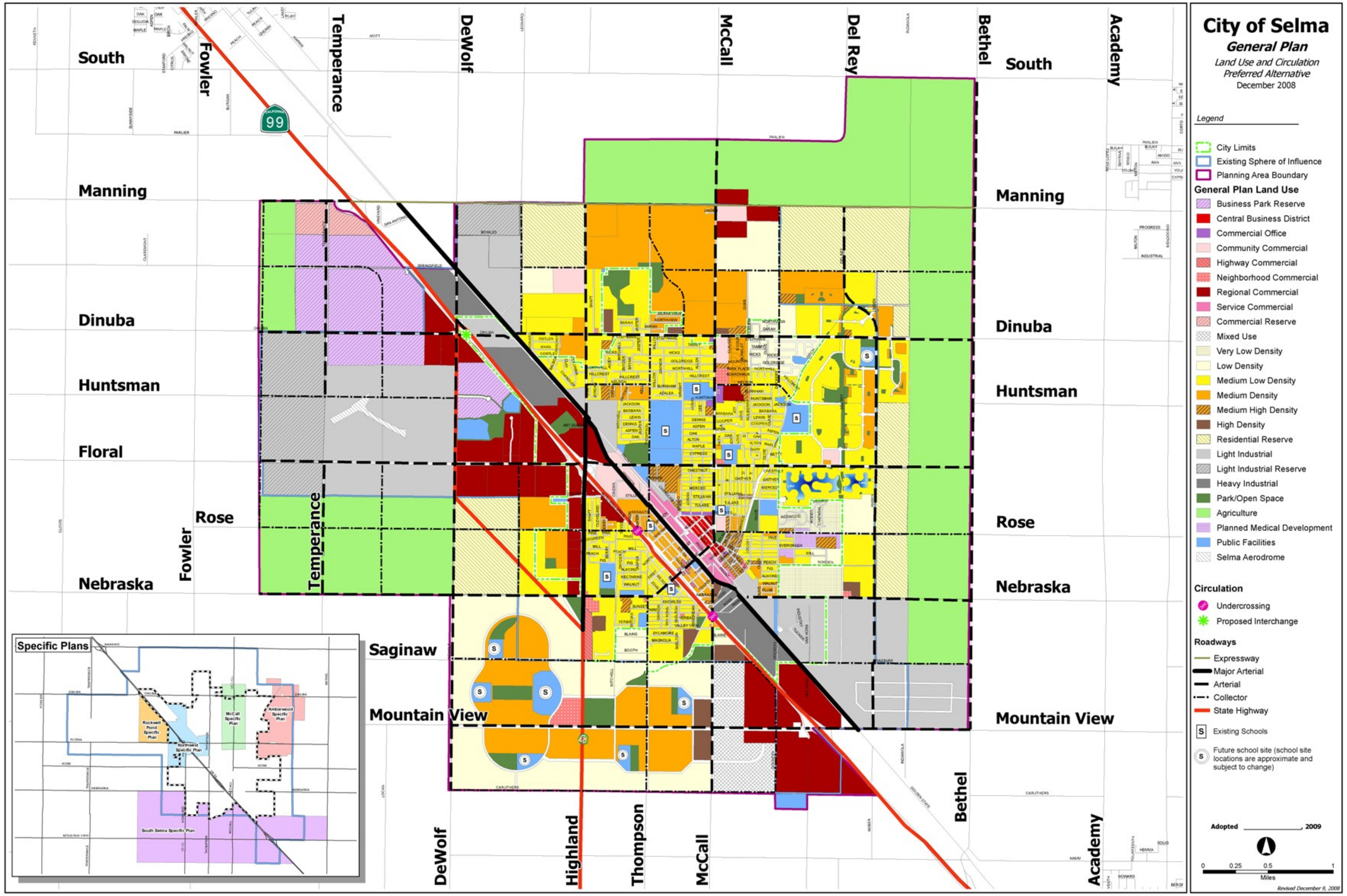
Regulatory

FEDERAL

There are no specific federal regulations applicable to transportation and traffic.

STATE AND LOCAL

The State has adopted Level-of-Service (LOS) "C" as the LOS threshold standard for traffic operations on State highways.



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PROPOSED LAND USE AND CIRCULATION DIAGRAM

Figure 3.15-1

General Plan Consistency

The Plan Update contains a number of policies that apply to transportation /traffic impacts in conjunction with build-out of the City. The specific policies listed below contained in the Circulation Element are designed to ensure that transportation/traffic impacts are minimized as development occurs.

Transit

Policy 2.1 Coordinate demand-responsive transit service in conjunction with the Council of Fresno County Governments (COFCG) and Fresno County.

Policy 2.2 Coordinate convenient and efficient transit service to the elderly, handicapped, and low-income population of the City and its environs.

Policy 2.3 Coordinate transit services through the City Manager and in conjunction with surrounding cities, and the County of Fresno, and Council of Fresno County Governments.

Policy 2.4 Cooperate with the COFCG in providing transit service and planning to meet the social and economic needs of all segments of the community.

Policy 2.5 Encourage benches, telephones and shaded areas at major transit destinations so people can utilize the transit system safely and comfortably. The City shall determine such need based on site plan review procedure and other planning implementation methods.

Policy 2.6 Major arterials, arterials, and collectors will be designed to allow transit vehicles to pull out of traffic. This policy may be implemented with either a continuous parking lane with bus stops, or with special bus pull-out lanes.

Policy 2.7 Transit centers/stops shall be established to encourage the interface between commercial centers, high-density residential uses and the transit system.

Streets and Highways

Policy 2.8 All street and roadway improvements shall be designed and constructed in accordance with the Circulation Element, the Conceptual Circulation Plan (Figure 2-1) and the Circulation Plan.

Policy 2.9 The Circulation Plan shall act as a guide to determine the intended function of major streets. The City's functional street classification system shall include highways, expressways, major arterials, arterials, collectors, minor collectors, and local streets.

Policy 2.10 The City will plan for and seek funding for the construction of on- and off-ramps and a highway overpass at Dinuba Avenue and SR 99.

Policy 2.11 The City will plan for and seek funding for the construction of a grade separation with the railroad tracks at the intersection of the railroad tracks and Floral and Dinuba Avenues.

Policy 2.12 Expressways should be at least four through lanes, with limited access at one-half mile points.

Policy 2.13 Arterials shall be improved to four lanes, with appropriate variations in intersection design to alleviate special traffic problems where necessary. Major arterials shall be improved to six lanes, with appropriate variations in intersection design to alleviate special traffic problems where necessary.

Policy 2.14 Meandering sidewalks shall be encouraged along collectors and arterials.

Policy 2.15 Floral Avenue from U.S. Route SR 99 to Dockery Amber shall be widened to four lanes, either by street widening or by elimination of parking as traffic generation warrants.

Policy 2.16 City circulation system street alignments shall be coordinated with Fresno County circulation system street alignments.

Policy 2.17 Minor Collectors shall serve residential neighborhoods, but shall not be used to carry through traffic or high traffic volumes. Actual design and improvement to ultimate standards shall be achieved through inclusion of facilities as part of the City-wide Capital Improvements Program, or by new developers as areas adjoining the designated circulation system are developed, with allowance for bicycle lanes, where planned.

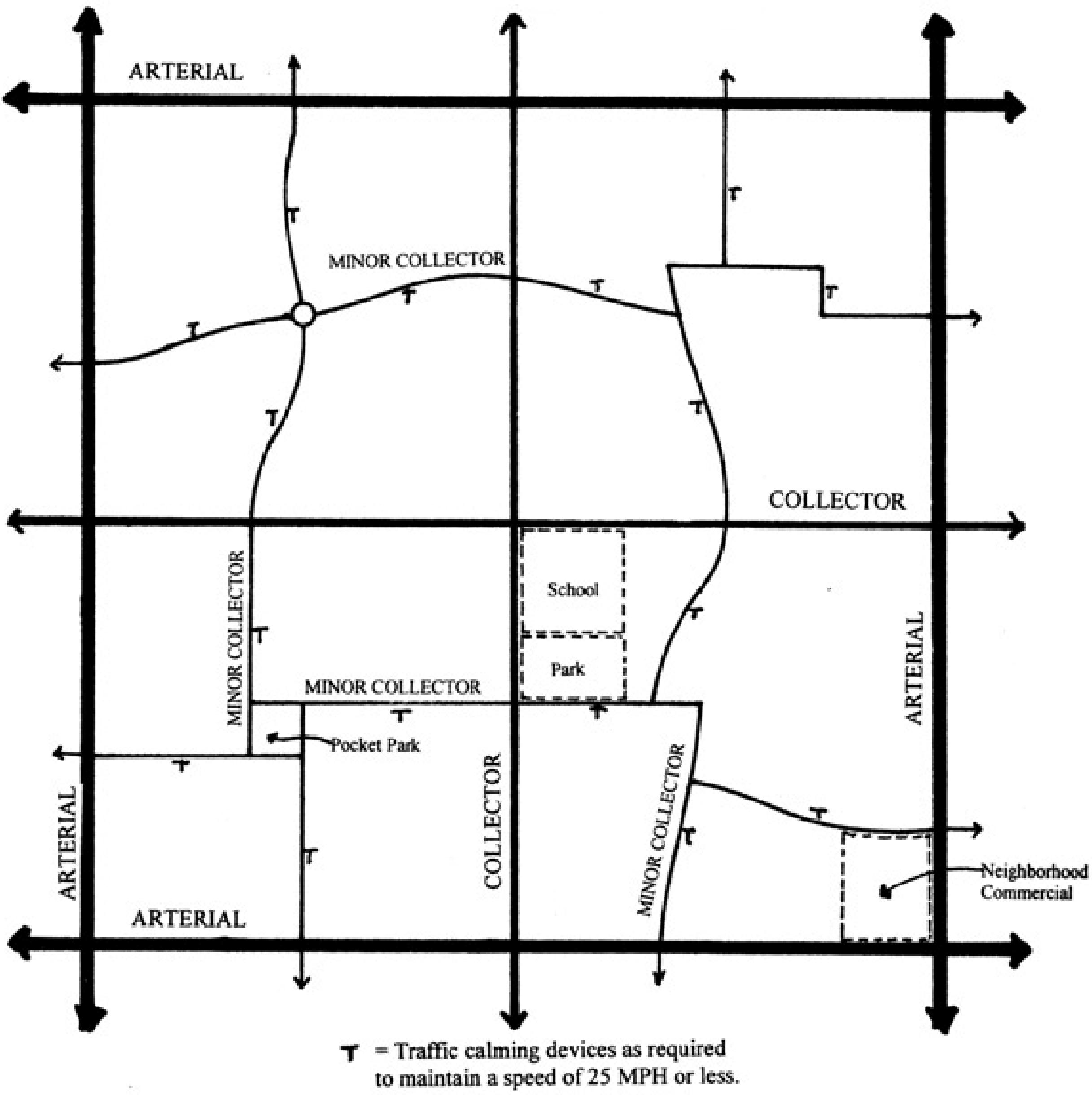
Policy 2.18 If Heartland High School is ever abandoned (although this is not currently planned), a more direct route shall be developed from Rose Avenue to Whitson Street, and a connection to Arrants Avenue provided, including an improved railroad grade crossing.

Policy 2.19 The City of Selma will request that Selma's Circulation Element and Circulation Plan be incorporated into the Fresno County General Plan and Selma Community Plan.

Policy 2.20 A one-mile arterial frequency grid system plan shall be used to allow efficient access to commercial areas of the City throughout the community and to support the three major commercial areas of the City, including McCall Avenue at Dinuba, the downtown area and the Floral/U.S. Route 99 area commercial uses along SR 99.

Policy 2.21 The City shall increase the intersection efficiency (level of service) at McCall Avenue and Nelson Boulevard by requiring a turning lane for northbound traffic on the north side of Nelson Boulevard. The overall circulation plan for future neighborhoods shall be in conformance with Figure 2-1 and include offset minor collectors, traffic calming features as needed, a neighborhood park within ¼-mile walking distance per neighborhood, and a commercial/office/transit node.

Figure 2-1
Overall Conceptual Circulation Plan
(Illustration only, refer to policies for precise requirements)



Policy 2.22 Extend McCall Avenue as a four lane divided arterial north of Dinuba to serve future commercial and multiple-family residential developments.

Policy 2.23 Collector streets shall be at approximately one-mile intervals centered between Arterial streets and shall be planned to intersect with other streets to maximize traffic safety and discourage fast-flowing traffic through residential areas. Where possible, major arterials, arterials, and collectors shall form 4-leg, right-angle intersections; jog, offset and skewed intersections of streets in near proximity shall be avoided where possible.

Policy 2.24 Residences shall not be permitted to have direct access onto arterials, particularly where traffic volumes are likely to create excessive noise levels or safety hazards.

Policy 2.25 The primary purpose of arterials is to carry traffic for cross-town traffic flow and through-traffic. Parking along arterials should be discouraged on such streets and eliminated where it now exists, along existing arterials as deemed appropriate by the Traffic and /Streets Commission and as traffic safety conditions warrant.

Policy 2.26 McCall Avenue between Arrants and Floral Avenue shall be designated as a seventy-foot arterial street and with plan lines have been developed accordingly. This will provide for four lanes with no on street parking.

Policy 2.27 It shall be the policy of the City to develop major streets in the community as follows:

Four Lanes Divided Arterials

- Nebraska Avenue from De Wolf to Second and Front to Bethel
- Amber Avenue from Nebraska to future connection with Del Rey
- McCall Avenue from Manning Avenue to Dinuba Avenue
- Floral Avenue from Whitson to west of SR 99De Wolf
- Whitson Avenue in its entirety
- Golden State Boulevard in its entirety
- Highland Avenue from Golden State Boulevard Dinuba Manning Avenue to Mountain View
- Mountain View Avenue from U.S. Route 99 to easterly limits of sphere of influence De Wolf to Bethel
- Dinuba Avenue throughout the Sphere of Influence

Policy 2.28 The street network should provide a quick and efficient route for emergency vehicles, including police, fire and other vehicles, when responding to calls for service. The length of single-entry access routes shall be restricted.

Policy 2.29 Major arterials shall be built in areas where traffic demand warrants the development of this facility to meet the adopted level of service standard.

Policy 3.29.a Arterial streets shall be built at a typical separation of one (1) mile

Policy 2.30 Major arterial, arterial and collector street standards shall be developed which provide adequate capacity for their appropriate function, and these shall be incorporated into the City's *Standard Specifications for Public Works.* Major arterial, arterial, collector, minor collector, and local street standards shall be developed to provide an increased quality of life for residential neighborhoods, a more attractive bike and pedestrian environment, conservation of natural resources and adequate capacity for their appropriate function. These new standards shall be incorporated into the City's Standard Specifications for Public Works.

Policy 3.30.a Collector street shall be built at a typical separation of one mile, typically between adjacent arterial streets

Policy 2.31 Median breaks and driveway standards for major arterial, arterial and collector streets directly affect the performance of these roadways, and the following minimum standards shall be observed:

Major Arterial Street Standards

a. Driveway access to major activity centers (locations that generate more than 5,000 daily trips) should be located no closer than 200 feet to the adjacent intersection of a collector or arterial street (measurement shall be from the curb return to the nearest edge of the driveway). If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located no less than 100 feet from the intersection (measurement shall be from the curb return to the nearest edge of the driveway). If more than one driveway access is required to serve a property, the driveways shall be separated by 150 feet (the 150 feet are to be measured edge to edge, not centerline to centerline).

b. The distance between driveways along commercially developed major arterials should not be less than 600 feet (measurement shall be from centerline to centerline). Where this spacing is not practical, the development shall provide acceptable traffic mitigation measures in addition to those already required.

c. Where practical and desirable, driveways should be located on adjacent arterial or collector streets rather than on major arterial streets.

d. Full median breaks, where there is no adopted design, should provide access to collector streets and to major activity centers and should parallel the standards for driveways: not less than 200 feet from an adjacent intersection of an arterial or collector street, and not less than 1,000 feet between full median breaks.

e. Driveway consolidation shall be encouraged through joint access agreements along arterials where standards a. through d. are exceeded.

f. Major arterials shall be developed in conformance with Figures 2-1 and 2-2 and shall be sized in accordance with the projected traffic volumes on road segments and intersections. The preferred minimum distance between intersections along major arterials is ¼ mile.

Collector Street Standards

a. Driveway access to major activity centers should be located no closer than 150 feet to the adjacent intersection of a collector or arterial street (measurement shall be from the curb return to the nearest edge of the driveway). If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located no less than 100 feet from the intersection (measurement shall be from the curb return to the edge of the driveway). If more than one is requested to serve a property, the driveways shall be separated by 150 feet (the 150 feet are to be measured edge to edge, not centerline to centerline).

b. The distance between driveways and intersecting local streets should not be less than 300 feet (measurement shall be from the curb return to the nearest edge of the driveway). Where this spacing is not practical, the development shall provide acceptable traffic mitigation measures in addition to those already required.

c. Driveways to residential property along collectors should be consolidated whenever possible.

d. Medians on collectors shall be provided by concrete where left turn control is needed and by painted medians on two-way left turn pockets where appropriate. Where concrete medians are provided, median breaks should be spaced not less than 300 feet apart.

e. Collectors shall be developed in conformance with Figure 2-2 and shall be sized in accordance with the projected traffic volumes on road segments and intersections.

Local Streets and Minor Collectors

a. Local streets shall not carry an unreasonable level of through traffic. Should it be determined that a local street is carrying an unacceptable level of through traffic, the City may use appropriate means to reduce traffic through creation of one-way traffic flow, installation of traffic diversion calming devices, and/or any other means deemed to be acceptable under the Vehicle Code of the State of California. Traffic calming features in conformance with Table 2-1 are encouraged when warranted.

b. Local residential streets shall be kept at a curb -to -curb width of between 40 feet, may include a planter strip to provide shade to prevent excessive heat build-up, and include a sidewalk of sufficient width to allow two people walking side-by-side to pass.

c. In new residential subdivisions, to the maximum extent possible, local streets should be aligned in an east-west orientation that allows for homes to be located in a manner that provides the best solar orientation.

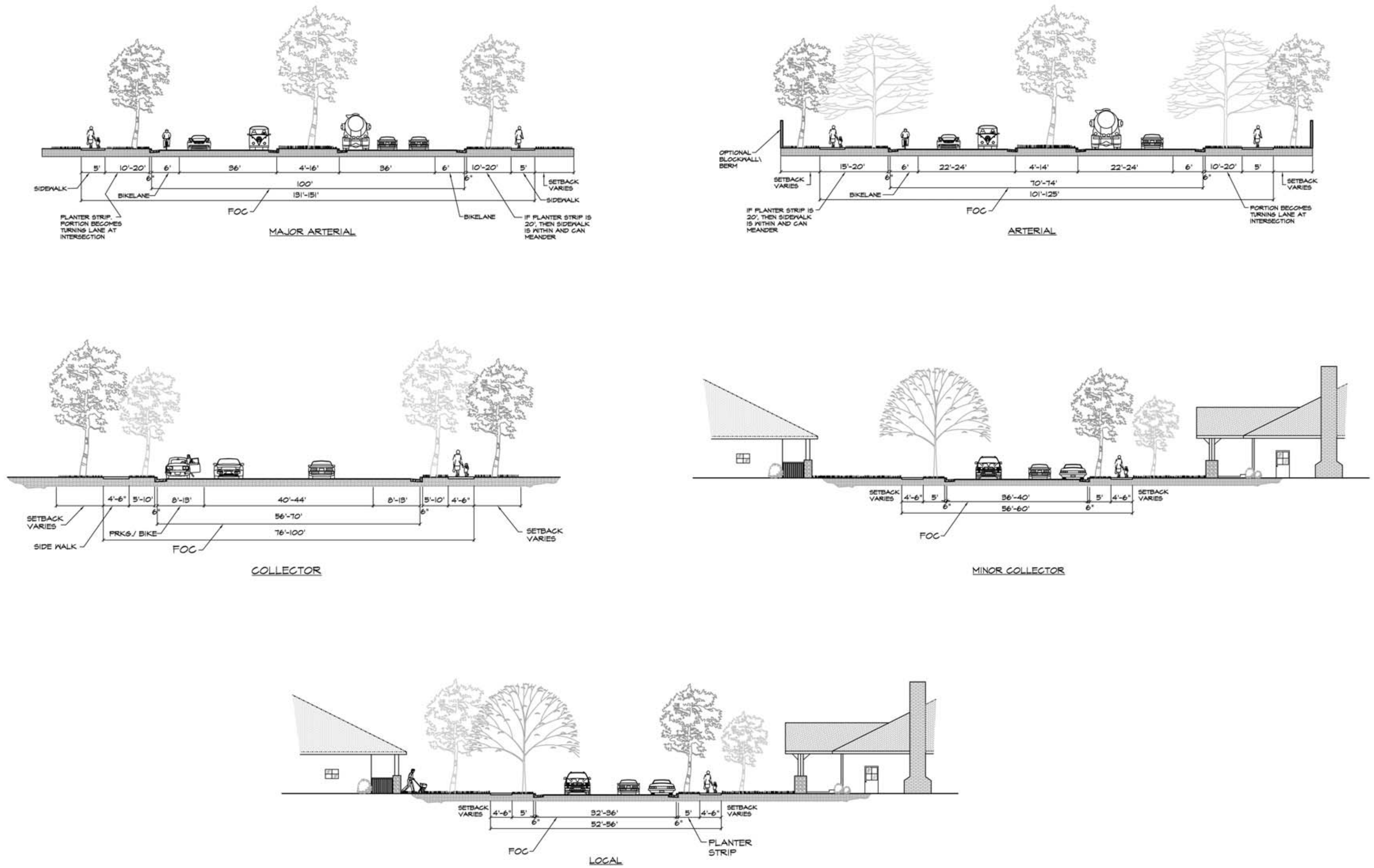
d. Design the street network with multiple connections and relatively direct routes for pedestrians and bicyclists as well as motorists.

e. Provide pedestrians and bicyclists with shortcuts and alternatives to travel along high volume streets by designing pedestrian and bicycle pass-through pathways at cul-de-sac bulbs adjacent to arterial roadways.

f. Short streets, trees, on-street parking, tee intersections, use of terminating vistas and traffic calming devices should be used to limit vehicle speed.

g. Streets shall be designed in accordance with projected traffic volumes and City-adopted level of service standards. Oversized streets shall be discouraged.

Deviations to the arterial, collector, and local street standards identified above may be adopted subject to review and approval by the City Council.



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STREET CROSS SECTIONS

Figure
2 - 2

Table 2-1
Permitted Traffic Calming Measures

	Functional Classifications					Subdivision Streets			
	Interstates Freeways Expressways	Arterials	Collectors	Minor Collectors	Local Roads	Collector Streets	Minor Collector Streets	Local Streets	Other Restrictions
Volume Control Measures									
Full Closure Half Closure	Not Recommended				Only on an exception basis	Not Recommended		>500 vpd >25% non-local traffic	
Diagonal Diverter Median Barriers Forced Turn Islands	Not Recommended				<5,000 vpd >25% non-local traffic	Not Recommended		>500 vpd >25% non-local traffic	
Vertical Speed Control Measures									
Single Speed Humps	Not Recommended				Only on an exception basis	Daily volumes <3,000 vpd Posted speed <30 mph			Not on primary emergency routes or bus routes
Speed Tables Raised Crosswalks Raised Intersections	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			Not on primary emergency routes
Horizontal Speed Control Measures									
Mini-traffic Circles	Not Recommended				Only on an exception basis	Daily volumes <5,000 vpd Posted speed <35 mph			Not on primary emergency routes or bus routes
Roundabouts	Not Recommended					Combined approaches daily volumes <5,000 vpd Posted speed <35 mph			
Lateral Shifts	Not Recommended					Daily volumes <10,000 vpd Posted speed <35 mph			
Chicanes	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			
Realigned Intersections	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			
Narrowings									
Bulbouts Two-Lane Chokers Center Islands	Not Recommended					Daily volumes <1,000 vpd Posted speed <35 mph			
Combined Measures	Not Recommended					Subject to limitations of component measures			

Note: Subject to Approval by City Engineer

Policy 2.32 To continue to provide a high level of service to the community, the City designates Service Level "D" as defined in the Highway Capacity Manual (published by the Transportation Research Board of the National Research Council) as the minimum desirable service level at which freeways, expressways, major arterials, arterials streets and collector streets should operate. All new facilities in these categories shall be designed to operate at this level or better for a period of at least 20 years following their construction.

Policy 2.33 The circulation system shall be designed and developed to minimize excessive noise impacts on sensitive land uses and traffic congestion which would increase the rate of vehicle emissions. New development shall mitigate noise and emission impacts [e.g. by constructing sounds walls (where warranted), designing to minimize emissions (such has roundabout or traffic circle), etc.].

Policy 2.34 Right-of-way essential to the circulation system should be dedicated and/or developed to the appropriate extent and width when a division of property or development occurs. The City shall coordinate street improvements with the County of Fresno so that the same requirements apply within the urban area boundary outside the City limits.

Policy 2.35 The right-of-way widths and construction widths of all classes of streets from local to major arterial shall be updated as necessary to reflect the street classifications in the this Element.

Policy 2.36 Developers shall mitigate traffic impacts associated with their projects to minimize the impacts to freeways, major arterials, arterials, and collector streets.

Policy 2.37 The City will continue to collect development impact fees for the circulation system (streets, signals and bridges) and shall revise and update the development impact fees as needed.

Policy 2.38 The City will implement a transportation impact fee program to help facilitate state highway facility circulation improvements in the Selma Planning Area, in coordination with Caltrans. This program is intended to help mitigate the impacts and additional vehicle trips that will be added to the regional transportation network from new development.

Policy 2.39 The City shall promote an active policy of consolidating driveways, access points and curb cuts along existing developed major arterials, or arterials when development or change in intensity of development or land use occurs or when traffic operation or safety warrants.

Policy 2.40 Residential subdivisions shall be designed to encourage access from collector streets and to discourage use of local streets as a bypass to congested arterials.

Policy 2.41 Where major arterials, arterials, and collector streets are required, residential development shall be oriented away (side-on or rear-on) from such streets, and shall be properly buffered so that the traffic carrying capacity on the street will be preserved and the residential environment protected from the adverse characteristics of the street.

Policy 2.42 Due to the traffic congestion which results from numerous points of ingress and egress along commercial streets, future commercial developments or modifications to existing developments shall be master planned with limited points of ingress and egress onto a major street. Ingress and egress to shopping centers should be carefully designed in order to promote traffic safety. Left-hand movements into and out of commercial areas should be minimized and existing points of ingress and egress shall be consolidated whenever possible.

Policy 2.43 In order to promote safe and efficient traffic flow throughout the City, traffic signals shall be spaced no closer than 1/4 mile on arterials except in unusual circumstances. The intersections of arterial and collector streets and the access driveways to major traffic generators shall be located to maintain this minimum spacing.

<u>Bicycle and Pedestrian Facilities</u>

Policy 2.44 The City will develop, through various funding mechanisms and sources, a city wide bicycle path/lane/route system in conformance with the City's 2003 Bicycle Transportation Plan. The bicycle path/lane/route system will utilize existing or future railroad right-of-way and water courses. The paths (class I), may also include landscaping, lighting, mileage markers, directional signage and benches. The on-road lanes (class II) would include striping and the on-road routes (class III) would not include striping. Reference Figure 2-3 for the proposed city-wide bike plan. The class I bike paths can also be utilized by pedestrians if the proposed paths are wide enough to allow both bicyclists and pedestrians.

Policy 2.45 Sidewalks, paths, and appropriate crosswalks should be located to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths should be developed to allow for unobstructed pedestrian flow from within a neighborhood.

Policy 2.46 The City shall require curb, gutter, and sidewalks in all areas of the community to accommodate pedestrian traffic, especially along routes with high pedestrian traffic such as schools, parks, and the downtown area. Installation of these improvements shall be encouraged to the extent feasible in existing neighborhoods where they do not currently exist.

Policy 2.47 The City shall promote safe, convenient and accessible pedestrian ways within the community.

Policy 2.48 Where security walls or fences are proposed for residential developments along major arterials, arterials, or collector streets, pedestrian access should be considered between the major arterial, arterial, or collector, and the development to allow access to transit vehicles, commercial facilities, educational facilities and recreation areas operating on the street.

Policy 2.49 Street lighting shall be provided for all public streets and pedestrian signals shall be provided at all traffic signal locations.

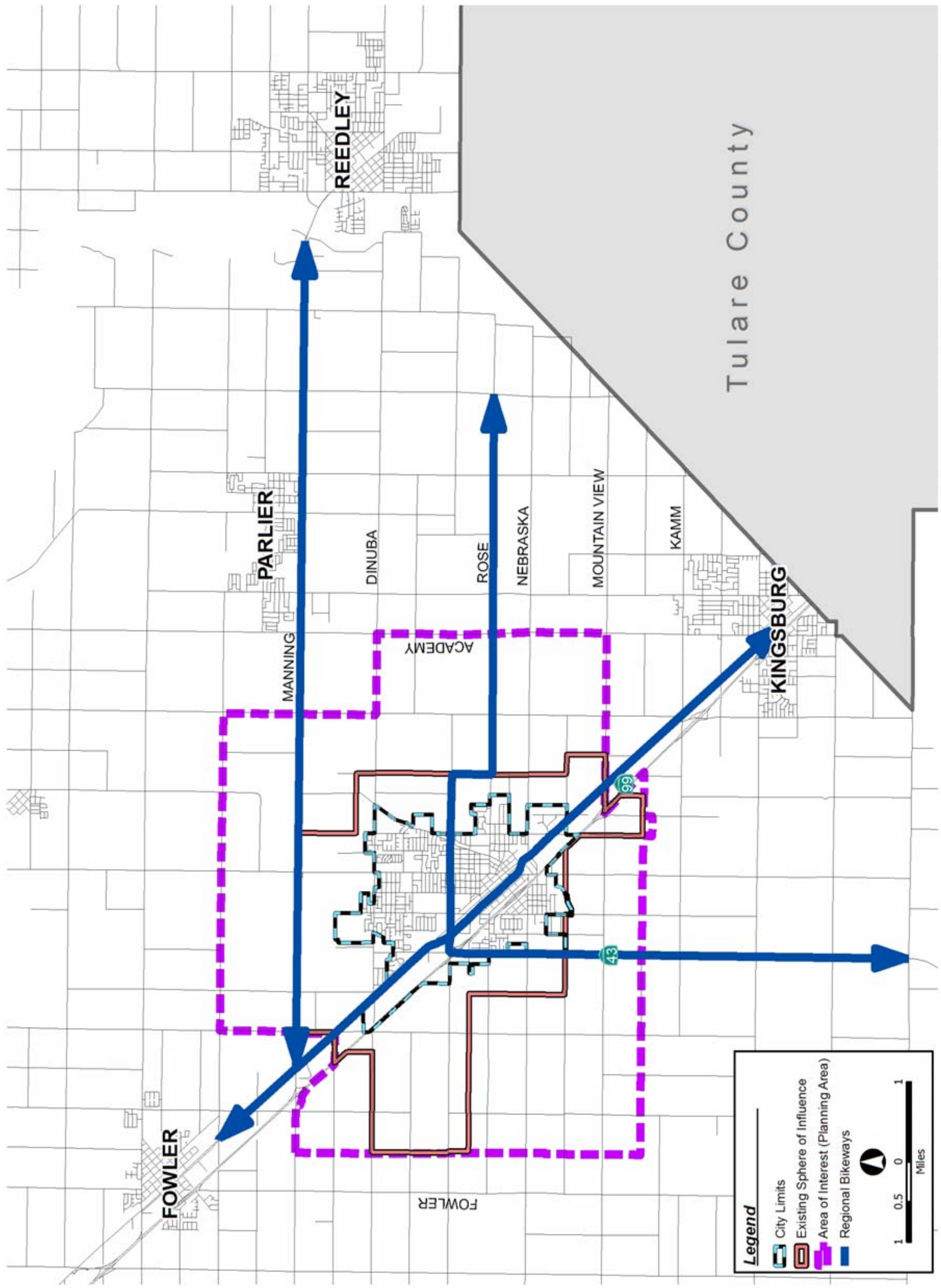

FIGURE 2 – 3a

REGIONAL BIKE PLAN

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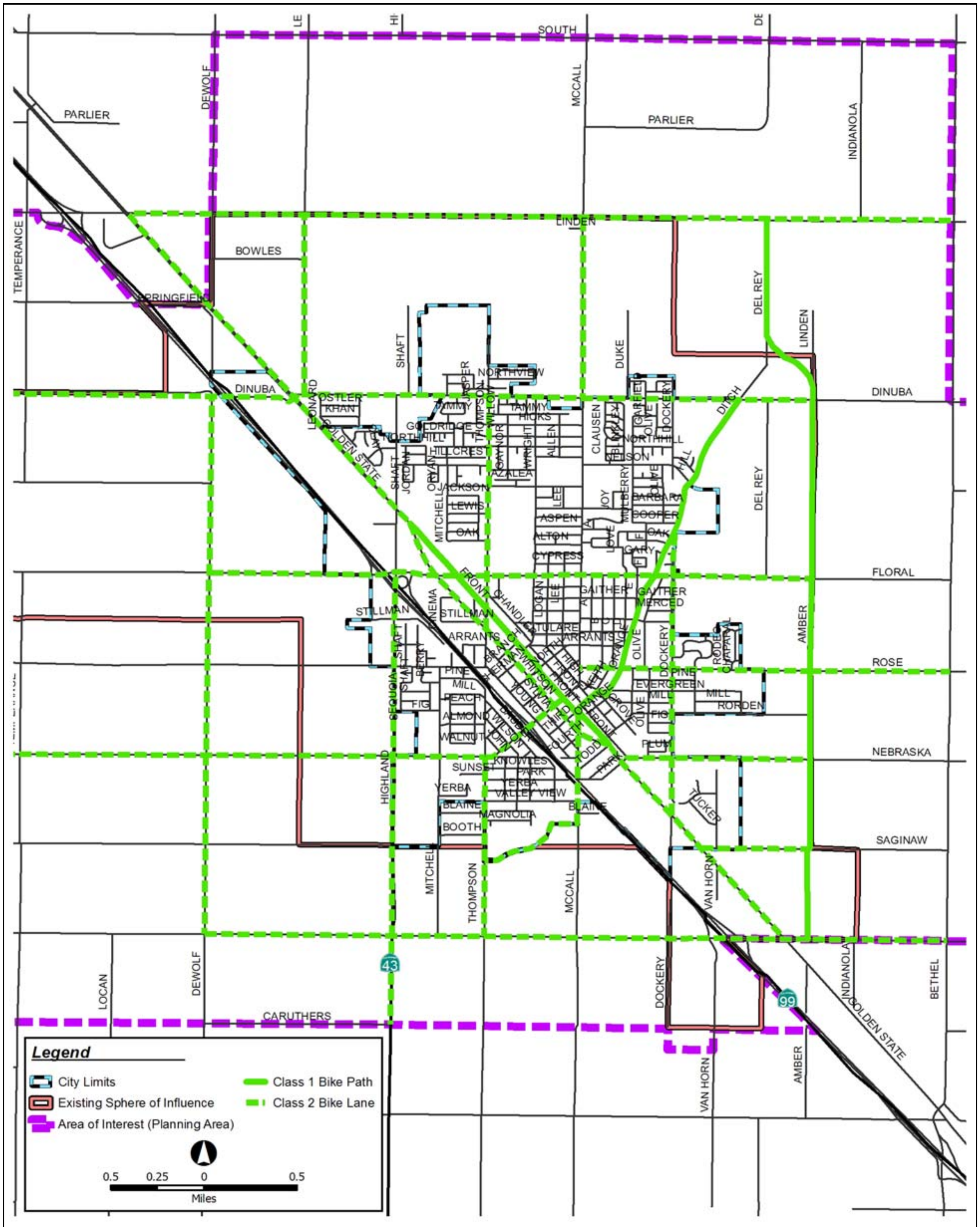

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BIKE PLAN

Figure 2 – 3b

Parking

Policy 2.50 New development shall be required to plant and maintain appropriate trees or other devices in order to achieve shading of at least 50% of all hardscaped parking and pedestrian surfaces.

Policy 2.51 Adequate off-street parking shall be required of all commercial and industrial land uses to accommodate parking demand. Off-street parking shall also be required of residential land uses to accommodate tenants.

Policy 2.52 Parking standards shall be evaluated for new development to ensure that parking requirements are satisfied within walking distance of development, and to ensure that arterial streets do not separate parking from the parking demand generator.

Policy 2.53 Parking standards shall be evaluated to assess the potential for offering reduced parking requirements to developments that incorporate measures proven to reduce vehicular trips. Shared parking should be encouraged whenever possible.

Policy 2.54 The City of Selma shall work with Caltrans and transit service providers to establish a park and ride lot or lots within the community to serve the needs of regional and local commuters.

Railroad

Policy 2.55 To preserve the viability of the Golden State Industrial Corridor, uses or activities shall not be permitted to encroach so as to reduce the efficiency of the rail system.

Airports and Heliports

Policy 2.56 To preserve the viability of the Selma Aerodrome as a regional general aviation facility, the City adopts the policy plan recommendations of the *Fresno County Airports Land Use Policy Plan Study,* where applicable.

Policy 2.57 The City shall discourage land uses surrounding the Selma Aerodrome, which would reduce its ability to function as an element of the transportation system.

Policy 2.58 Since the Selma Aerodrome serves as the primary air field in the area, efforts shall be made to continue to upgrade the service capacity of the airport.

Pipeline and Transmission Facilities

Policy 2.59 The City will encourage coordination of major transmission and canal facilities in the community and, where possible, integrate such facilities into the recreation, open space and conservation element plans of the community.

Transportation System and Congestion Management

Policy 2.60 The City shall encourage the use of energy efficient and non-polluting fuels and modes of transportation.

Policy 2.61 Transportation System Management and Transportation Demand Management are the applicable strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ridesharing and parking management are to be used to the greatest extent practical to implement transportation management strategies.

Policy 2.62 Promote the long term shifting of peak hour commute trips from the single occupant automobile to ridesharing, buses, pedestrians, and bicycles.

Policy 2.59 The use of alternative fueled vehicles will be encouraged.

Policy 2.63 Large development shall be encouraged to incorporate transit passenger facilities, bicycle racks or lockers, shower facilities, as well as on site services (eating, mail, banking, etc.) as ways to encourage alternative modes for commute trips.

Maintenance and Integration

Policy 2.62 When City-owned light equipment vehicles are replaced, they shall be replaced with hybrid vehicles, and if not practical for hybrid application, require vehicles with a minimum of 30 miles per gallon fuel efficiency.

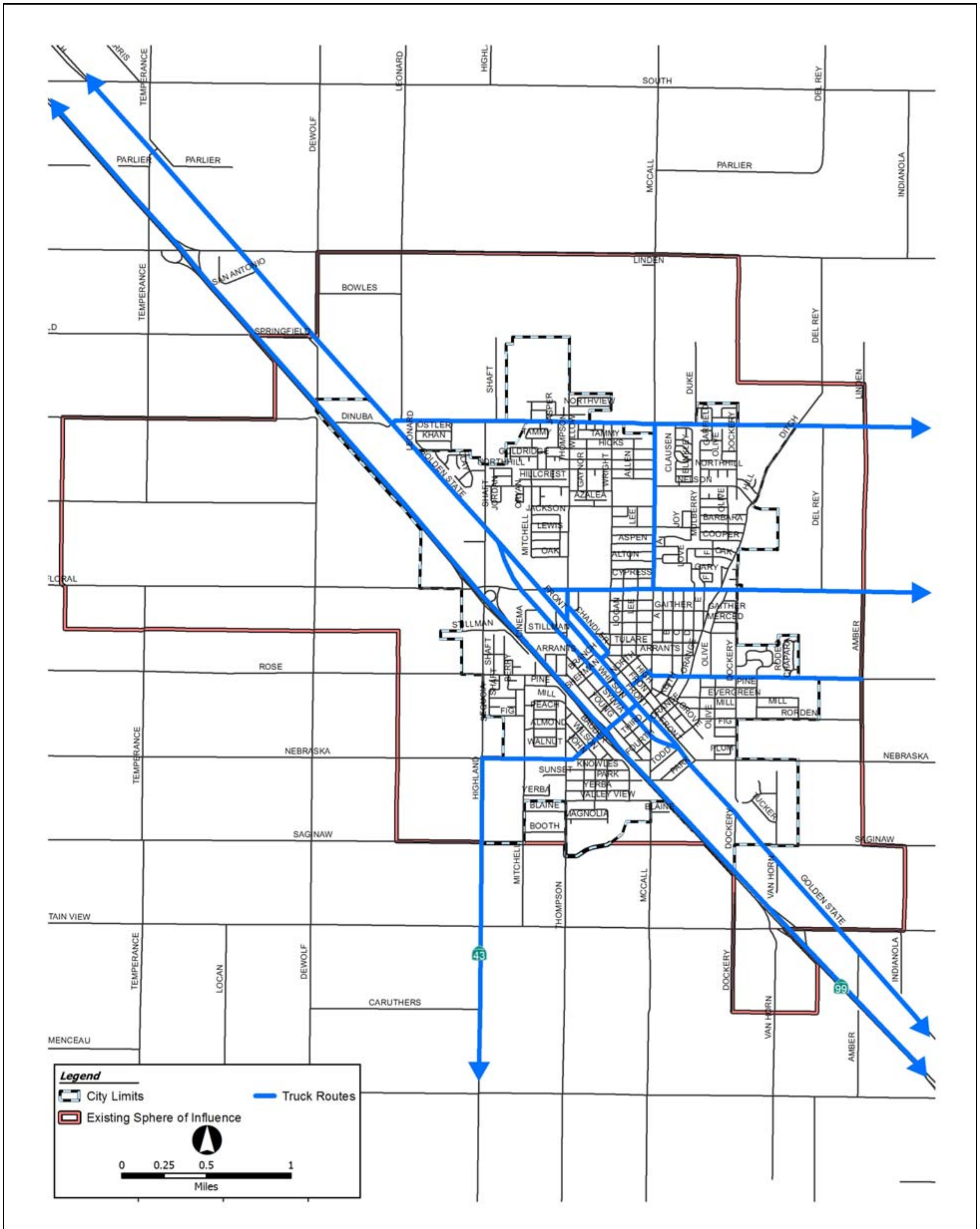
Policy 2.64 Provide for the development and maintenance of the community's transportation infrastructure, including streets, sewer, water, storm drain, pipeline, electrical, and communication facilities.

Policy 2.65 The maintenance of the investment in the existing and future infrastructure is a highest priority for the community.

Policy 2.66 The City shall maintain a high level of inter-governmental coordination and citizen participation in the circulation and transportation planning process and work with other agencies to assure that regional transportation plans are consistent with the City's General Plan.

Truck Routes and Truck Parking

Policy 2.67 Truck traffic shall be permitted on designated arterial and collector streets only; as identified in the Circulation Element Truck Route Map (reference Figure 2-4).



Quad Knopf	TRUCK ROUTES	Figure 2 - 4

Policy 2.68 The City shall encourage development of a truck terminal and parking facilities appropriately located within the industrial area.

Policy 2.69 Truck parking

a. Shall be discouraged on arterial/collector streets outside of industrial areas.

b. Shall be prohibited in residential areas for vehicles in excess of 10,000 gross vehicle weight (GVW), or higher than 8 feet.

Physical

EXISTING ROADWAY NETWORK

The existing lane configurations and intersection control at the study intersections are illustrated in Figure 3.15-2, Existing Lane Configurations and Intersection Control.

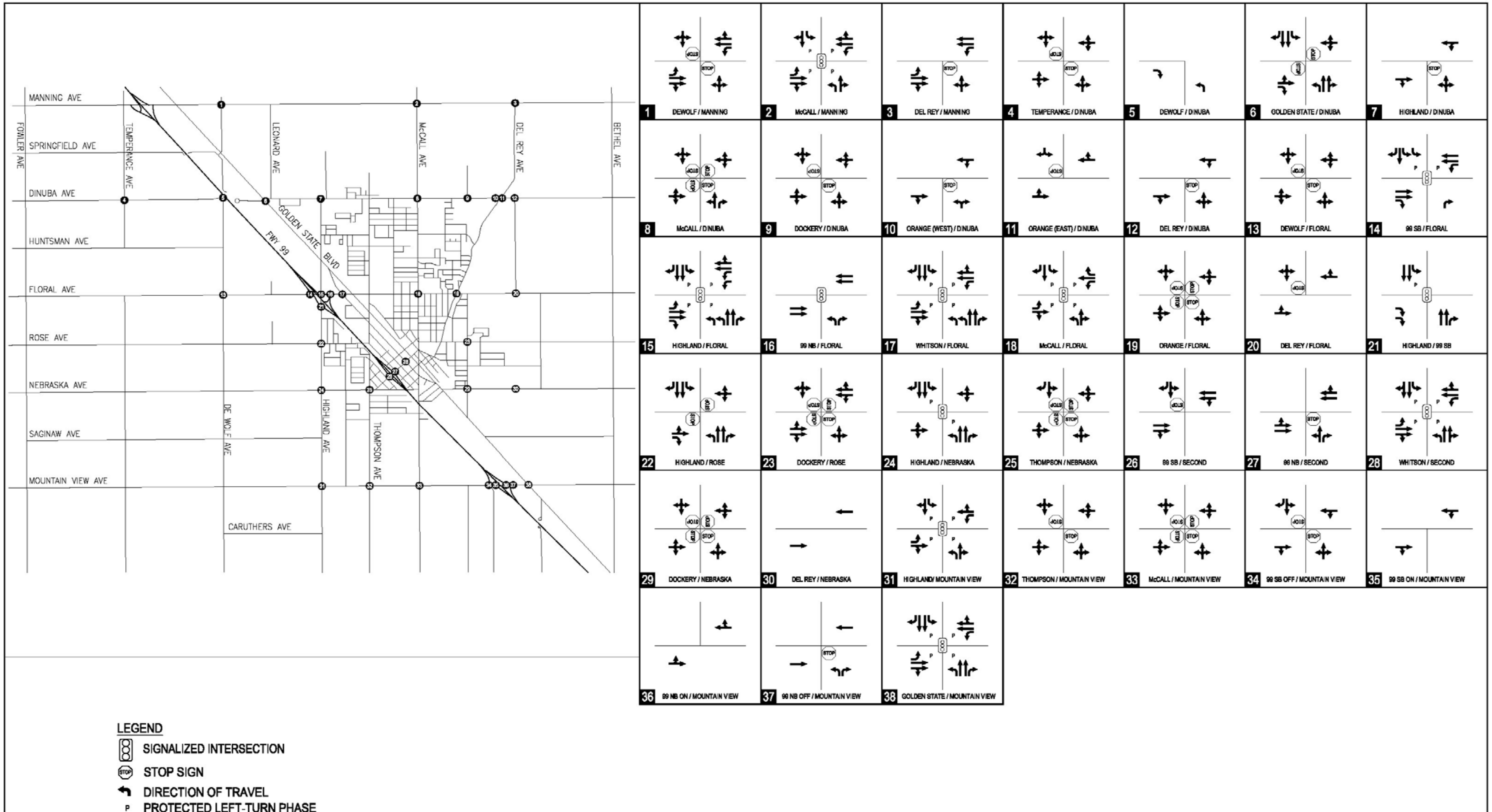
EXISTING TRAFFIC VOLUME

The Transportation Research Board *Highway Capacity Manual*, 2000, (HCM) defines level of service (LOS) as a qualitative measure describing operational characteristics within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS characteristics for unsignalized and signalized intersections are presented in Tables 3.15-1 and 3.15-2, respectively. LOS characteristics for road segments are presented in Table 3.15-3.

Table 3.15-1
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Little or no delay.	0-10
B	Short delays.	>10-15
C	Average delays.	>15-25
D	Long delays.	>25-35
E	Very long delays.	>35-50
F	Extremely long delays.	>50

Reference: *Highway Capacity Manual,* Transportation Research Board



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EXISTING LANE CONFIGURATIONS AND INTERSECTION CONTROL

Figure 3.15-2

Table 3.15-2
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Extremely favorable progression. Most vehicles arrive during green phase. Many vehicles do not stop.	≤10
B	Good progression.	>10-20
C	Fair progression. Significant number of vehicles stopped. Some queues do not clear.	>20-35
D	Noticeable congestion. Many vehicles stop. Individual cycle failures are noticeable. Queues often do not clear.	>35-55
E	Poor progression. Individual cycle failures are frequent. Queues frequently do not clear.	>55-80
F	Poor progression. Oversaturation. Many individual cycle failures and queues not cleared.	>80

Reference: *Highway Capacity Manual,* Transportation Research Board

Table 3.15-3
Level of Service Characteristics for Roadways

Level of Service	Description
A	Primarily free flow operations
B	Reasonably unimpeded operations, ability to maneuver only slightly restricted
C	Stable operations, ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	Significant delays, flow quite unstable
F	Extremely slow speeds

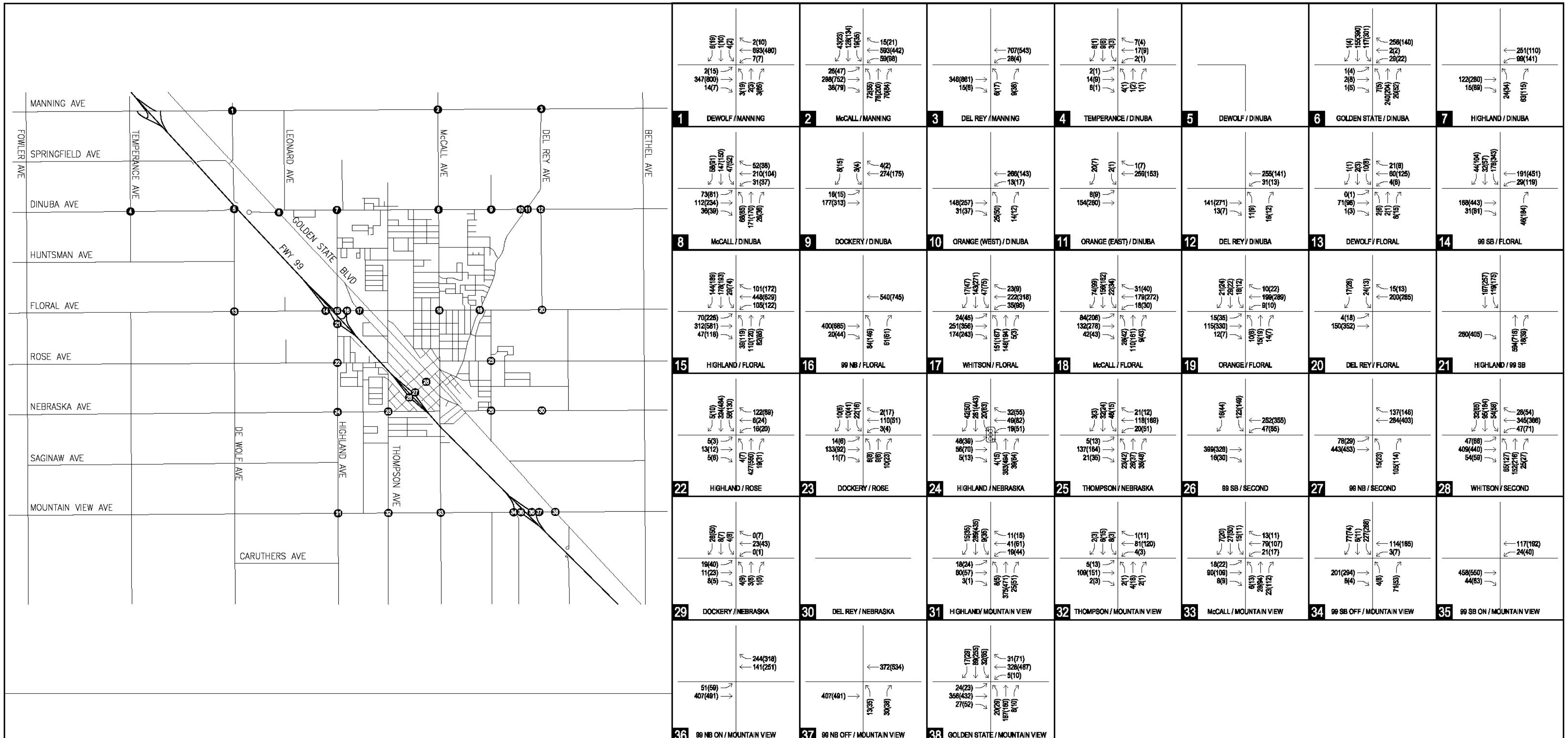
Reference: *Highway Capacity Manual,* Transportation Research Board

Existing traffic volumes were determined by performing manual turning movement counts at each of the study intersections. The traffic count data sheets are attached in Appendix B of Appendix J. Existing peak hour turning movement volumes at the study intersections are presented in Figure 3.15-3, Existing Peak Hour Traffic Volumes.

EXISTING INTERSECTION OPERATIONS

Existing peak-hour intersection traffic operations were quantified by applying existing traffic volumes and existing intersection lane geometrics and control. The results of the existing-conditions intersection LOS analyses are summarized in Table 3.15-4. Where intersections include one-way or two-way stop sign control, the reported level of service is that for the approach with the greatest delay.

The intersection analysis sheets are presented in Appendix C of Appendix J.



LEGEND

XX-AM Peak Hour Volumes

(YY)-PM Peak Hour Volumes

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EXISTING PEAK HOUR TRAFFIC VOLUMES

Figure 3.15-3

Table 3.15-4
Intersection Analysis Summary – Existing Conditions

Intersection	Control	A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Manning / DeWolf	TWS	17.4	C	24.2	C
Manning / McCall	Signal	18.0	B	21.7	C
Manning / Del Rey	OWS	13.1	B	19.8	C
Dinuba / Temperance	TWS	9.2	A	9.2	A
Dinuba / DeWolf	-	-	-	-	-
Dinuba / Golden State	**TWS**	**22.7**	**C**	**54.0**	**F**
Dinuba / Highland	OWS	11.3	B	15.0	C
Dinuba / McCall	AWS	15.3	C	18.4	C
Dinuba / Dockery	TWS	11.0	B	10.5	B
Dinuba / Orange (west)	OWS	11.6	B	12.7	B
Dinuba / Orange (east)	OWS	10.3	B	9.7	A
Dinuba / Del Rey	OWS	10.7	B	11.1	B
Floral / DeWolf	TWS	10.0	B	10.8	B
Floral / SR 99 SB	Signal	22.9	C	17.7	B
Floral / Highland	Signal	15.4	B	23.6	C
Floral / SR 99 NB	Signal	6.5	A	7.5	A
Floral / Whitson	Signal	19.0	B	20.1	C
Floral / McCall	Signal	23.4	C	21.7	C
Floral / Orange	AWS	8.7	A	11.7	B
Floral / Del Rey	OWS	11.0	B	12.3	B
SR 99 SB / Highland	Signal	11.3	B	12.8	B
Rose / Highland	**TWS**	**23.7**	**C**	**50.4**	**F**
Rose / Dockery	AWS	7.3	A	7.2	A
Nebraska / Highland	Signal	9.1	A	12.0	B
Nebraska / Thompson	AWS	8.8	A	9.6	A
2nd / SR 99 SB	**OWS**	**22.9**	**C**	**37.4**	**E**
2nd / SR 99 NB	OWS	22.1	C	20.0	C
2nd / Whitson	Signal	20.7	C	19.5	B
Nebraska / Dockery	AWS	7.1	A	7.4	A
Nebraska / Del Rey	-	-	-	-	-
Mtn. View / Highland	Signal	13.9	B	14.6	B
Mtn. View / Thompson	TWS	10.4	B	11.7	B
Mtn. View / McCall	AWS	8.0	A	9.2	A
Mtn. View / SR 99 SB Off	**TWS**	**22.3**	**C**	**50.9**	**F**
Mtn. View / SR 99 SB On	OWS	1.7	A	2.0	A
Mtn. View / SR 99 NB On	OWS	1.5	A	2.1	A
Mtn. View / SR 99 NB Off	OWS	13.9	B	25.8	D
Mtn. View / Golden State	Signal	20.7	C	21.1	C
Dinuba / SR 99 SB	-	-	-	-	-
Dinuba / SR 99 NB	-	-	-	-	-

EXISTING DEFICIENCIES

The following study intersections are currently operating at substandard levels of service:

- Dinuba Avenue and Golden State Boulevard;
- Rose and Highland Avenues;

- 2nd Street and SR 99 Southbound Ramps;
- Mountain View Avenue and SR 99 Southbound Ramps.

The following road segment currently operates at substandard levels of service:

- 2nd Street between Whitson Street and McCall Avenue.

EXISTING ROADWAY OPERATIONS

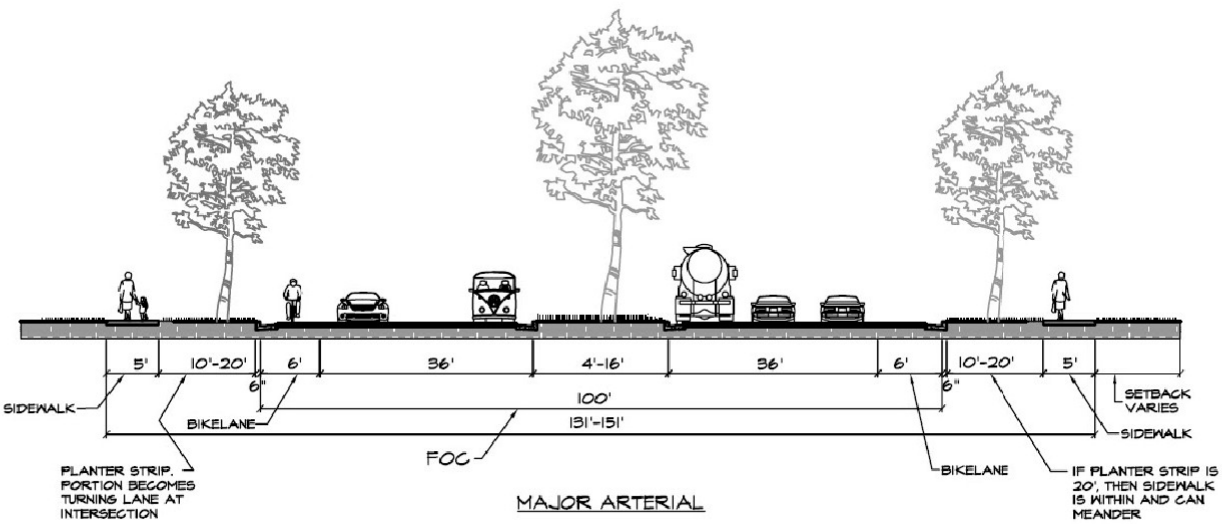
Existing Conditions Road Segment Analyses

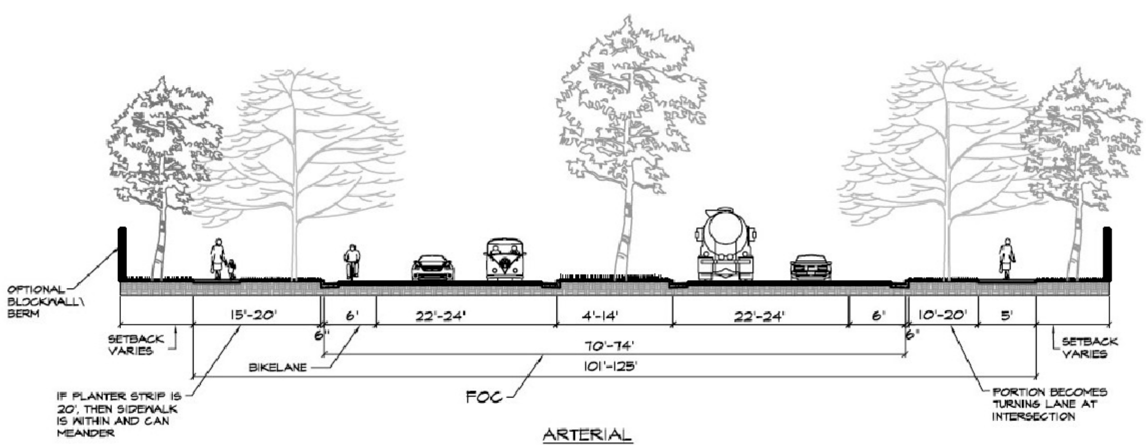
The results of the existing-conditions road segment analyses are summarized in the Road Segment Analysis Table presented in Appendix D of Appendix J. The Road Segment Analysis Table combines the existing-conditions analyses and the year 2035 analyses.

The Land Use and Circulation Map designates roadways as state highways (including freeways), expressways, major arterials, arterials, or collectors. Streets not designated on the map would be considered minor collectors or local roads. The various street cross sections are illustrated in Figure 3.15-4, Typical Arterial Cross Sections, and Figure 3.15-5, Typical Collector Cross Sections.

The proposed Circulation Map generally maintains the existing grid layout of roadways with alternating arterials and collectors at half-mile spacing. The map proposes a new interchange on State Route (SR) 99 at Dinuba Avenue. The map also proposes realigning SR 43 from the existing Highland Avenue alignment to the DeWolf Avenue alignment north of the Stillman Avenue alignment, with a diagonal segment connecting back to the Highland Avenue alignment between Nebraska and Saginaw Avenues. SR 43 would then connect with SR 99 via the new Dinuba Avenue interchange.

Tables 3.15-5 through 3.15-7 present the proposed street functional classification designations, the planned number of lanes, and the existing number of lanes. It should be noted that in some cases where the existing number of lanes equals the planned number of lanes, the road may not be currently developed to the full planned cross section.





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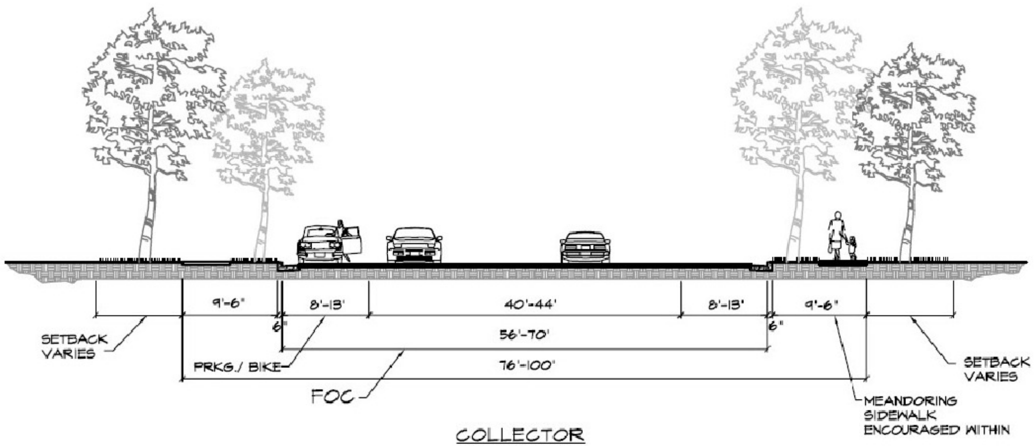
TYPICAL ARTERIAL CROSS SECTIONS

Figure 3.15-4



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TYPICAL COLLECTOR CROSS SECTIONS

Figure 3.15-5

Table 3.15-5
East-West Street Designations

Road	Segments	Functional Classification	Number of Lines Planned	Number of Lanes Existing
Manning Avenue	Armstrong to SR 99	Arterial	4	2
Manning Avenue	SR 99 to Bethel	Expressway	4	4
Springfield Avenue	Armstrong to Locan	Collector	2	2
Springfield Avenue	Leonard to Highland	Collector	2	Not existing
Springfield Avenue	Thompson to Bethel	Collector	2	Not existing
Dinuba Avenue	Armstrong to DeWolf	Arterial	4	2
Dinuba Avenue	Across SR 99	Arterial	4	Not existing
Dinuba Avenue	SR 99 to Bethel	Arterial	4	2
Huntsman Avenue	Armstrong to DeWolf	Collector	2	2
Nelson Boulevard	Highland to Thompson	Collector	2	2
Nelson Boulevard	McCall to Orange	Collector	2	2
Floral Avenue	Armstrong to Leonard	Arterial	4	2
Floral Avenue	Leonard to Wright	Arterial	4	4
Floral Avenue	Wright to Bethel	Arterial	4	2
Rose Avenue	Armstrong to Thompson	Collector	4	2
Rose Avenue	McCall to Country Rose	Collector	4	4
Rose Avenue	Country Rose to Bethel	Collector	4	2
Nebraska Avenue	Armstrong to 2nd	Arterial	4	2
Nebraska Avenue	Golden State to Bethel	Arterial	4	2
Saginaw Avenue	DeWolf to Highland	Collector	2	2
Saginaw Avenue	Highland to SR 99	Collector	2	Not existing
Saginaw Avenue	Golden State to Bethel	Collector	2	2
Mtn. View Avenue	DeWolf to Golden State	Arterial	4	2
Mtn. View Avenue	Golden State to Bethel	Arterial	4	4
Caruthers Avenue	DeWolf to Highland	Collector	2	2
Caruthers Avenue	Highland to Dockery	Collector	2	Not existing

Table 3.15-6
North-South Street Designations

Road	Segments	Functional Classification	Number of Lanes Planned	Number of Lanes Existing
Armstrong Avenue	Manning to Rose	Collector	2	Not existing
Temperance Avenue	Manning to Huntsman	Arterial	4	2
Temperance Avenue	Floral to Nebraska	Arterial	4	2
Locan Avenue	Springfield to Huntsman	Collector	2	Not existing
Locan Avenue	Floral to Nebraska	Collector	2	Not existing
DeWolf Avenue	Manning to Golden State	Arterial	4	2
DeWolf Avenue	Golden State to SR 99	Arterial	4	2
DeWolf Avenue	SR 99 to Caruthers	Arterial	4	2
Leonard Avenue	Manning to Dinuba	Collector	2	2
Leonard Avenue	Floral to Nebraska	Collector	2	Not existing
Highland Avenue	Golden State to Floral	Major Arterial	6	2
Highland Avenue	Floral to Nebraska/Saginaw	Major Arterial	6	4
Highland Avenue (SR 43)	Nebraska/Saginaw to Caruthers	State Highway	4	2
Thompson/Wright Avenue	Manning to Dinuba	Collector	2	Not existing
Thompson Avenue	Dinuba to Oak	Collector	2	4
Thompson Avenue	Oak to Floral	Collector	2	3

Road	Segments	Functional Classification	Number of Lanes	
			Planned	Existing
Thompson Avenue	Floral to Rose	Collector	2	2
Thompson Avenue	Nebraska to Caruthers	Collector	2	2
McCall Avenue	Parlier to Hicks	Arterial	4	2
McCall Avenue	Hicks to Floral	Arterial	4	4
McCall Avenue	Floral to Arrants	Arterial	4	2
McCall Avenue	Arrants to Rose	Arterial	4	4
McCall Avenue	Rose to High/Mill	Arterial	4	4
Dockery Avenue	Manning to Dinuba	Collector	2	Not existing
Dockery Avenue	Dinuba to Nelson	Collector	2	2
Dockery Avenue	SR 99 to Caruthers	Collector	2	2
Del Rey Avenue	Manning to Mill Ditch	Arterial	4	2
Amber Avenue	Dinuba to Floral	Arterial	4	Not existing
Amber Avenue	Floral to Nebraska	Arterial	4	2
Amber Avenue	Nebraska to Mtn. View	Arterial	4	Not existing
Bethel Avenue	South to Mtn. View	Arterial	4	2

Table 3.15-7
Diagonal Street Designations

Road	Segments	Functional Classification	Number of Lanes	
			Planned	Existing
SR 99	Manning to Caruthers	State Highway	6	6
Golden State Blvd.	Manning to Highland	Major Arterial	6	4
Whitson Street	Highland to Nebraska	Major Arterial	6	4
Golden State Blvd.	Nebraska to Mtn. View	Major Arterial	6	4
SR 43	DeWolf to Highland	State Highway	4	Not Existing
Saginaw-Dockery Diagonal	Saginaw to Dockery	Collector	2	Not Existing
Del Rey-Amber Diagonal	Del Rey to Amber	Arterial	4	Not Existing
2^{nd} Street	Nebraska to E. Front	Arterial	4	4
2^{nd} Street	E. Front to McCall	Arterial	4	2

EXISTING TRANSIT SERVICE

Selma Transit is operated by the City through a joint powers authority (JPA) with the Fresno County Rural Transit Agency (FCRTA). Fixed route transit service currently operates Monday through Friday. Service hours are 7 a.m. to 5:30 p.m.

Selma Transit also provides Dial-A-Ride services for residents of Selma. Dial-A-Ride (door to door) service is available in Selma Monday through Friday between 7:00 a.m. and 5:30 p.m. All rides from home must be scheduled at least four hours in advance. Selma Transit Taxi Service offers trips outside City limits. The Fresno County Economic Opportunities Commission operates one vehicle in Selma on Saturdays, 8:00 a.m. to 5:00 p.m.

Regional transit service is provided by the Fresno County Rural Transit Agency. A local circulator provides connection to Kingsburg, Fowler and the Fresno-Clovis Metropolitan Area. A limited inter-regional service connects Selma and Fresno. These services operate Monday through Friday.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Currently, the City of Selma has designated bicycle routes along Orange Avenue, parts of Golden State Boulevard, McCall Avenue, Dockery Avenue and the Southern Pacific Railroad through the Central Business District. The Fresno County Regional Transportation Plan has bikeway routes designated on Golden State Boulevard and Manning Avenue. Cyclists currently comprise a small percentage of the traveling public in the Selma area. Most of the bicycle activity in Selma occurs around schools by school children.

Pedestrian facilities in Selma are limited to sidewalks, crosswalks, and pedestrian crossing lights. Pedestrian facilities have been emphasized over the years. Pedestrian facilities are located to varying degrees throughout the community. Curb cuts and access ramps are required on new construction in the City.

AVIATION

Operating airports in the Selma area are limited. Commercial service is provided to the south at the Visalia Airport and to the north at the Fresno Yosemite International Airport. Private airport service is provided to the northwest at the Selma Aerodrome.

RAIL

Selma is currently served by the Southern Pacific Railroad. The Southern Pacific Railroad is owned by the Union Pacific Railroad Company. This rail line runs through Selma parallel to Golden State Boulevard to the east. This Rail line has historically been an important part of Selma's economic and transportation development. The Southern Pacific Railroad still provides freight services to the Selma Area; however, absent Federal and State regulatory charges the long term health of the railroad is questionable. As with many small communities in the Central Valley there has been a continuing shift from rail to trucks and this could lead to the future abandonment of the rail line.

There are no land use changes with the proposed General Plan that would permit housing adjacent to existing rail yards.

3.15.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on transportation/traffic if it will:

a) *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).*

b) *Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.*

c) *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.*

d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*

e) *Result in inadequate emergency access.*

f) *Result in inadequate parking capacity.*

g) *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).*

As discussed in Chapter One, Introduction, impacts that were found to be less than significant, based on the analysis contained in the Initial Study are not addressed in this EIR. The Initial Study found that the proposed project would have no impact on significance thresholds c) air traffic pattern changes and g)conflicts with policies, plans or programs supporting alternative transportation, and less than significant impacts to significance thresholds f) inadequate parking capacity, e) emergency access and d) increasing hazards due to design features. The remaining impacts are discussed below. Reference the Initial Study in Appendix A for additional information.

3.15.3 IMPACTS

Project Impacts and Mitigation Measures

Impact #3.15.3.1 – Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system and/or exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways:

ANALYSIS OF PROPOSED 2035 GENERAL PLAN CONDITIONS

The study area includes the proposed Planning Area presented in the Land Use and Circulation Map. The study locations for purposes of this traffic analysis are the roadways listed in Tables 3.15-5 through 3.15-7. The analyses were performed in general conformance with Caltrans' *Guide for the Preparation of Traffic Impact Studies* dated December 2002. The study time periods include the weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The peak hours were analyzed for the following scenarios:

- Existing Conditions; and
- Year 2035 Conditions with Plan Update.

The Council of Fresno County Governments (COFG) maintains a travel model that is typically used to forecast traffic volumes in Fresno County. The proposed Land Use and Circulation Map along with other pertinent Project information were provided to COFG and the proposed 2035 conditions were incorporated into the model by COFG. The modeling assumed build out of the proposed residential land uses at a density yielding 70,000 residents in the year 2035. The employment capacity of the planned land uses was maximized, and no development was assumed within the Reserve designated areas.

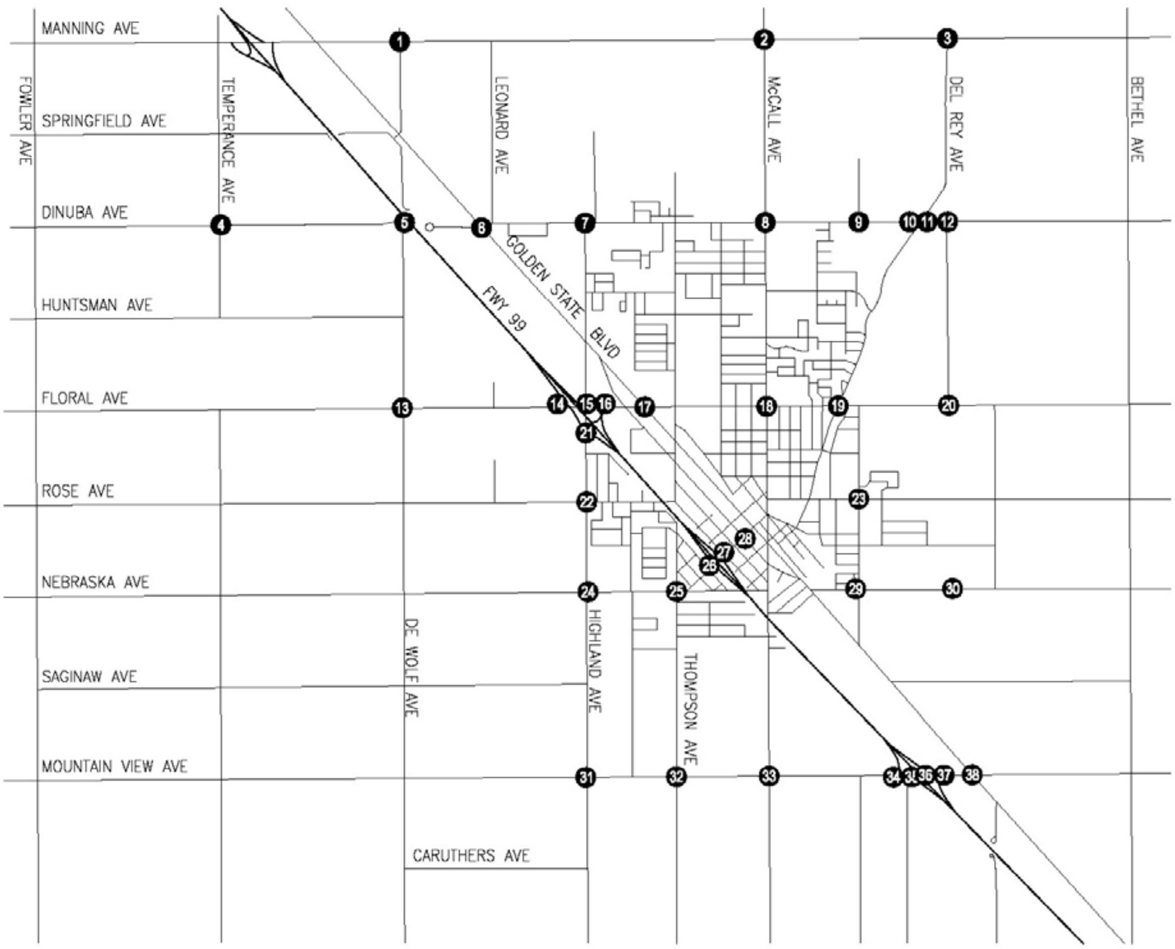
Year 2035 traffic-volume forecasts were obtained using the COFG travel model and the COFG Increment Method in conformity with the recommended procedures for using traffic projections. The Increment Method forecasts future traffic volumes by determining the growth projected by the model between the base year and the horizon year. This growth is then added to the existing traffic volumes.

The proposed Circulation Element requires that LOS D or better be maintained on all non-local streets under the jurisdiction of the City of Selma. State highways and freeways are to operate at LOS C, where possible, with LOS D being acceptable where LOS C is not feasible.

Study Intersections

The operation of intersections can create a significant amount of congestion on roadways that otherwise may have the required number of lanes for adequate road segment operations. Therefore, certain key intersections, including intersections at freeway interchanges, are also included in the analyses (Reference Table 3.15-4). The locations of the study intersections are presented in Figure 3.15-6, Study Intersection Location Map.

Queues at intersections are an important consideration in the planning of the circulation system. Intersections operating at acceptable LOS may include some movements, often left turns, which experience delays resulting in queues longer than the storage capacity of the lane. When left-turn queues exceed the available storage capacity, the adjacent through lane is impeded and congestion may result. Therefore, the consideration of queuing is included in the analysis, and additional lanes should be planned where queues are expected to be excessive, even if LOS criteria are not exceeded.



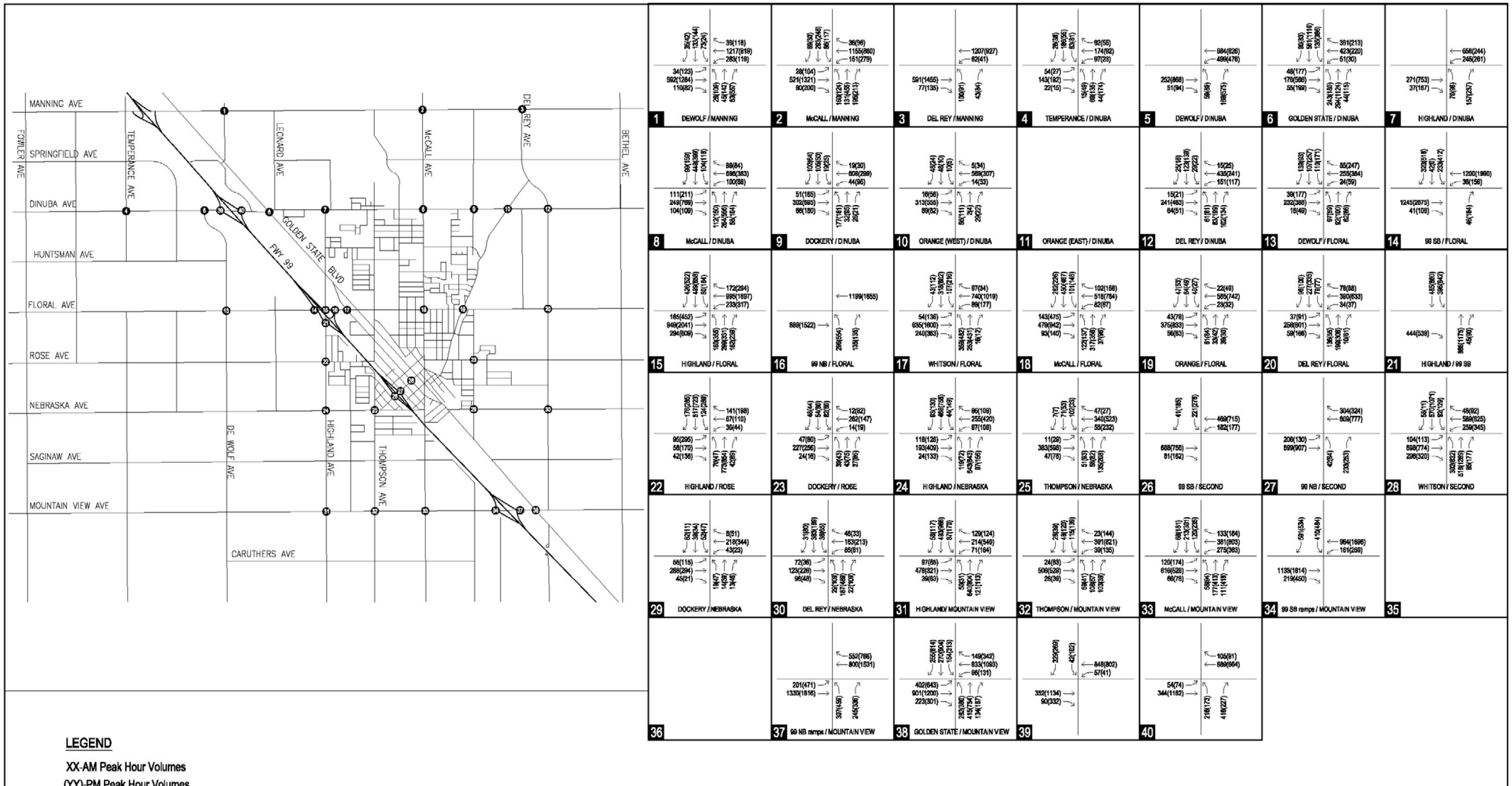
Quad Knopf	STUDY INTERSECTION LOCATION MAP	Figure 3.15-6

The levels of service and 95th-percentile queues at the study intersections were determined using the computer program Synchro 6 (Build 614), which is based on the HCM procedures for calculating levels of service. Queue lengths are reported only for signalized intersections.

For signalized intersections and all-way-stop-controlled intersections, the overall intersection LOS and the average delay per vehicle are presented. For one-way and two-way stop-controlled intersections an overall intersection LOS is not defined in the HCM. Therefore, for one-way and two-way stop-controlled intersections the LOS and average delay per vehicle for the movement with the greatest delay is reported.

Peak-hour factors (PHF) for the existing-conditions analyses were determined based on the existing traffic volumes. The HCM suggests that a PHF of 0.92 in urban areas and 0.88 in rural areas may be used in the absence of field data. For purposes of the year 2035 analyses performed for this study, in which field data is not available and traffic volumes are projected, a PHF of 0.92 is used unless the existing PHF is already greater than 0.92. In such cases the greater PHF is used.

Future turning movements were estimated based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled *Highway Traffic Data for Urbanized Area Project Planning and Design*. The Year 2035 traffic volumes are presented in Figure 3.15-7, Year 2035 Peak-Hour Traffic Volumes.



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YEAR 2035 PEAK HOUR TRAFFIC VOLUMES

Figure 3.15-7

Intersection Analyses

The results of the year 2035 intersection LOS analyses are summarized in Table 3.15-8. It is assumed that intersections of two streets both designated as a collector or greater will eventually require signalization. Therefore, the analyses presented herein include the assumption that the study intersections are signalized to verify the adequacy of the planned ultimate conditions. Deficiencies are identified in bold type. The intersection analysis sheets are presented in Appendix C of Appendix F.

Table 3.15-8
Intersection Analysis Summary – Year 2035 Conditions

Intersection	**Control**	**A.M. Peak Hour**		**P.M. Peak Hour**	
		Delay (sec)	**LOS**	**Delay (sec)**	**LOS**
Manning / DeWolf	Signal	20.1	C	34.6	C
Manning / McCall	Signal	21.0	C	32.5	C
Manning / Del Rey	Signal	11.3	B	11.6	B
Dinuba / Temperance	Signal	21.9	C	25.9	C
Dinuba / DeWolf	Signal	10.4	B	22.0	C
Dinuba / Golden State	Signal	18.5	B	26.6	C
Dinuba / Highland	Signal	10.2	B	16.1	B
Dinuba / McCall	Signal	20.5	C	22.7	C
Dinuba / Dockery	Signal	22.8	C	24.2	C
Dinuba / Orange	Signal	14.6	B	17.6	B
Dinuba / Del Rey	Signal	16.9	B	21.0	C
Floral / DeWolf	Signal	20.1	C	22.2	C
Floral / SR 99 SB	Signal	*	F	**159.6**	**F**
Floral / Highland	Signal	36.6	D	**180.3**	**F**
Floral / SR 99 NB	Signal	12.6	B	48.3	D
Floral / Whitson	Signal	27.3	C	**137.7**	**F**
Floral / McCall	Signal	46.8	D	**164.4**	**F**
Floral / Orange	Signal	9.5	A	19.4	B
Floral / Amber	Signal	18.2	B	18.4	B
SR 99 SB / Highland	Signal	19.1	B	48.7	D
Rose / Highland	Signal	20.5	C	32.8	C
Rose / Dockery	AWS	10.4	B	11.6	B
Nebraska / Highland	Signal	17.0	B	19.5	B
Nebraska / Thompson	Signal	9.7	A	**78.4**	**E**
2nd / SR 99 SB	Signal	15.3	B	17.4	B
2nd / SR 99 NB	Signal	9.2	A	11.2	B
2nd / Whitson	Signal	63.0	E	**179.8**	**F**
Nebraska / Dockery	AWS	13.5	B	21.5	C
Nebraska / Amber	Signal	21.0	C	18.3	B
Mtn. View / Highland	Signal	18.6	B	23.1	C
Mtn. View / Thompson	Signal	18.8	B	24.2	C
Mtn. View / McCall	Signal	20.5	C	27.2	C
Mtn. View / SR 99 SB	Signal	35.6	D	**88.9**	**F**
Mtn. View / SR 99 NB	Signal	16.4	B	**74.4**	**E**
Mtn. View / Golden State	Signal	26.4	C	**102.9**	**F**
Dinuba / SR 99 SB	Signal	10.4	B	10.9	B
Dinuba / SR 99 NB	Signal	11.6	B	10.6	B

* Excessive delays not calculated.

As shown in Table 3.15-9, the following study intersections are expected to operate at substandard levels of service in the year 2035:

- Floral Avenue and SR 99 Southbound Ramps;
- Floral and Highland Avenues;
- Floral Avenue and Whitson Street;
- Floral and McCall Avenues;
- Nebraska and Thompson Avenues;
- 2nd and Whitson Streets;
- Mountain View Avenue and SR 99 Southbound Ramps;
- Mountain View Avenue and SR 99 Northbound Ramps;
- Mountain View Avenue and Golden State Boulevard.

It should be noted that the following intersections appear to have existing physical constraints, such as existing curb, gutter, sidewalk, and adjacent development, which may limit the feasibility of constructing the full width of the planned roadway section, construction of left-turn lanes, or installation of traffic signals:

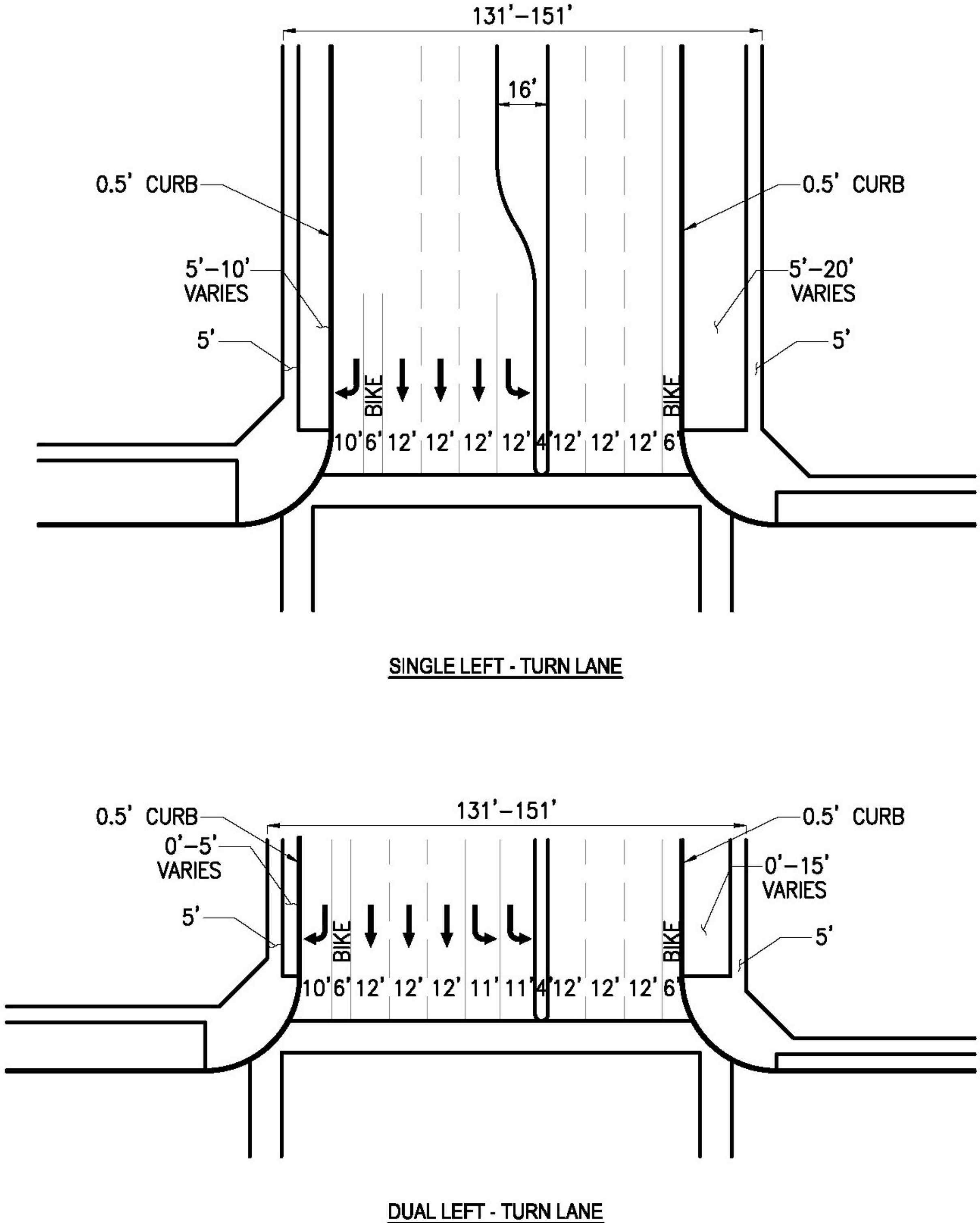
- Floral Avenue and SR 99 Southbound Ramps;
- Floral and Highland Avenues;
- Floral Avenue and SR 99 Northbound Ramps;
- Floral Avenue and Whitson Street;
- Floral and McCall Avenues;
- Floral and Orange Avenues;
- SR 99 Southbound Ramps and Highland Avenue;
- Rose and Dockery Avenues;
- Nebraska and Thompson Avenues;
- 2nd Street and SR 99 Southbound Ramps;
- 2nd Street and SR 99 Northbound Ramps;
- 2nd Street and Whitson Street; and
- Nebraska and Dockery Avenues.

The intersection configuration at these locations was typically maintained as the existing configuration with the addition of traffic signals. Traffic signals were not assumed at the intersection of Rose and Dockery Avenues and at the intersection of Nebraska and Dockery Avenues due to the limitations of the existing configuration.

PROPOSED 2035 GENERAL PLAN INTERSECTION CONDITIONS

It is recommended that the City of Selma establish standard lane configurations at intersections. Figures 3.15-8 through 3.15-10 present intersection lane diagrams for proposed major arterials, arterials, and collector streets, respectively. Alternatives for installing dual left-turn lanes generally accommodated within the planned right of way are presented. In new growth areas, these lane configurations and eventual signalization are expected to result in acceptable levels of service. The analyses indicate that dual left-turn lanes should be considered at the locations listed below. It should be noted that dual lefts on one approach usually need to be mirrored on the opposite approach to align the adjacent through lanes. It is also noted that intersections at interchanges are discussed below and are not included in this list.

- Manning and DeWolf Avenues (westbound and northbound)
- Manning and McCall Avenues (all approaches)
- Dinuba and DeWolf Avenues (location depends upon interchange configuration)
- Dinuba Avenue and Golden State Boulevard (all approaches)
- Dinuba and McCall Avenues (all approaches)
- Floral and Highland Avenues (eastbound and westbound)
- Floral Avenue and Whitson Street (northbound)
- Nebraska and Highland Avenues (all approaches)
- Mountain View and Highland Avenues (all approaches)
- Mountain View and McCall Avenues (all approaches)
- Mountain View Avenue and Golden State Boulevard (all approaches, or grade separation - see discussion below).



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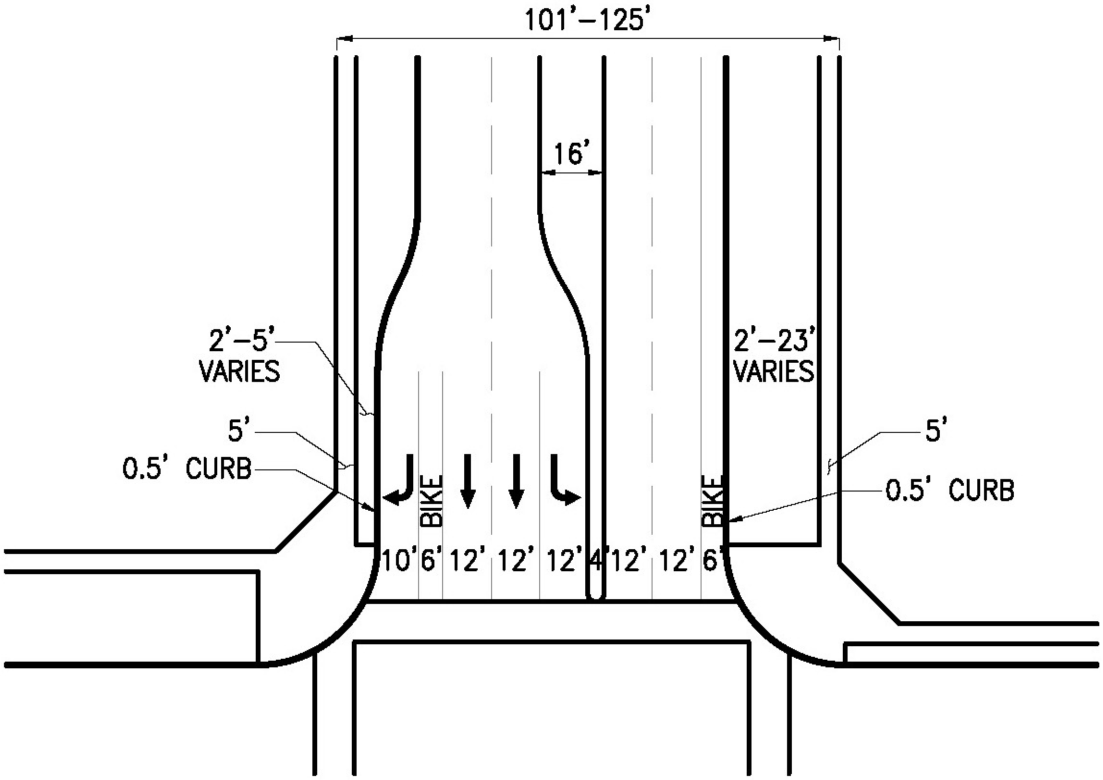
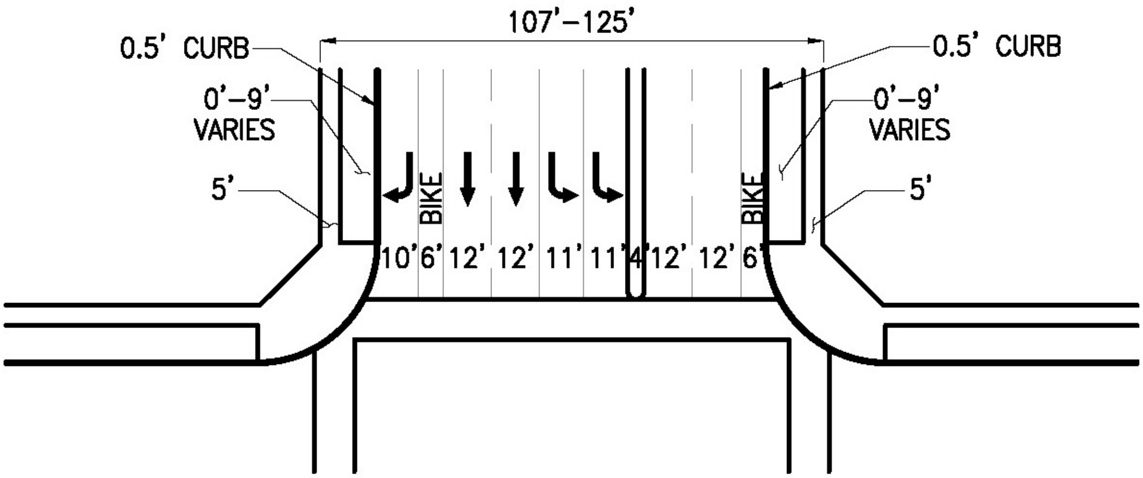
LANE CONFIGURATIONS AT INTERSECTIONS-
MAJOR ARTERIALS

Figure
3.15-8

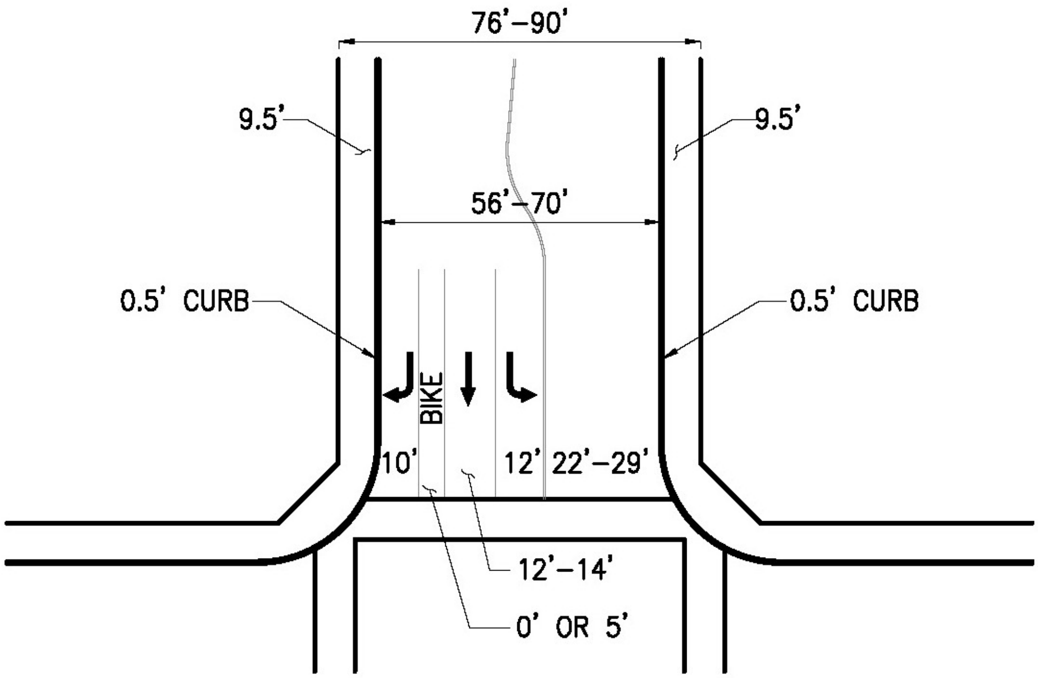


SINGLE LEFT - TURN LANE



DUAL LEFT - TURN LANE

Quad Knopf	LANE CONFIGURATIONS AT INTERSECTIONS-ARTERIALS	Figure 3.15-9



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LANE CONFIGURATIONS AT INTERSECTIONS-COLLECTORS

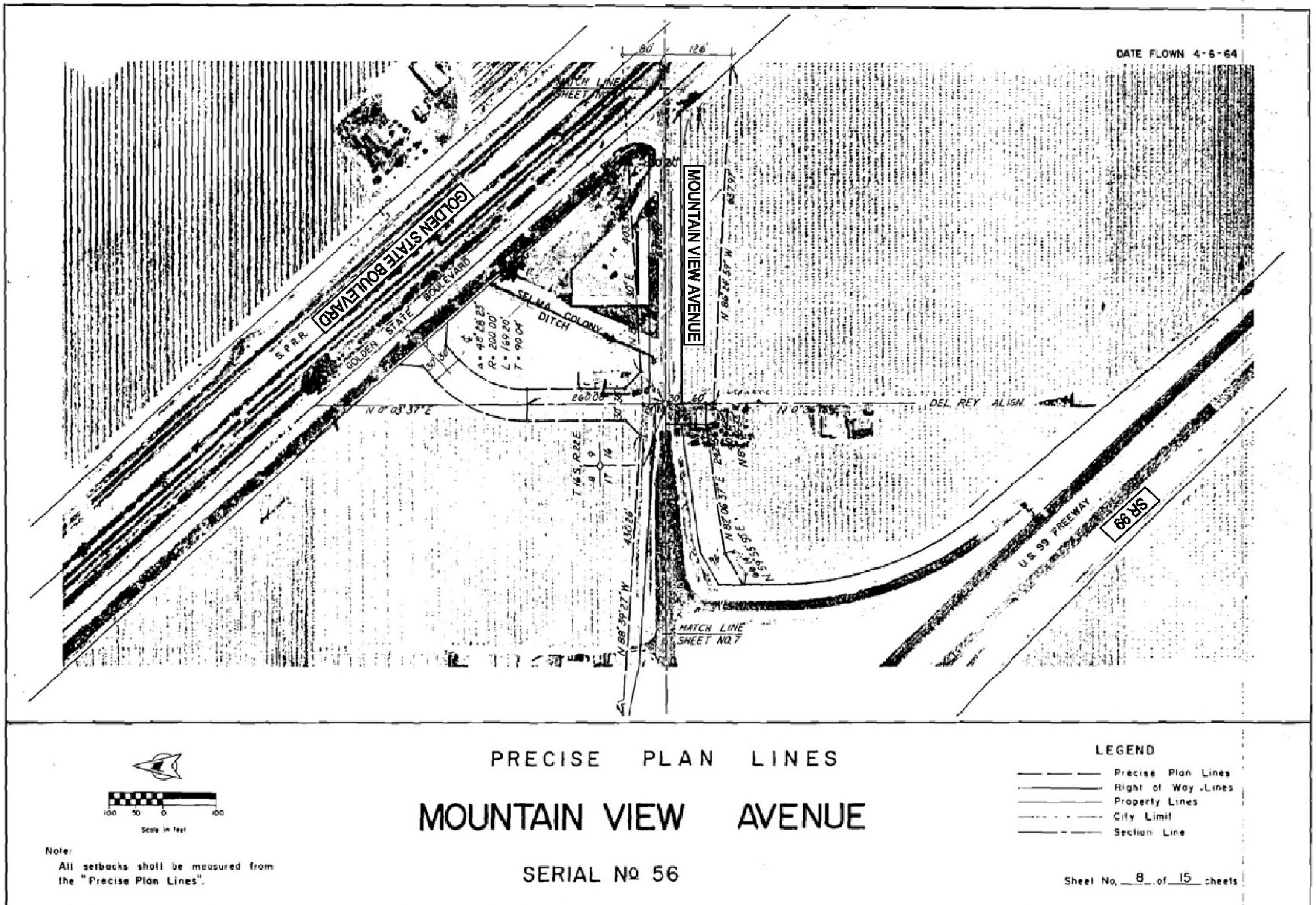
Figure 3.15-10

The intersection of Mountain View Avenue and Golden State Boulevard is adjacent to existing railroad tracks. Figure 3.15-11 presents Precise Plan Lines (PPL) in the vicinity of the intersection developed by the County of Fresno. The PPL accommodates an overhead structure allowing Mountain View Avenue to be elevated with a bridge passing over Golden State Boulevard and the railroad tracks. However, the PPL is not expected to accommodate the arterial designation of Mountain View Avenue currently proposed. To maintain connectivity between Mountain View Avenue and Golden State Boulevard, the PPL illustrates a connector road on the north side of Mountain View Avenue between SR 99 and Golden State Boulevard, connecting to the west side of Golden State Boulevard. It is likely that this configuration will result in the connector road intersection being located too near the interchange with insufficient storage capacity for queues. The alternative of constructing the connector road on the east side of the grade separation would require a railroad crossing and defeats some of the benefit of the grade separation.

The planned regional commercial land uses north of Mountain View Avenue between SR 99 and Golden State Boulevard are likely to require convenient access to SR 99. Further detailed studies will be required to determine a grade separation structure with convenient access, such as a single-point urban interchange (Type L-13) or similar structure. Figure 3.15-12, Conceptual Grade Separation, Intersection of Mountain View Avenue and Golden State Boulevard, presents a concept that may be applicable to this location.

Several intersections are expected to operate at substandard levels of service with implementation of the Plan Update, as noted above, primarily because the intersections and the adjacent properties are already developed. At these locations, operations meeting the City's standard LOS D are not expected to be feasible without major reconstruction and possibly the acquisition of additional right of way in developed areas. The following locations are considered to be constrained, and are infeasible to improve to achieve the desired level of service. The associated level of service is presented in parentheses:

- Floral Avenue and SR 99 Southbound Ramps (LOS E even with improvements);
- Floral and Highland Avenues (LOS F even with improvements);
- Floral Avenue and Whitson Street (LOS F);
- Floral and McCall Avenues (LOS F);
- Nebraska and Thompson Avenues (LOS E);
- 2nd and Whitson Streets (LOS F).
- Floral Avenue and SR 99 Southbound Ramps;
- Floral and Highland Avenues;
- Floral Avenue and SR 99 Northbound Ramps;
- Floral Avenue and Whitson Street;
- Floral and McCall Avenues;
- Floral and Orange Avenues;
- SR 99 Southbound Ramps and Highland Avenue;
- Rose and Dockery Avenues;
- Nebraska and Thompson Avenues;
- 2nd Street and SR 99 Southbound Ramps;
- 2nd Street and SR 99 Northbound Ramps;



PRECISE PLAN LINE – MOUNTAIN VIEW AVE EAST OF SR 99

Figure 3.15-11

UPRR / Mountain View / Golden State Crossing

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CONCEPTUAL GRADE SEPARATION
INTERSECTION OF MOUNTAIN VIEW AVE AND GOLDEN STATE BLVD

Figure 3.15-12

- 2nd Street and Whitson Street; and
- Nebraska and Dockery Avenues.

The remainder of the planned road segments and intersections can be feasibly improved to mitigate traffic impacts if there is adequate local, County, state and federal funding.

PROPOSED 2035 GENERAL PLAN FREEWAY INTERCHANGE CONDITIONS

Dinuba Avenue and State Route 99

The proposed interchange is a new connection to SR 99 and is spaced approximately 1.3 miles north of the existing Floral Avenue interchange and 1.3 miles south of the existing Manning Avenue interchange. The proposed interchange and the proposed modification of the SR 43 alignment will provide an alternative to the Floral Avenue interchange. It is anticipated that an L-9 interchange configuration will provide acceptable operations. The special considerations in the design of this interchange will include realigning Dinuba Avenue and DeWolf Avenue to minimize the number of bridges that are to be constructed and to maximize the distance between the interchange and adjacent intersections. Also to be considered is the desirability of connecting SR 43 directly to the interchange, rather than connecting it to Dinuba Avenue west of the interchange as presented in the Circulation Plan. A conceptual interchange layout is presented in Figure 3.15-13, Conceptual Interchange Layout, Dinuba Avenue and State Route 99.

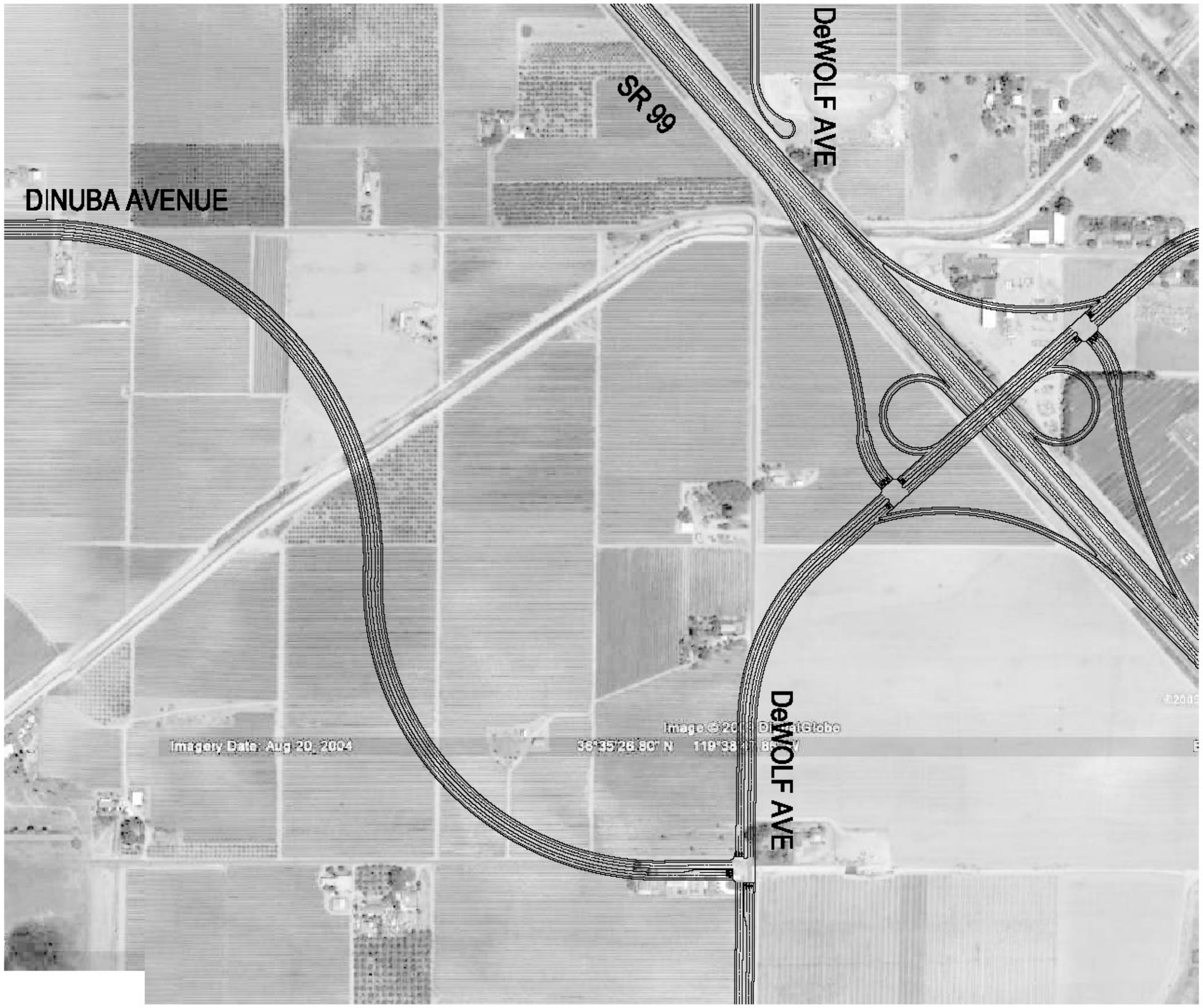
Floral Avenue / Highland Avenue and State Route 99

The Floral Avenue / Highland Avenue interchange with SR 99 was the subject of an interchange analysis report dated July 16, 2008 by Peters Engineering Group. The report presented several interchange alternatives to increase capacity and to accommodate development in the vicinity of the interchange. The results were discussed with Caltrans staff and the configuration illustrated in the attached Figure 3.15-14, Conceptual Interchange Layout, Floral Avenue/Highland Avenue and State Route 99, are considered to be a feasible improvement. Additional intersection analyses utilizing the 2035 General Plan traffic volumes are included in Appendix E of Appendix J and indicate that the intersection of Floral Avenue and the southbound SR 99 ramps is expected to operate at a substandard LOS. The intersection of Floral and Highland Avenues is also expected to operate at a substandard LOS.

To operate at acceptable LOS, the interchange would require a major reconstruction that would likely affect access to adjacent properties and may require additional right of way.

2nd Street and State Route 99

The intersection analyses indicate that the interchange is expected to require signalization to operate at acceptable levels of service. It is not anticipated that significant physical modifications will be required.



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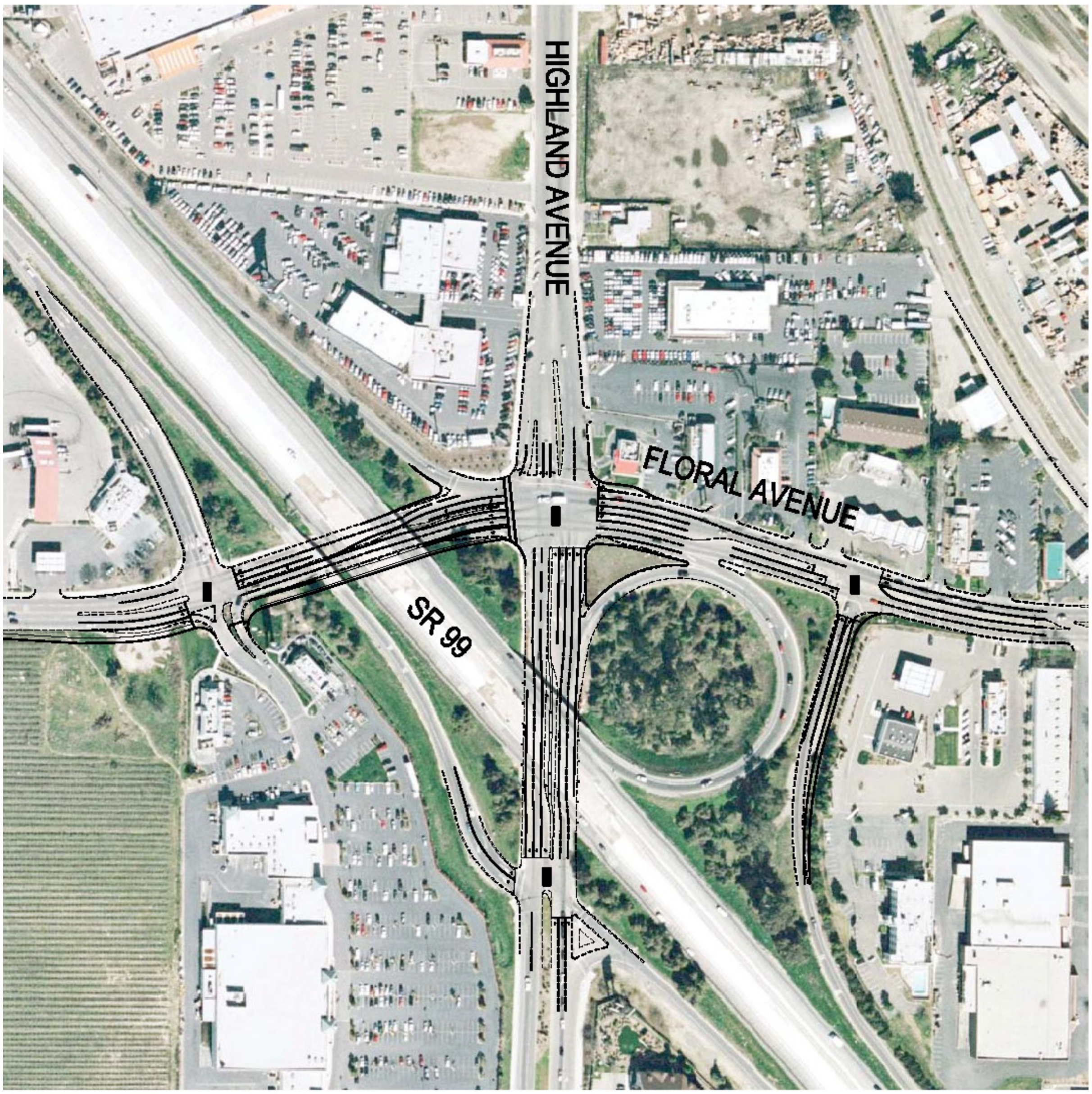
CONCEPTUAL INTERCHANGE LAYOUT
DINUBA AVENUE AND STATE ROUTE 99

Figure
3.15-13



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CONCEPTUAL INTERCHANGE LAYOUT
FLORAL AVE/HIGHLAND AVE AND SR 99

Figure
3.15-14

Mountain View Avenue and State Route 99

The Mountain View Avenue interchange with SR 99 is located adjacent to planned commercial areas and is expected to experience a significant increase in traffic volumes with implementation of the Plan Update. Caltrans District 6 staff recently indicated that full cloverleaf interchanges are not preferable due to weaving issues, and that an L-9 interchange is the most likely to be constructed at this location. A conceptual interchange layout is presented in Figure 3.15-15, Conceptual Interchange Layout, Mountain View Avenue and State Route 99. The interchange design will need to include consideration of the adjacent intersection of Mountain View Avenue and Golden State Boulevard, including potential grade separations and connector roads.

Study Roadway Segments

Road segment analyses were based on the Florida Department of Transportation Generalized Q/LOS Tables. The Florida road segment tables were developed based on procedures outlined in the HCM and they are widely utilized in the Central Valley as an acceptable method for analysis of road segments.

Florida Department of Transportation, *Quality/Level of Service Handbook, 2002,* Table 4-4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (Non-State Roadways, Major City/County Roadways) was utilized in the analysis. The table is attached in Appendix A of Appendix J. Table 3.15-9 presents the specific volume thresholds used in the analyses.

Table 3.15-9
Volume Thresholds for Roadway Levels of Service

Lanes	Median	A	B	C	D	E	F
2	Undivided - No LT lanes	-	-	≤696	697 – 1,112	1,113 – 1,184	>1,184
2	Undivided with LT lanes	-	-	≤870	871 – 1,390	1,391 – 1,480	>1,480
2	Divided with LT lanes	-	-	≤913	914 – 1,459	1,460 – 1,554	>1,554
4	Undivided - No LT lanes	-	-	≤1,522	1,523 – 2,212	2,213 – 2,340	>2,340
4	Undivided with LT lanes	-	-	≤1,928	1,929 – 2,802	2,803 – 2,964	>2,964
4	Divided with LT lanes	-	-	≤2,030	2,031 – 2,950	2,951 – 3,120	>3,120
6	Divided with LT lanes	-	-	≤3,170	3,171 – 4,450	4,451 – 4,690	>4,690

Reference: Florida Department of Transportation Table 4-4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (Non-State Roadways, Major City/County Roadways)

The results of the year 2035 road segment analyses are summarized in the Road Segment Analysis Table presented in Appendix D of Appendix J. The Road Segment Analysis Table combines the existing-conditions analyses and the year 2035 analyses. The number of lanes assumed in the Road Segment Analysis is presented in the Table.

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CONCEPTUAL INTERCHANGE LAYOUT
MOUNTAIN VIEW AVE AND STATE ROUTE 99

Figure 3.15-15

PROPOSED 2035 GENERAL PLAN ROADWAY SEGMENT CONDITIONS

Virtually all of the planned roadways are expected to operate at acceptable levels of service with their current planned functional classification; however, the following road segments are expected to require additional lanes and it is recommended that the designation be upgraded to "Major Arterial":

- Floral Avenue between Leonard and Dockery Avenues;
- Mountain View Avenue between Dockery and Bethel Avenues.

With these added lanes, these to roadways will operate at an acceptable level of service.

Several road segments are expected to operate at substandard levels of service due to existing physical constraints, such as existing curb, gutter, sidewalk, and adjacent development makes constructing the full width of the planned roadway section infeasible. The following locations are considered to be constrained, with the associated level of service presented in parentheses:

- Floral Avenue between Leonard and Dockery Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";

- Mountain View Avenue between Dockery and Bethel Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";

- Nebraska Avenue between Highland Avenue and 2nd Street (LOS F);

- McCall Avenue between Floral Avenue and Arrants Street (LOS F);

- McCall Avenue between Whitson Street and approximately Blaine Avenue (LOS F);

- Whitson Street between Thompson and Nebraska Avenues (LOS F);

- 2nd Street between Nebraska and McCall Avenues (LOS F).

Conclusion: Generally accepted traffic engineering principles and methods were employed to analyze current traffic conditions and those expected to occur with implementation of the proposed 2035 Plan Update. The traffic conditions analysis has concluded that the proposed Circulation Map is generally expected to provide for efficient movement of traffic through the City of Selma with modifications to the plan expected to be required as follows:

- Floral Avenue between Leonard and Dockery Avenues should be upgraded to a "Major Arterial";

- Mountain View Avenue between Dockery and Bethel Avenues should be upgraded to a "Major Arterial";

- The alignments of Dinuba Avenue and DeWolf Avenue should be modified adjacent to the proposed Dinuba Avenue interchange in accordance with the conceptual interchange layout drawing presented herein.

Absent funding guarantees or a reliable funding the traffic impacts associated with build-out Plan are considered **significant.**

Mitigation Measure #3.15.3.1a: Table 3.15-5 through 3.15-7 indicates the recommended number of travel lanes for each of the road segments analyzed to keep traffic levels-of-service at the City's preferred LOS "C" or "D". Implementation of these projects will permit the City to manage its traffic volumes at Level "C" or "D" service.

Mitigation Measure #3.15.3.1b: The City of Selma shall establish standard lane configurations at intersections, similar to those presented in Figure 3.15-8 through Figure 3.15-10. Dual left-turn lanes shall be considered at the following locations:

- Manning and DeWolf Avenues (westbound and northbound)
- Manning and McCall Avenues (all approaches)
- Dinuba and DeWolf Avenues (location depends upon interchange configuration)
- Dinuba Avenue and Golden State Boulevard (all approaches)
- Dinuba and McCall Avenues (all approaches)
- Floral and Highland Avenues (eastbound and westbound)
- Floral Avenue and Whitson Street (northbound)
- Nebraska and Highland Avenues (all approaches)
- Mountain View and Highland Avenues (all approaches)
- Mountain View and McCall Avenues (all approaches)
- Mountain View Avenue and Golden State Boulevard (all approaches, or grade separation - see discussion below).

The intersection of Mountain View Avenue and Golden State Boulevard is expected to require special treatment and further study for construction of a grade separation for the existing railroad tracks.

Mitigation Measure #3.15.3.1c: The City of Selma shall implement the following modifications to the plan as required:

- Floral Avenue between Leonard and Dockery Avenues should be upgraded to a "Major Arterial";

- Mountain View Avenue between Dockery and Bethel Avenues should be upgraded to a "Major Arterial";

- The alignments of Dinuba Avenue and DeWolf Avenue should be modified adjacent to the proposed Dinuba Avenue interchange in accordance with the conceptual interchange layout drawing presented herein.

Mitigation Measure #3.15.3.1d: The City of Selma shall implement the following freeway interchange improvements:

- **Dinuba Avenue and State Route 99.** The proposed interchange is a new connection to SR 99 and is spaced approximately 1.3 miles north of the existing Floral Avenue interchange and 1.3 miles south of the existing Manning Avenue interchange. The proposed interchange and the proposed modification of the SR 43 alignment will provide an alternative to the Floral Avenue interchange. It is anticipated that an L-9 interchange configuration will provide acceptable operations. The special considerations in the design of this interchange will include realigning Dinuba Avenue and DeWolf Avenue to minimize the number of bridges that are to be constructed and to maximize the distance between the interchange and adjacent intersections. Also to be considered is the desirability of connecting SR 43 directly to the interchange, rather than connecting it to Dinuba Avenue west of the interchange as presented in the Circulation Plan. A conceptual interchange layout is presented in Figure 3.15-13, Conceptual Interchange Layout, Dinuba Avenue and State Route 99.

  The proposed interchange will require a substantial amount of additional study to gain approval from Caltrans and to determine the actual interchange design. More detailed studies are beyond the scope of this study and will require coordination between City staff and Caltrans staff.

- **Floral Avenue / Highland Avenue and State Route 99.** The Floral Avenue / Highland Avenue interchange with SR 99 was the subject of an interchange analysis report dated July 16, 2008 by Peters Engineering Group. The report presented several interchange alternatives to increase capacity and to accommodate development in the vicinity of the interchange. The results were discussed with Caltrans staff and the configuration illustrated in Figure 3.15-14 of the Draft EIR, Conceptual Interchange Layout, Floral Avenue/Highland Avenue and State Route 99, are considered to be a feasible improvement. Additional intersection analyses utilizing the 2035 General Plan traffic volumes are included in Appendix E of Appendix F and indicate that the intersection of Floral Avenue and the southbound SR 99 ramps is expected to operate at substandard LOS. The intersection of Floral and Highland Avenues is also expected to operate at substandard LOS.

  To operate at acceptable LOS, the interchange would require a major reconstruction that would likely affect access to adjacent properties and may require additional right of way.

- **2nd Street and State Route 99.** The intersection analyses indicate that the interchange is expected to require signalization to operate at acceptable levels of service. It is not anticipated that significant physical modifications will be required.

- **Mountain View Avenue and State Route 99.** The Mountain View Avenue interchange with SR 99 is located adjacent to planned commercial areas and is expected to experience a significant increase in traffic volumes with implementation of the proposed General Plan. Caltrans District 6 staff recently have indicated that full cloverleaf interchanges are not preferable due to weaving issues, and that an L-9 interchange is the most likely to be constructed at this location. A conceptual interchange layout is presented in Figure 3.15-15, Conceptual Interchange Layout, Mountain View Avenue and State Route 99. The interchange design will need to include consideration of the adjacent intersection of Mountain View Avenue and Golden State Boulevard, including potential grade separations and connector roads.

Freeway interchanges in the City of Selma are expected to require upgrades to accommodate the implementation of the General Plan. The proposed interchange will require a substantial amount of additional study to gain approval from Caltrans and to determine the actual interchange design. Conceptual upgrades are discussed above; however, more detailed studies at each location will be required to implement.

Mitigation Measure #3.15.3.1e: Several constrained intersections and road segments are expected to operate at substandard levels of service with implementation of the proposed General Plan, primarily because the intersections and the adjacent properties are already developed. Projects that directly impact these intersections shall incorporate trip and transportation demand reduction techniques to reduce the severity of this impact, including the following:

- Ridesharing programs for employees.
- Enhanced transit access.
- Enhanced bikeway access and storage.
- Employee shift changes that are not in the PM peak hour.

The following locations are considered to be constrained:

- **Intersections:**

  - Floral Avenue and SR 99 Southbound Ramps (LOS E even with improvements);
  - Floral and Highland Avenues (LOS F even with improvements);
  - Floral Avenue and Whitson Street (LOS F);
  - Floral and McCall Avenues (LOS F);
  - Nebraska and Thompson Avenues (LOS E);
  - 2nd and Whitson Streets (LOS F).

- **Road Segments:**

  - Floral Avenue between Leonard and Dockery Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";

  - Mountain View Avenue between Dockery and Bethel Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";

  - Nebraska Avenue between Highland Avenue and 2nd Street (LOS F);

  - McCall Avenue between Floral Avenue and Arrants Street (LOS F);

  - McCall Avenue between Whitson Street and approximately Blaine Avenue (LOS F);

  - Whitson Street between Thompson and Nebraska Avenues (LOS F);

- 2nd Street between Nebraska and McCall Avenues (LOS F).

Mitigation Measure #3.15.3.1f: The City of Selma shall implement a transportation impact fee to implement the Circulation Element. Impact fees for such facilities have been implemented by communities statewide are a recognized form of mitigating impacts and fairly apportioning the cost of needed facilities. Overall facility costs are estimated (and regularly updated), and compared to State, County, local and federal funding sources, with the unfunded balance allocated to new development. Each land use is allocated a share of the costs based on its proportional contribution to traffic generation (e.g., average daily trips or peak hour trips).

As an alternative, and in the interim, individual projects shall mitigate such impacts through the dedication of right of way and the construction of facilities needed to support their "opening day" operations, and the cumulative buildout impact in the year 2035.

Mitigation Measure #3.15.3.1g: Traffic studies should be performed to satisfy the requirements of the California Environmental Quality Act (CEQA) for all developments in the City of Selma. Traffic studies should be performed for all proposed General Plan Amendments, proposed specific plans, and projects expected to generate more than 100 PM peak hour trips. Future traffic studies should generally conform to the Caltrans *Guide for the Preparation of Traffic Impact Studies* and any guidelines established by the City. The studies should be performed to determine opening-day impacts of proposed projects. The studies should address queue lengths and (at a minimum) peak-hour traffic signals warrants in addition to LOS and provide appropriate mitigations. At the discretion of the City Engineer, a complete warrant study in accordance with the most recent edition of the California Manual on Uniform Traffic Control Devices may be required to evaluate the need for traffic signals.

Effectiveness of Mitigation: Implementation of the above mitigation measures will reduce traffic impacts resulting from implementation of the 2035 Plan Update to a **less than significant** level. However, several intersections and roadways segments are infeasible to improve (as enumerated in Mitigation Measure 3.15.3.1e). Additional mitigations are recommended to lessen the severity of these impacts, but it is expected that they will not reduced to a level that is less than significant. The traffic impacts associated with buildout are therefore considered to be **significant and unavoidable.**

3.16 Utilities/Service Systems

INTRODUCTION

This section describes the water, wastewater, storm drainage, and solid waste service in Selma and also discusses potential environmental impacts related to those services from the General Plan Update.

3.16.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) authorizes the United States Environmental Protection Agency to set national health-based standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and human-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require particular methods for treating water to remove contaminants for all water providers in the United States, except for private wells serving fewer than 25 people. In California, the State Department of Health Services conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

EPA "Phase II" Storm Water Drainage

The EPA established a March 2003 deadline for permit application for the Storm Water National Pollutant Discharge Elimination System (NPDES) Phase II Rule implementation. Municipal Separate Storm Sewer Systems (MS4s) serving a population of less than 100,000 and located in an urbanized area or designated by the permitting authority (the local regional water quality control board) are covered by the Phase II Rule. "Designated Cities" are required to submit an application for a Phase II permit that must include a Storm Water Management Program/Plan addressing the six minimum control measures as follows:

1. Public education and outreach on storm water impacts
2. Public involvement/participation
3. Illicit discharge detection and elimination
4. Construction site storm water runoff control
5. Post-construction storm water management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations

Designated Cities are responsible for preparing a storm water management program that specifies Best Management Practices (BMPs) for the six minimum control measures. While the regulations do not necessarily require Phase II permits to address industrial discharges, it should be anticipated that the Regional Board will attempt to place this responsibility upon the City.

STATE AND LOCAL

California State Water Resources Control Board

Responsibility for administering California water rights procedures lies with the California State Water Resources Control Board (SWRCB), which also is responsible for managing and administering various federal and state water quality control programs. Procedures are provided by statute, but the board has the authority to establish rules and regulations to help it carry out its work. All board activities are governed by state water policy and are administered in accordance with policies and procedures in the California Water Code.

The SWRCB carries out its water quality protection authority through the adoption of specific Water Quality Control Plans (Basin Plans). These plans establish water quality standards for particular bodies of water or their watersheds. California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The SWRCB recently adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SWRCB 2005). This policy provides implementation measures for quantified objectives contained in the California Toxics Rule, promulgated in May 2000 by the EPA. When combined with the beneficial use regulations in the Basin Plan, these documents establish statewide water quality standards for toxic constituents in surface waters.

California Water Code

The California Water Code establishes the foundation for acquisition and protection of water rights. These water doctrines, with some originating hundreds of years ago, remain relevant to current water law discussions to varying extents, and they have been used by the courts over the years to resolve conflicts and establish precedents.

Rights to groundwater are more complex and groundwater as a resource is generally considered in three separate classes: (1) as stream underflow, (2) as definite underground streams, and (3) as percolating waters. The first two are treated legally as surface water, and all underground water is considered percolating water unless proven otherwise.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act regulates the discharge of waste into waters of the state. The Regional Water Quality Control Board (RWQCB) administers this regulation. Water Code Section 13260 requires “any person discharging, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge.” A Report of Waste Discharge (“RWD”) is an application for Waste Discharge Requirements (“WDRs”). WDRs contain conditions imposed on a given discharge by the appropriate RWQCBs for the purpose of protecting the beneficial uses of the waters of the state. Upon receipt of a RWD, the RWQCB may issue WDRs imposing conditions on the proposed discharge, or it may waive the requirement for WDRs.

SB 610 and SB 221

Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) amend State law to better coordinate local water supply and land use decisions, and ensure adequate water supply for new development. Both statutes require detailed information regarding water availability to be provided to City and County decision makers prior to approval of specified large development projects. Both statutes also require this detailed information be included in the administrative record that serves as the evidentiary basis for an approval action by the City or County on such projects. Both measures recognize local control and decision-making regarding the availability of water for projects and the approval of projects.

California Regional Water Quality Control Board

The California RWQCB has the regulatory authority to oversee and maintain the discharge of waste into surface waters such as rivers, creeks, streams, and canals. The requirements serve as the Federal NPDES permit. The RWQCB also works to obtain coordinated action in water quality control, including prevention and abatement of water pollution and nuisances.

Groundwater Management Act

The Groundwater Management Act, Assembly Bill 3030 (AB 3030), signed into law in 1992, established provisions by which local water agencies could develop and implement groundwater management plans (GMP's).

National Pollutant Discharge Elimination System Program

The State Water Resources Control Board (SWRCB) is responsible for implementing the federal Clean Water Act, and does so through issuing NPDES permits to Cities and Counties through regional water quality control boards. Selma is within the Central Valley Regional Water Quality Control Board's (CVRWQCB) boundary. Of the two permitting options for storm water discharges allowed under federal regulations (individual permits and general permits), the SWRCB elected to adopt a state-wide general permit.

Integrated Waste Management Act

In 1989, the State of California passed the Integrated Waste Management Act. This Act, Assembly Bill 939 (AB 939), required all California cities and counties to implement programs to reduce landfill tonnage by 25 percent by the end of 1995, and 50 percent by the end of 2000. Selma reached the 50% waste reduction requirement partially through the introduction of the separate container collection system. Since then, additional partnerships have been established to reduce the amount of waste throughout the community. In 2006, Selma Disposal and Recycling Inc. and the Selma Unified School District created a recycling program in the school system that diverted over 50 tons of paper from local landfills.

Selma-Kingsburg-Fowler County Sanitation District

The Selma-Kingsburg-Fowler County Sanitation District (SKFCSD) provides wastewater treatment services to the Cities of Selma, Kingsburg, and Fowler, as well as to the unincorporated areas along the corridor between the cities. The SKFCSD is a public agency, which was formed in February 1971 by the Fresno County Board of Supervisors through authority granted in the County Sanitation Districts Act and the State of California Health and Safety Code. The purpose of this special district is to provide for the collection, treatment, and disposal of wastewater emanating from the residential, commercial, institutional, and industrial dischargers within the service area. The SKFCSD is in the process of updating its capital facilities plan.

General Plan Consistency

The Plan Update contains a number of policies that apply to utilities and service system impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use, Circulation, Public Services and Facilities, Open Space, Conservation and Recreation and Safety Elements of the General Plan are designed to ensure that utilities and service system impacts are minimized as development occurs in accordance with the proposed General Plan Update.

<u>Land Use Element</u>

Policy 1.8 New development in the community should be sequential and contiguous to existing development, to ensure the orderly extension of municipal services and preservation of an adequate circulation system.

Policy 1.9 While the City prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development greater than ½ mile from existing urban uses should be discouraged. Such development should be required to submit an analysis of the fiscal and service impacts the development would have upon the City.

Policy 1.13 The City shall discourage extension of urban services for land which will not be annexed into the City for greater than one year, except when required to eliminate health and safety problems in existing developments.

Policy 1.17 Within one year of adoption of the General Plan, the City shall review its Capital Improvements Program to ensure that planned improvements are consistent with the Plan.

Policy 1.43 The City shall monitor and update plans for public streets and utilities, particularly as they pertain to new commercial areas.

Policy 1.44 The City shall assist in the planning of privately owned public utilities.

Policy 1.74 The City shall monitor and update plans for public streets and utilities, particularly as they pertain to new industrial areas. The City shall also assist in the planning of privately owned public utilities. Provision of planning services and infrastructure is essential to providing adequate land for industrial development.

Policy 1.92 Residential development at urban densities shall be located only where services and facilities can be provided.

Policy 1.94 Development shall be allowed only in areas that already have urban services or are within a master plan to provide those services. Development of lands outside of current service or master plan areas (such as the SKF Sewer District, City of Selma Master Plan for Storm Drainage Area, etc.) may be considered if the following findings can be made:

a. The development will not cause a shortfall, either short- or long-term in the financing of any public facility.

b. The development will not significantly delay the provision of a public improvement.

c. The development will not accelerate the need for a public improvement beyond the ability of the improvement fund to adjust for the improvement.

d. Expansion of the master plan area and/or public facility will not result in the City being unable to maintain existing facilities at their current service levels.

e. Notwithstanding the improvements proposed by any development, all developments will be required to contribute their pro rata share towards the completion of established Master Plan improvements.

Policy 1.96 Establish Urban Development Boundaries as urbanizable areas within which a full-range of urban services will need to be extended to accommodate urban development. These boundaries shall be established based on the following factors:

a. Adequate residential, commercial and industrial capacity for the planning period.

b. Inclusion of at least a 50 percent vacancy factor ("flexibility factor") for residential and commercial development.

c. Provision of adequate industrial land.

d. Adequacy of infrastructure including existing and planned capacity of water and sewer facilities, school, roadways, and other urban services and facilities.

e. Community growth priorities.

Circulation Element

Policy 2.59 The City will encourage coordination of major transmission and canal facilities in the community and, where possible, integrate such facilities into the recreation, open space and conservation element plans of the community.

Safety Element

Policy 4.18 The City shall continue to implement and administer the Master Plan for Storm Drainage as a means of offsetting increased storm water runoff from urbanization.

Policy 4.34 The City shall continue to monitor and coordinate the water supply system with California Water for fire protection purposes to include the water supply for both peak load and emergency use. Areas of substandard water supply should be identified, and system improvements completed prior to and in conjunction with new development in the area.

Open Space, Conservation and Recreation Element

Policy 5.2 Encourage all construction wastes generated from new construction and demolition to be recycled.

Policy 5.3 Encourage reduction of the City's peak electrical load by 10% through energy efficiency, shifting the timing of energy demands, and conservation measures.

Policy 5.6 Continue to implement "user-friendly" recycling and composting programs, with the goal of 75% reduction of solid waste disposal to the landfill in compliance with State mandates.

Policy 5.7 Maintain Rockwell Pond as both a resource management area (water recharge) and community open space.

Policy 5.13 Require correction of local storm water ponding conditions prior to development in such areas, either through off-site improvements provided by land developers, or through community storm drain facility capital improvement projects.

Policy 5.18 The City shall endeavor to mitigate, to the fullest extent feasible, activities which will exacerbate groundwater overdraft.

Public Services and Facilities Element

Policy 6.1 Coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms including assessment district, property owner's association's user fees, development impact fees, mitigation payments, reimbursement agreements and/or other mechanisms which provide for equitable distribution of development and maintenance costs.

Policy 6.2 Require the development and extension of infrastructure to proposed developments according to adopted elements and master plans. Projects that are not contiguous to existing urban development shall be required to assess the cumulative impact of all non-contiguous development.

Policy 6.3 Temporary drainage facilities may be constructed by the developer if the major facilities are not available, subject to City determination and approval. The developer will also be required to pay all applicable drainage fees in addition to constructing temporary facilities at his/her own cost.

Policy 6.4 In order to address sewer constraints, new developments shall demonstrate that adequate sewer capacity exists prior to development or that mitigation measures will ensure that sewer capacity will be created as part of the project. Mitigation measures may include installation of necessary facilities or other methods acceptable to the City.

Policy 6.10 Capital improvements shall be undertaken to eliminate existing flooding problems.

Policy 6.11 All new developments shall be required to have community sewer, water and storm water systems.

WATER

Water Supply System

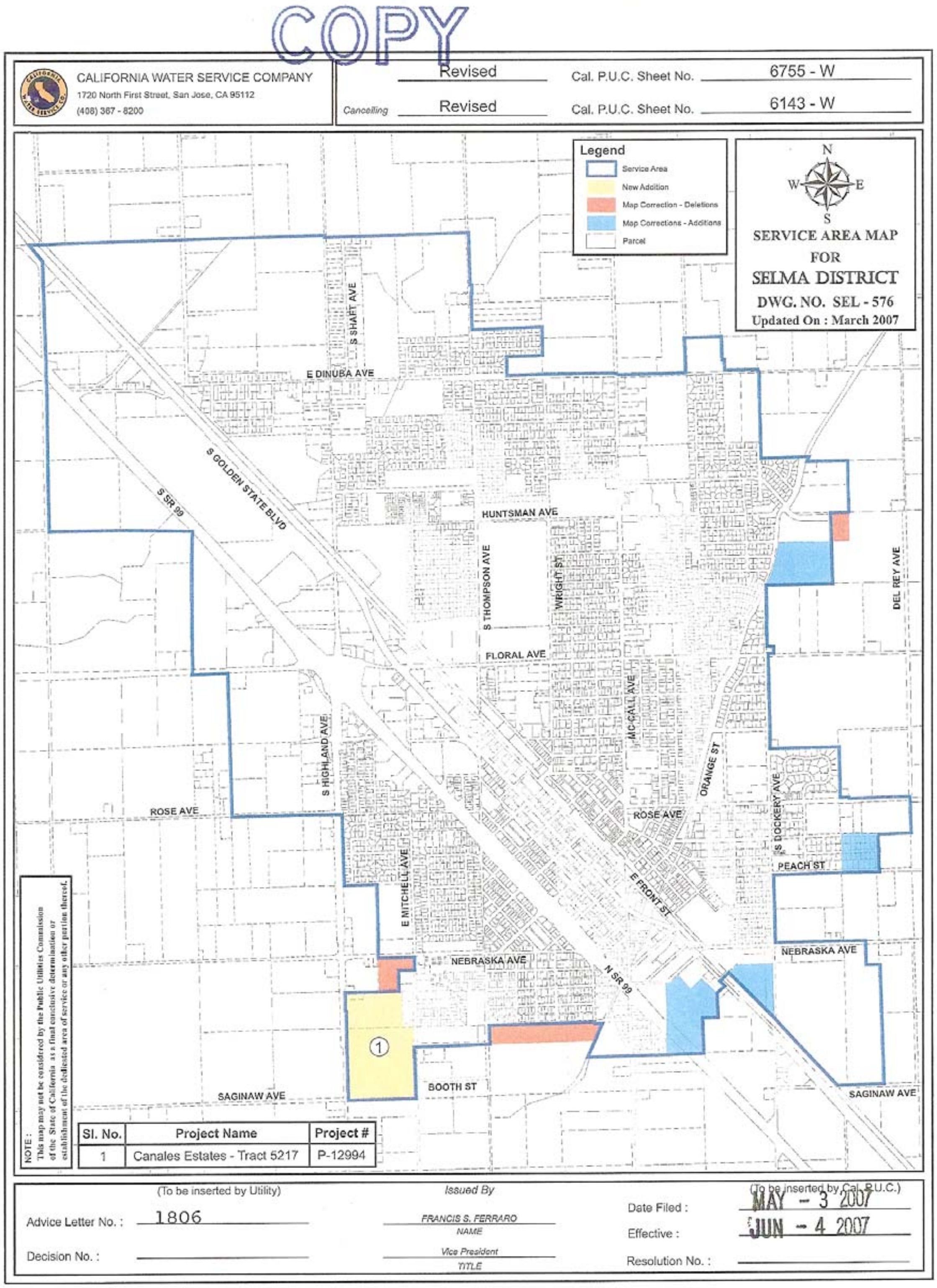
Water Supply System information was obtained from the Selma General Plan Update Background Report. Cal Water provides water service within the Selma City limits and to a small neighboring area of Fresno County (reference Figure 3.16-1). Water from the system comes from 12 active groundwater wells with a total maximum production capacity of about 13 million gallons per day (mgd), which equals approximately 9,028 gallons per minute (gpm). The maximum daily demand is 12 mgd, and the Daily Average Demand is 5.9 mgd.

Treatment/Pumping System

The City does not have a treatment/pumping plant. Ground water is chlorinated at the wells as it is discharged into the system. At Well 14, the water is also run through a Granulated Activated Carbon (GAC) filtration system due to elevated levels of the contaminant DBCP, an agricultural pesticide that is a suspected carcinogen and can, at high enough levels, cause sterility in human males. Water pressure in the system is maintained by the well pumps, the City's above-ground storage tank, and a series of booster pumps that activate as needed.

Distribution System

Selma's water distribution system consists of a single 1 million gallon above-ground storage tank, 534 fire hydrants, 1,765 main line valves and 80 miles of water main. There are approximately 6,000 service connections, 507 of which are commercial and 19 of which are industrial. Water is distributed from the City's storage tank through asbestos cement, PVC, ductile iron, and steel mains. Pipe sizes are 4", 6", 8", 12", and 16". The system operates with a pressure ranging from 50 to 60 pounds per square inch (psi).



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WATER DELIVERY SYSTEM
SERVICE AREA

Figure
3.16-1

Demand

The system is adequate to satisfy current demand and provide required Uniform Fire Code fire flows, but it is expected that new wells and other facilities will be needed to keep ahead of demand. The current maximum capacity of the City's water system is about 13 mgd and the maximum daily demand is 12 mgd (average daily demand is 5.9 mgd). Therefore, the City's water system has an excess capacity of about 1 mgd at peak demand, and is operating at about 92 percent capacity. Major residential water users in the City include McCall Village mobile home park, Shadowbrooke apartments, and the mobile home park at 2561 Stillman.

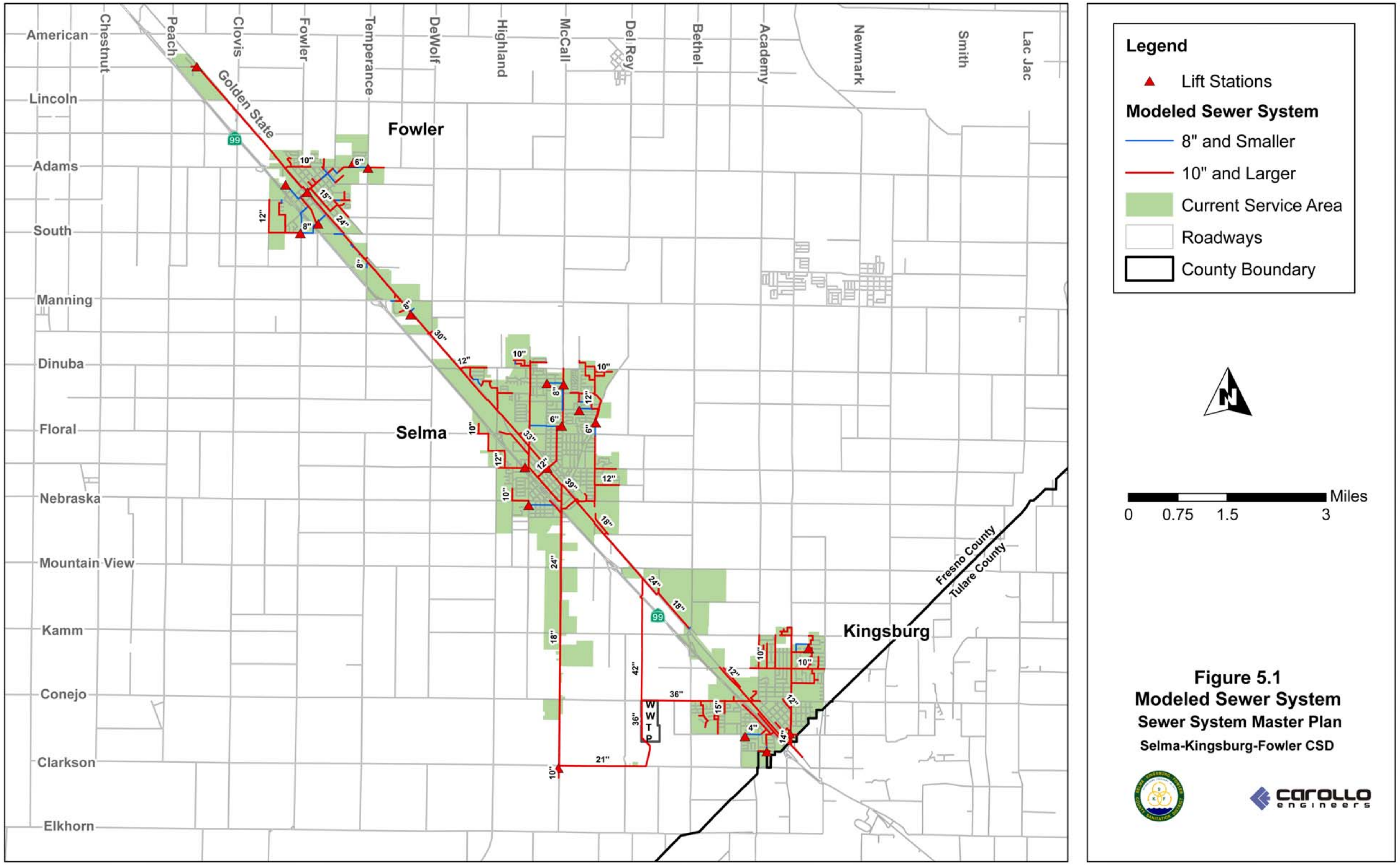
Sanitary Sewer System

Sanitary Sewer System information was obtained from Carollo Engineers' September 2006 *Selma-Kingsburg-Fowler Sanitation District 2006 Sewer System Master Plan*, the June 2006 *Wastewater Treatment and Disposal Capacity Evaluation* by Whitley Burchett & Associates, and conversations and correspondence with staff at the Selma-Kingsburg-Fowler (SKF) Sanitation District.

COLLECTION SYSTEM

The Selma-Kingsburg-Fowler County Sanitation District (SKF CSD) provides sanitary sewer service to an area covering Selma, Kingsburg, Fowler, and some surrounding areas as shown in Figure 3.16-2. SKF CSD owns the wastewater treatment plant (WWTP) and some of the property surrounding the plant, as well as the system's "interceptor" sewer lines and four pump stations. Each city owns its own local sewer collection system (which drains to the interceptors) including sewers, pump stations, and other appurtenances. The District operates and maintains each city's facilities, and refurbishes and replaces them to the extent that funds are available. Each City is responsible for expanding the facilities it owns. Figure 3.16-3 shows the system's tributary areas and proposed lift stations, trunk lines, and interceptor lines from the 2006 Sewer System Master Plan.

The backbone of the system is the Golden State Interceptor. It begins north of Fowler and runs through Selma parallel to SR 99 in the Golden State Boulevard right-of-way. It is approximately 14 miles long and, in its lower reach along Amber Avenue, conveys about 63 percent of the average daily flow as measured during a recent flow monitoring program. This line, plus two parallel 18- and 24-inch lines running south down McCall Avenue, carries wastewater flow out of Selma to the WWTP, which is located approximately half a mile west of Kingsburg. Within Selma, the Golden State Interceptor starts as a 30-inch diameter pipe, increases to a 33-inch diameter pipe at Dinuba Avenue, to a 39-inch diameter pipe at the North Street lift station, and to a 42-inch diameter pipe at Nebraska Avenue and continues at this diameter to the WWTP. There are several other lines within Selma larger than 10 inches, but most of the rest of Selma's collection system consists of lines 8 inches or smaller. Selma's SKF collection system drains to the treatment plant via gravity and seven sewer lift stations.



Source: Carollo Engineers, September 2006

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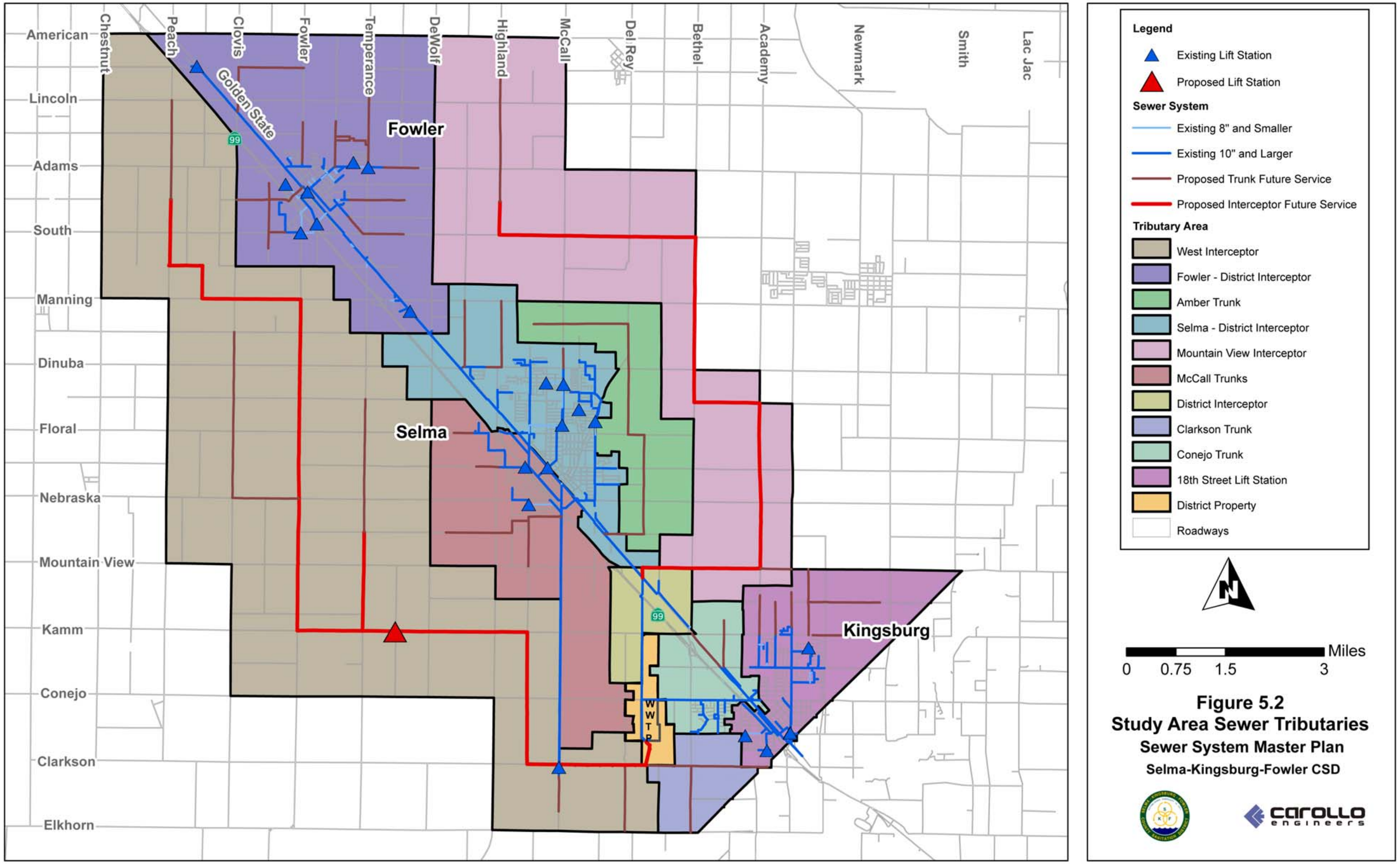
SEWER SYSTEM

Figure 3.16-2



Source: Carollo Engineers, September 2006

Quad Knopf	SEWER SYSTEM TRIBUTARIES	Figure 3.16-3

The 2006 Sewer System Master Plan identifies certain improvements to existing sewer lines and lift stations needed to address existing capacity deficiencies. It estimates that these improvements will cost about $100 million between 2006 and 2010. Fresno County LAFCO recently prepared a Municipal Services Review (MSR) for Selma which also addresses current sanitary sewer system capacity and the potential need for expansion of the system in light of expected future growth. The MSR found that the District has sufficient time to accommodate 'unprecedented residential growth' planned by the member cities if that growth is spread out over the next six or seven years. Before additional development can be approved, SKF CSD will have to indicate it has sufficient capacity to accommodate such development. SKF CSD has indicated that correcting existing 'bottlenecks' in the wastewater treatment plant will increase its treatment capacity to 6.0 million gallons per day (mgd). SKF CSD is considering plans to expand to 9.0 mgd of treatment capacity" (Fresno County LAFCO, July 2007).

Treatment Plant

The existing SKF CSD WWTP was constructed in the 1970s and is located about three miles south of the developed portion of Selma on the south side of Conejo Avenue.

Capacity

The existing plant is currently permitted for a monthly dry weather discharge flow of 8.0 mgd by the California Regional Water Quality Control Board. The highest annual average day flow between 2001 and 2005 was 3.86 mgd in 2005 and the highest maximum day flow was 6.22 mgd in 2004.

Facilities

The WWTP is operated by SKF and consists of liquids facilities (communitors, channel monsters, grit tanks, aeration basins, secondary clarifiers, effluent pumps, and disposal ponds), solids facilities (a dissolved air flotation thickener, gravity thickener, aerobic digesters, centrifuges, and sludge drying beds), and administrative facilities (Administration Building, Operations and Maintenance Building with laboratory, maintenance shop, and two equipment storage buildings).

Flows

Table 4.5 of the 2006 Sewer System Master Plan lists historical WWTP influent flows for 2001-2005, and shows that annual average day influent flows at the WWTP have steadily increased over that period from an average day flow of 2.74 mgd in 2001 to 3.86 mgd in 2005. The 2006 Sewer System Master Plan states that the system-wide sewage generation rate is approximately 100 gallons per day per person. The average daily generation rate per residential unit is therefore approximately 345 gallons per day (based on an average household size of 3.45 persons as reported in the 2000 US Census). In 2006, the average Biochemical Oxygen Demand (BOD) loading was 601 milligrams per liter (mg/l) per day, while the average Total Suspended Solids (TSS) loading was 401 mg/l per day.

Available Capacity

Based on an annual average day flow in 2005 at the WWTP of 3.86 mgd, 4.14 mgd of the plant's permitted capacity is currently unused. Based on the 2005 average sewage generation rate of 100 gallons per day per person, the treatment plant's reserve capacity is sufficient to accommodate approximately 41,400 additional people or 12,000 new single family residential units (at an occupancy rate of 3.45 persons per unit) within SKF's service area. Table ES.1 of the 2006 Sewer System Master Plan estimates that the population of its service area will increase by 31,640 persons by the year 2025. Using its estimated growth rates of 3.2 percent for Selma (the General Plan assumes 4.0%), 3.1 percent for Kingsburg, and 2.2 percent for Fowler, the WWTP's reserve permitted capacity can accommodate at least the residential portion of growth expected through 2025 as shown in Table 3.16-1.

Table 3.16-1
SKF Service Area Estimated Population Growth

Growth Rates: Selma 3.2%; Kingsburg 3.1%; Fowler 2.2%					
Year	**Selma**	**Kingsburg**	**Fowler**	**Service Area Population**	**Service Area Population Increase from 2005**
2005	22,411	11,237	4,729	38,377	
2006	23,127	11,587	4,831	39,545	1,168
2007	23,865	11,948	4,935	40,748	2,371
2008	24,627	12,319	5,042	41,989	3,612
2009	25,413	12,703	5,151	43,267	4,890
2010	26,225	13,098	5,262	44,585	6,208
2011	27,062	13,506	5,376	45,944	7,567
2012	27,926	13,927	5,492	47,345	8,968
2013	28,818	14,360	5,611	48,789	10,412
2014	29,738	14,807	5,732	50,277	11,900
2015	30,688	15,268	5,856	51,811	13,434
2016	31,668	15,743	5,982	53,393	15,016
2017	32,679	16,233	6,111	55,024	16,647
2018	33,722	16,739	6,243	56,704	18,327
2019	34,799	17,260	6,378	58,437	20,060
2020	35,910	17,797	6,516	60,223	21,846
2021	37,057	18,351	6,657	62,065	23,688
2022	38,240	18,923	6,801	63,963	25,586
2023	39,461	19,512	6,947	65,920	27,543
2024	40,721	20,119	7,098	67,937	29,560
2025	42,021	20,745	7,251	70,017	31,640

Source: Carollo Engineers, September 2006 and Quad Knopf analysis

The plant will, of course, also need to accommodate wastewater flows generated by non-residential uses. If the assumption is made that the proportion of residential to non-residential uses in the service area will stay roughly the same, population growth can be used as a proxy for the growth of all land uses and project total wastewater generation based on population growth. Based on a 2005 service area population of 38,377 (see Table 7-1) and an annual average day flow in that year of 3.86 mgd, the system-wide sewage generation rate for all land uses is 100.6

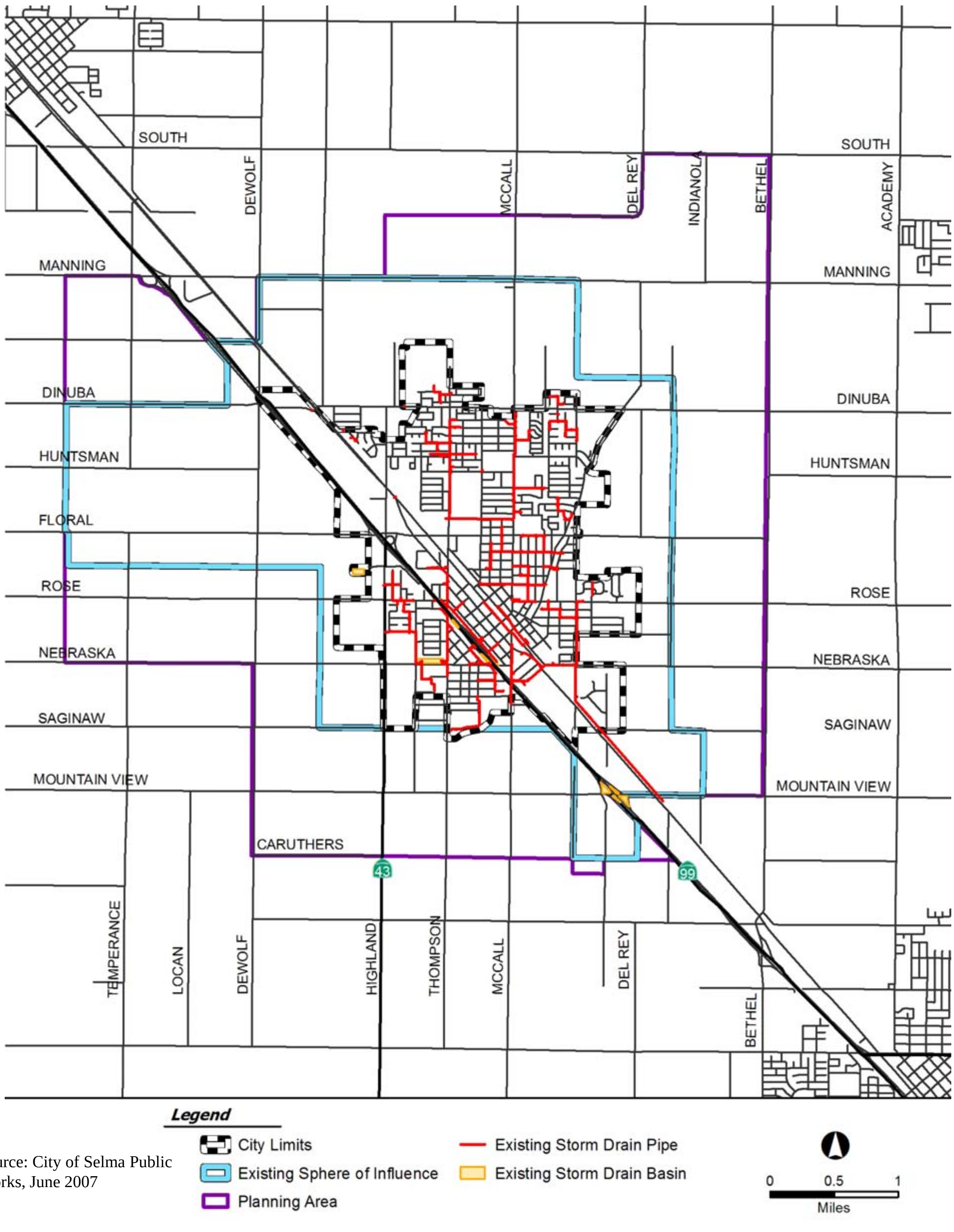
gallons per day per person. The WWTP's 4.14 mgd of currently unused capacity could accommodate a population increase of 41,153 persons under this scenario, which would still easily accommodate population growth in the service area through 2025.

Sludge Disposal

Sludge from the WWTP is dewatered and stockpiled in drying beds. It is then removed once per year and hauled to San Joaquin Composting in Kern County near Lost Hills for composting under WDR N. 5-00158 before being transported to Kings County near Corcoran to be applied for agriculturally beneficial reuse by McCarthy Family Farms under WDR No. 94-215.

Storm Drainage

The City of Selma does not have a history of flooding. According to the Public Services and Facilities Element of the General Plan (City of Selma, July 1983), "Local storm water drainage is provided by a network of ponding basins, canals and storm drains. Most of the newer areas of the community are well drained, however, some of the older areas, such as those bounded by Valley View, Floral, Olive and Thompson Avenues do experience some localized ponding during heavy rain concentrations." The City of Selma's storm drain system consists of surface runoff to streets (curbs and gutters), subsurface storm drainage pipelines, canals and retention basins. Figure 3.16-4 shows a simple schematic of the system.



Source: City of Selma Public Works, June 2007

Quad Knopf	STORM DRAINAGE SYSTEM	Figure 3.16-4

3.16.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project will normally be considered significant if it will:

a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.*

b) *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

c) *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

e) *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*

f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.*

g) *Comply with federal, state, and local statutes and regulations related to solid waste.*

The Initial Study concluded that the project would have less than significant impacts with regard to landfill capacity and compliance with solid waste regulations. Therefore these issues will not be discussed further in this Draft EIR. Reference the Initial Study in Appendix A for additional information.

3.16.3 IMPACTS

Project Impacts and Mitigation Measures

As discussed in the Initial Study and above in the Physical Setting section, existing utilities are sufficient to accommodate the population increase predicted by the proposed General Plan (electricity, natural gas and solid waste disposal). However, future water, wastewater, and storm drainage resources are further evaluated below.

Impact #3.16.3.1 – Exceed wastewater treatment requirements of the Regional Water Quality Control Board: The SKF CSD is required to comply with the RWQCB when expanding the wastewater treatment plant to support the growth anticipated by the Selma General Plan as well as the General Plans of Kingsburg and Fowler and the surrounding Fresno County unincorporated area within SKF's service area.

According to the 2006 Sewer System Master Plan, the current design flow for SKF's current service area is 16.2 mgd and the average day flow is 4.3 mgd. SKF's estimated design flow at current General Plan buildout is 56.2 mgd with average day flow at 16.9 mgd. The Sewer System Master Plan includes a number of sewer improvements planned to correct existing capacity deficiencies or to serve future users.

All planned WWTP improvements must continue to comply with Federal water quality, waste discharge, and total maximum daily load standards defined under the Clean Water Act and the District's discharge permit. The District's future expansions are expected to maintain the necessary quality of runoff required by existing permits for discharge. Therefore, exceeding set CVRWQCB wastewater treatment requirements are not anticipated.

Additionally, policies and standards included as part of the General Plan Update that would address this impact are summarized as follows. Policy 6.1 of the Draft Public Services and Facilities Element calls for the City to coordinate the sewer, water and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms. Policy 6.2 requires the development and extension of infrastructure to proposed developments according to adopted elements and master plans. Policies 6.4 and 6.11 require new developments to demonstrate that adequate sewer capacity exists prior to development or that mitigation measures will ensure that sewer capacity will be created as part of the project. Mitigation measures may include installation of necessary facilities or other methods acceptable to the City. Policy 1.94 of the Draft Land Use Element states development shall be allowed only in areas that already have urban services or are within a master plan to provide those services.

Conclusion: All new development will have to adhere to the policies and standards and rules and regulations of the General Plan and master plans of the SKF CSD. Implementation of the proposed General Plan would not result in the exceedance of the CVRWQCB wastewater treatment requirements. The impact is **less than significant**.

Mitigation Measure: No mitigation measures are required.

Impact #3.16.3.2 – Require the construction of new wastewater facilities or expansion of existing facilities, the construction of which would cause significant environmental effects: Implementation of the proposed General Plan would be expected to result in additional growth requiring additional wastewater treatment capacity. The SKF CSD 2006 Sewer System Master Plan estimates that the population of its service area will increase by 31,640 persons by the year 2025 (based on 2005 population). Using its estimated growth rates of 3.2 percent for Selma, 3.1 percent for Kingsburg, and 2.2 percent for Fowler, the WWTP's reserve permitted capacity can accommodate at least the residential portion of growth through 2025. The planning horizon for the proposed General Plan is 2035 and assumes a 4.0 percent annual growth rate. At 4.0 percent annual growth the City of Selma could have a population of 69,552 by 2035. SKF CSD would have to increase overall capacity some time before the General Plan's planning horizon in order to accommodate growth. The City realizes that while it is planning for 4.0 percent annual growth, actual annual growth could be much lower.

In addition to the policies noted previously under Impact #3.16.3.1, proposed Public Services and Facilities Element Policy 6.4 states, in order to address sewer constraints, new developments shall demonstrate that adequate sewer capacity exists prior to development or that mitigation measures will ensure that sewer capacity will be created as part of the project. Mitigation measures may include installation of necessary facilities or other methods acceptable to the City and SKF CSD.

The City of Selma collects development impact fees and public works fees for the sanitary sewer system. The SKF CSD also collects fees for industrial, commercial and residential sewer service.

Conclusion: The City will implement a variety of policies, as noted above, to address a range of environmental impacts associated with the development of new treatment and conveyance facilities. In addition, the City will ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that will (if technically possible) mitigate any potential environmental impacts to a less than significant level. However, it should be noted these impacts are unknown until a specific project is proposed, and any estimation of impacts is speculative and beyond the scope of this document. Further, the ability to mitigate these potential impacts is contingent on a variety of site-specific factors including the severity of the impact, existing land use conditions, and the technical feasibility of being able to implement any proposed mitigation measures. Due to these uncertainties, potential impacts resulting from the construction and/or expansion of any required wastewater facilities or infrastructure cannot be determined or reliably represented here.

Mitigation Measures: No mitigation measures are required.

Impact #3.16.3.3 – Require the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects: As development occurs, as allowed under the proposed General Plan, there will be a need for additional storm water drainage facilities to collect and dispose of runoff from urban uses. Section 3.8, Hydrology and Water Quality, describes in detail the policies contained in the General Plan to ensure that adequate storm water facilities are provided by new development.

Development can cause significant increases in peak flow and runoff volume. Increases in peak flow and volume can be an additional 50 percent and higher when compared to undeveloped conditions. Due to the lack of peak flow capacity in the minor waterways and channels serving the Planning Area, most new development areas will require additional on-site, local area, or regional flood control facilities to mitigate for potential flow increases. Increasing the capacity of most existing streams and channels is considered impractical. Because of this, flood control detention is considered the most viable option for mitigating the increase in runoff from new development areas where creek capacity is limited.

Regional detention facilities can be used to provide not only flood control storage, but also stormwater quality treatment and, in some circumstances, can also be used as active and passive recreation areas. Regional joint-use basins can provide better land-use efficiency and provide for consolidated maintenance that can reduce overall maintenance costs. At a minimum, the basins should be used to provide flood control and stormwater quality mitigation, but should also be considered for recreational uses, when appropriate.

Policy 4.18 of the Draft Safety Element states the City shall continue to implement and administer the Master Plan for Storm Drainage as a means of offsetting increased storm water runoff from urbanization. Policy 5.13 of the Draft Open Space, Conservation and Recreation Element requires correction of local storm water ponding conditions prior to development in such areas, either through off-site improvements provided by land developers, or through community storm drain facility capital improvement projects.

Because the General Plan is general in nature, the exact location of future storm water drainage facilities is unknown at this time. However, as new development would be required to provide adequate facilities to store storm water runoff on-site, it is anticipated that new facilities will be scattered throughout the City and SOI.

Conclusion: The specific environmental impact(s) of constructing new storm water facilities to support the proposed General Plan Update cannot be determined at this first-tier level of analysis. However, development and operation of new storm water facilities may result in **potentially significant** impacts. Implementation of the various plans, policies and mitigation measures identified throughout this EIR will reduce these impacts to a **less than significant** level. As specific projects including storm water drainage are identified, additional project-specific, second-tier environmental analysis would be completed pursuant to CEQA.

Mitigation Measures: No mitigation measures are required.

Impact #3.16.3.4 – Require new or expanded water entitlements in order to ensure sufficient water supplies: According to the California Department of Water Resources (May 2006), groundwater levels in the region are ample and have exhibited a general upward trend since droughts in 1976-77, and 1987-92. The system is adequate to satisfy current demand and provide required Uniform Fire Code fire flows, but it is expected that new wells and other facilities will be needed over time to keep ahead of demand. The current maximum capacity of the City's water system is about 13 mgd and the maximum daily demand is 12 mgd (average daily demand is 5.9 mgd). Therefore, the City's water system has an excess capacity of about 1 mgd at peak demand, and is operating at about 92 percent capacity.

The Open Space, Conservation and Recreation Element of the proposed General Plan include the following goal and policies in regard to maintaining an adequate water supply and reducing groundwater overdraft. Goal 4 is to preserve groundwater quality and reduce overdraft conditions. Policy 5.7 states that Rockwell Pond shall be maintained as both a resource management area (water recharge) and community open space. Policy 5.18 states the City shall endeavor to mitigate, to the fullest extent possible, activities which will exacerbate groundwater overdraft. Policy 1.94 of the Draft Land Use Element, as mentioned above in the Impact 3.16.3.1 discussion, states that development shall be allowed only in areas that already have urban services or are within a master plan to provide those services. Policy 6.1 of the Draft

Public Services and Facilities Element calls for the City to coordinate the sewer, water and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms. Policy 6.2 requires the development and extension of infrastructure to proposed developments according to adopted elements and master plans.

The recently completed Upper Kings Basin Integrated Regional Water Management Plan (IRWMP) (June 2007) includes goals, regional planning objectives, and specific water management objectives for the region from which local water management policies, projects, and programs can be formulated, evaluated, integrated, and implemented. The Water Forum first worked to develop a consensus on the regional problems, issues, and potential conflicts. Goals and objectives were then established to address these issues and to set the stage for the development of the projects, programs, and actions.

Conclusion: The ground water assessment found as Appendix H concludes that buildout under the Plan Update would result in about 13,000 acre-feet per year less water groundwater consumption than the estimated present consumptive use in the Plan Area. Since there is an adequate groundwater supply which would not be substantially depleted by growth allowed by the proposed General Plan, and with implementation of the policies noted above, the proposed General Plan would not result in insufficient, or depletion of, water supplies. The impact is **less than significant**.

Mitigation Measure: No mitigation measures are required.

Impact #3.16.3.5 – Require the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effect: Based on the projected growth to occur with implementation of the proposed General Plan Update, additional water infrastructure would be needed to pump, treat and distribute water to new development areas. The proposed General Plan Update includes policies to ensure that adequate water infrastructure is available to support this new growth. Policy 6.1 of the proposed Public Services and Facilities Element states the City will coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. Policy 6.2 states the City will require the development and extension of infrastructure to proposed developments according to adopted elements and master plans. Projects that are not contiguous to existing urban development shall be required to assess the cumulative impact of all non-contiguous development. Policy 5.16 of the proposed Open Space, Conservation and Recreation Element supports the use of conservation irrigation technology as well as a water efficient plant palette for all City-owned properties.

While the proposed General Plan Update provides policies to ensure that adequate water infrastructure is provided, it is unknown at this time exactly where new water infrastructure will be placed. Since it will be needed to support new development, water mains will most likely be extended along roadways and other public right-of-ways to ensure easy access for maintenance. New water wells and storage facility locations will be determined by additional studies of hydrology, topography and land use patterns.

Conclusion: The specific environmental impact(s) of constructing new water facilities to support the proposed General Plan Update cannot be determined at this first-tier level of analysis. However, development and operation of new water supply facilities may result in **potentially significant** impacts. Implementation of the various plans, policies and mitigation measures identified throughout this EIR will reduce these impacts to a **less than significant** level. As specific projects including water system improvements are identified, additional project-specific, second-tier environmental analysis would be completed pursuant to CEQA.

Mitigation Measure: No mitigation measures are required.

3.17 Global Climate Change

INTRODUCTION

This section considers the impacts of proposed new land uses within the Selma General Plan Update boundary on greenhouse gas emissions and global climate change, as well as climate change impacts to water supply. The land uses that are proposed in the Plan Update will result in increased generation of CO_2 (a principal greenhouse gas contributing to global climate change).

Proposed additional General Plan areas outside of the Existing General Plan, by land use designation:

- Commercial: 486 acres/Mixed Use: 193
- Very Low and Low Density Residential: 198 acres
- Medium Low and Medium Density Residential: 472 acres
- Medium High and High Density Residential: 76 acres
- Public Facilities: 191 acres

Some land use designations, such as industrial and residential reserve, will decrease in acreage and therefore would not contribute to additional vehicle trips. Figure 2-4 shows the proposed land uses included in the 2035 General Plan Update.

GLOBAL WARMING IMPACTS AND CAUSES

Climate change is widely recognized by scientists throughout the world to be one of the most daunting challenges of our time. Human activities are altering the chemical composition of the atmosphere through the rapid buildup of climate change emissions, primarily carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. According to scientific studies, concentrations of these gasses in the atmosphere are increasing at a rate not experienced for millions of years, although there is some uncertainty about exactly how and when the earth's climate will respond. Scientific observations - in conjunction with climate models - indicate detectable changes are underway.

These observed changes include global rise in the mean air and water temperatures and regional temperature, precipitation, soil moisture, and sea level extremes. All of these changes could have significant adverse effects on water resources and ecological systems, as well as on human health and the economy.

Research suggests that human activities, such as the burning of fossil fuels and clearing of forests, contribute additional carbon dioxide (CO_2) and other heat trapping gas emissions into the atmosphere. Future global climate change could have widespread consequences that would affect many of California's important resources, including its water supply. Projected effects of climate change on California include:

- Increased air pollution.
- Intensified heat waves.
- An expanded range of infectious diseases.
- A decline in the Sierra Nevada snow pack, with resulting impacts on water supply, ecosystems and hydropower.
- A range of agriculture impacts, including expanded ranges for weeds and pests, and a decrease in chill hours required by some of the state's crops.
- A rise in sea level and more severe storm events increasing coastal flooding.
- Increased flooding in river delta and floodplain areas.
- An increase in the risk of large wildfires.

ACTIONS TO REDUCE GLOBAL WARMING

California has taken actions to reduce climate change emissions. The California Energy Commission has adopted energy efficiency standards for buildings and appliances that are the most stringent in the world. CARB has adopted vehicle emissions standards related to climate change that are the first of their kind in the United States. The State's Renewable Portfolio Standard was accelerated by the Governor that requires at least 20 percent of all power used in California be generated by renewable resources by 2010. The California Public Utilities Commission recently adopted a Solar Building Initiative.

Executive Order S-3-05, signed by the Governor on June 1, 2005, established statewide climate change emission reduction targets as follows:

- By 2010, reduce emissions to 2000 levels;
- By 2020, reduce emissions to 1990 levels;
- By 2050, reduce emissions to 80 percent below 1990 levels.

Most recently, the Governor signed Executive Order S-01-07 on January 18, 2007, establishing carbon reduction targets as follows:

- By 2020, reduce carbon intensity in California transportation fuels by at least 10 percent

- In 2006 the Legislature adopted AB 32 as California's "Global Warming Solutions Act" to begin the process of reversing the causes of global warming. (See Chapter 488 Statutes of 2006). This measure directs CARB to develop a statewide greenhouse gas (GHG) emissions cap for 2020 and to develop and implement regulations and market mechanisms to reduce GHG emissions.

Beyond the established statewide goals on emission reductions and caps, other state and regional agencies are developing strategies for incorporating energy efficiency and climate change emissions reduction measures into the policy framework governing land use and transportation. Some local air districts have begun to incorporate climate protection objectives into their ongoing local programs.

3.17.1 REGULATORY AND PHYSICAL SETTING

Regulatory

FEDERAL

There are no specific federal regulations applicable to greenhouse gas emissions and global climate change.

STATE AND LOCAL

This section describes recent state legislation and regulations that specifically address greenhouse gas emissions and global climate change. At the time of writing, there are no regulations setting ambient air quality emissions standards for greenhouse gases.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493, which required that the California Air Resources Board (CARB) develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases by passenger vehicles and light-duty truck and other vehicles determined by the CARB vehicles whose primary use is noncommercial personal transportation in the state."

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal EPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the Cal EPA created a "Climate Act Team" (CAT). In March 2006, Cal EPA released a report on behalf of the CAT (comprised of cabinet secretaries and policy makers from Cal EPA, CEC, CARB, CPUC, CIWMB, Caltrans, the Department of Food and Agriculture, and the Governor's office). Among other things, the "CAT Report" outlined the principles of climate change science that formed the basis for the evaluation of potential climate-change related impacts that could occur in California. The report cited the International Panel on Climate Change (IPCC) and other sources to conclude that global temperatures are increasing and that human activities are contributing to the build-up of climate change pollutants. The report also summarized potential effects of climate change based on three IPCC scenarios and described potential emission reduction strategies.

Assembly Bill 32, California Global Warming Solutions Act of 2006

California enacted Assembly Bill 32 (AB 32), effective January 1, 2007, to cap greenhouse gas (GHG) emissions in an effort to combat global warming. AB 32 directs the California Air Resources Board ("CARB") to require reporting and verification of current GHG emissions (defined as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) and to estimate 1990 GHG emissions levels prior to January 1, 2008 (Health and Safety Code §§ 38530, 38550). CARB must adopt a statewide GHG emissions limit equal to the approved 1990 emissions levels and set a reduction schedule and adopt regulatory programs to achieve the target levels by 2020. The law focuses on reducing emissions to "maximum technologically feasible and cost-effective levels" (Health and Safety Code § 38560). CARB is charged with publishing a list of early action GHG emission reduction measures by June 30, 2007, and adopting regulations to implement those early action measures by January 1, 2010, while final regulations for GHG emission limits and emission reduction measures must be adopted by January 1, 2011 and become operative by January 1, 2012 (Health and Safety Code §§ 38560.5, 38562).

CARB may establish market-based compliance mechanisms (e.g. a "cap and trade" system) allowing emitters to purchase, bank or trade GHG "allowances" from third parties and/or may adopt a declining annual aggregate emissions limitation (Health and Safety Code §§ 38505(k), 38562(c), 38570 et seq). Under extraordinary circumstances, or in cases of catastrophic events or threat of economic harm, AB 32 allows the Governor to extend deadlines for adoption of regulations mandated by AB 32 for up to one year at a time (Health and Safety Code § 38599(a)).

In a CARB presentation at a February 27, 2007 public workshop discussing initial regulatory concepts for mandatory greenhouse gas emissions reporting under AB 32, cement manufacturers, electric power generation, oil refineries, industrial/commercial combustion, oil and gas production, and landfills were listed as potential covered sources. Of note, the presentation stated that other sources may be considered for mandatory reporting on emissions.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for base load generation from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a base load combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC.

No air district in California has identified a significance threshold for GHG emissions or a methodology for analyzing air quality impacts related to GHG emissions. The state has identified 1990 emission levels as a goal through adoption of AB 32. To meet this goal, California would need to generate lower levels of GHG emissions than current levels. However, no standards have yet been adopted quantifying 1990 emission targets. It is recognized that for most projects there is no simple metric available to determine if a single project would help or hinder meeting the AB 32 emission goals. In addition, at this time AB 32 only applies to stationary source emissions. Consumption of fossil fuels in the transportation sector accounted for over 40% of the total GHG emissions in California in 2004. Current standards for reducing vehicle emissions considered under AB 1493 call for "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles," and do not provide a quantified target for GHG emissions reductions for vehicles.

Senate Bill 97

SB 97 (Chapter 185, Statutes 2007) was signed by Governor Schwarzenegger on August 24, 2007. The legislation provides partial guidance on how GHG emissions should be addressed in certain CEQA documents. SB 97 requires the Governor's Office of Planning and Research (OPR) to prepare CEQA guidelines for the mitigation of GHG emissions, including but not limited to, effects associated with transportation or energy consumption. OPR was required to prepare these guidelines and transmit them to the State's Natural Resources Agency (Resources Agency) by July 1, 2009. In June 2008, OPR released a technical advisory on CEQA and Climate Change: Addressing Climate Change in conducting California Environmental Quality Act (CEQA) analysis, as interim recommendations while the official OPR CEQA Guidelines were under development. In January 2009, OPR released its Draft CEQA Guidelines amendments and additions, which include suggested thresholds of significance and mitigation measures to address global climate change. OPR submitted its proposed amendments to the State CEQA Guidelines for greenhouse gas emissions on April 13, 2009. The Resources Agency will conduct formal rulemaking in 2009, then certify and adopt the guidelines by January 1, 2010. OPR and the Resources Agency are required to periodically review the guidelines to incorporate new information or criteria adopted by ARB pursuant to the Global Warming Solutions Act. The first review is anticipated to occur in 2012.

Assembly Bill 170

AB 170 was adopted by state lawmakers in 2003, creating Government Code Section 65302.1, which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality. These amendments are due no later than one year from the due date specified for the next revisions of a jurisdiction's housing element.

As required in Section 65302.1.b, cities and counties within the San Joaquin Valley must amend the general plan to include a discussion of the status of air quality and strategies to improve air quality. The elements to be amended include, but are not limited to, those elements dealing with land use, circulation, housing, conservation, and open space. Section 65302.1.c identifies four areas of air quality discussion required in these amendments. These areas include: (1) a report describing local air quality conditions, attainment status, and state and federal air quality and transportation plans; (2) a summary of local, district, state, and federal policies, programs, and regulations to improve air quality; (3) a comprehensive set of goals, policies, and objectives to improve air quality; and (4) feasible implementation measures designed to achieve these goals.

Senate Bill 375

SB 375 was signed by Governor Schwarzenegger on September 30, 2008. The bill provides means to further reduce greenhouse gas (GHG) emissions from passenger vehicles and light trucks. The intent of the bill is to connect regional land use planning with transportation policy. The bill requires Metropolitan Planning Organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) within their Regional Transportation Plans (RTPs) which sets forth a vision for growth for the region taking into account the transportation, housing, environmental, and economic needs of the region, with the goal of reducing the number of miles traveled by personal vehicles, and thus reducing GHG emissions. Under the law, the California Air Resources Board has two years to give each of California's MPOs a GHG emissions reduction target for cars and light trucks. However, this target to reduce GHG emissions from cars and light trucks can only be implemented through changes in development patterns within the area covered by the MPO. Once the guidelines have been established, (in mid-2010), regions will need to prepare an SCS and incorporate it into their RTP. If the region's SCS will not achieve the MPO's GHG emissions reduction target, then the MPO must prepare an Alternative Planning Strategy (APS), which must identify the principal impediments (such as financial constraints) to achieving the targets, and describe how the targets *could* be achieved if these constraints were overcome. Unlike the SCS, the APS will not be part of the region's RTP, and will therefore not necessarily affect the distribution of transportation funding. It will, however, provide a basis for understanding how the region may eventually be able to achieve its GHG emissions reduction targets.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has not established regulations for greenhouse gas emissions. However, the SJVAPCD is in the process of developing measures to address GHG emissions under CEQA.

General Plan Consistency

The Plan Update contains a number of policies that apply to global climate change impacts in conjunction with ultimate build-out of the city in accordance with the General Plan. The specific policies listed below contained in the Land Use, Circulation and Open Space, Conservation and Recreation Elements are designed to ensure that global climate change impacts are minimized as development occurs in accordance with the Selma General Plan.

Land Use Element

Policy 1.20 Support smart growth principles that advance mixed use, higher density, walkable, bikeable and accessible neighborhoods which coordinate land use and transportation with open space areas for recreation. Promote green/sustainable building standards for private residential, multifamily, and commercial projects.

Policy 1.21 The City will encourage Leadership in Energy and Environmental Design (LEED) features for new construction including commercial, residential, industrial and public facilities. LEED was established to provide the building industry with design tools and standards which create high performing, environmentally friendly, sustainable buildings.

Circulation Element

Policy 2.1 Coordinate demand-responsive transit service in conjunction with the Council of Fresno County Governments (COFCG) and Fresno County.

Policy 2.3 Coordinate transit services through the City Manager and in conjunction with surrounding cities, and the County of Fresno, and Council of Fresno County Governments.

Policy 2.4 Cooperate with the COFCG in providing transit service and planning to meet the social and economic needs of all segments of the community.

Policy 2.5 Encourage benches, telephones and shaded areas at major transit destinations so people can utilize the transit system safely and comfortably. The City shall determine such need based on site plan review procedure and other planning implementation methods.

Policy 2.7 Transit centers/stops shall be established to encourage the interface between commercial centers, high-density residential uses and the transit system.

Policy 2.44 The City will develop, through various funding mechanisms and sources, a city wide bicycle path/lane/route system in conformance with the City's 2003 Bicycle Transportation Plan. The bicycle path/lane/route system will utilize existing or future railroad right-of-way and water courses. The paths (class I), may also include landscaping, lighting, mileage markers, directional signage and benches. The on-road lanes (class II) would include striping and the on-road routes (class

III) would not include striping. Reference Figure 2-3 for the proposed city-wide bike plan. The class I bike paths can also be utilized by pedestrians if the proposed paths are wide enough to allow both bicyclists and pedestrians.

Policy 2.45 Sidewalks, paths, and appropriate crosswalks should be located to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths should be developed to allow for unobstructed pedestrian flow from within a neighborhood.

Policy 2.46 The City shall require curb, gutter, and sidewalks in all areas of the community to accommodate pedestrian traffic, especially along routes with high pedestrian traffic such as schools, parks, and the Downtown area. Installation of these improvements shall be encouraged to the extent feasible in existing neighborhoods where they do not currently exist.

Policy 2.47 The City shall promote safe, convenient and accessible pedestrian ways within the community.

Policy 2.48 Where security walls or fences are proposed for residential developments along major arterials, arterials, or collector streets, pedestrian access should be considered between the major arterial, arterial, or collector, and the development to allow access to transit vehicles, commercial facilities, educational facilities and recreation areas operating on the street.

Policy 2.49 Street lighting shall be provided for all public streets and pedestrian signals shall be provided at all traffic signal locations.

Policy 2.53 Parking standards shall be evaluated to assess the potential for offering reduced parking requirements to development that incorporate measures proven to reduce vehicular trips. Shared parking should be encouraged whenever possible.

Policy 2.54 The City shall work with Caltrans and transit service providers to establish a park and ride lot or lots within the community to serve the needs of regional and local commuters.

Policy 2.60 The City shall encourage the use of energy efficient and non-polluting fuels and modes of transportation.

Policy 2.61 Transportation System Management and Transportation Demand Management are the applicable strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ridesharing and parking management are to be used to the greatest extent practical to implement transportation management strategies.

Policy 2.62 Promote the long term shifting of peak hour commute trips from the single occupant automobile to ridesharing, buses, pedestrians, and bicycles.

Policy 2.63 Large development shall be encouraged to incorporate transit passenger facilities, bicycle racks or lockers, shower facilities, as well as on site services (eating, mail, banking, etc.) as ways to encourage alternative modes for commute trips.

Open Space, Conservation and Recreation Element

Policy 5.3 Encourage reduction of the City's peak electrical load by 10% through energy efficiency, shifting the timing of energy demands, and conservation measures.

Policy 5.4 Add a weatherization/energy conservation component to City renovation and repair programs where applicable. Coordinate with development and implementation of a homeowner weatherization program to aid seniors and low-income residents in insulating their homes.

Policy 5.19 Coordinate with other local and regional jurisdictions, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Air Resources Board (CARB), in the development of regional and county clean air plans and incorporate the relevant provisions of those plans into City planning and project review procedures. Also coordinate with the SJVAPCD and CARB in:

- Enforcing the provisions of the California and Federal Clean Air Acts, state and regional policies, and established standards for air quality;
- Utilizing clean fuel for city vehicle fleets, when feasible; and
- Developing consistent procedures for evaluating project-specific and cumulative air quality impacts of projects.

Policy 5.20 Require area and stationary source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design, including:

- The use of best available and economically feasible control technology for stationary industrial sources;
- Discourage the use of fireplace wood burning heaters or pellet stoves in new residential units;
- The use of new and replacement fuel storage tanks at refueling stations that are clean fuel compatible, if technically and economically feasible; and
- The promotion of energy efficient designs, including provisions for solar access, building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and to protect from winter winds.

Policy 5.21 Develop strategies to minimize the number and length of vehicle trips, which may include:

- Promoting commercial/industrial project proponent sponsorship of van pools or club buses;
- Encouraging commercial/industrial project day care and employee services at the employment site;
- Encouraging the provision of transit, especially for employment-intensive uses of 200 or more employees; and
- Providing expansion and improvement of public transportation services and facilities.

Policy 5.22 Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following where feasible:

- Consider right-of-way requirements for bike usage in the planning of new arterial and collector streets and in street improvement projects;
- Require that new development be designed to promote pedestrian and bicycle access and circulation; and
- Provide safe and secure bicycle parking facilities at major activity centers, such as public facilities, employment sites, and shopping and office centers.

Policy 5.23 Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following where feasible:

- Locate air pollution point sources, such as manufacturing and extracting facilities in areas designated for industrial development and separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals); establish buffer zones (e.g., setbacks, landscaping) within residential and other sensitive receptor uses to separate those uses from highways, arterials, hazardous material locations and other sources of air pollution or odor;
- Consider the jobs/housing/balance relationship (i.e., the proximity of industrial and commercial uses to major residential areas) when making land use decisions;
- Provide for mixed-use development through land use and zoning to reduce the length and frequency of vehicle trips;

- Accommodate a portion of the projected population and economic growth of the City in areas having the potential for revitalization;

- Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities;

- Encourage small neighborhood-serving commercial uses within or adjacent to residential neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhoods schools; minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area; and

- Encourage a development pattern that is contiguous with existing developed areas of the City.

Policy 5.27 Neighborhood parks should be from 3 to 5 acres in size and centrally located within each ½ square mile of land. Such parks may be developed alone, in conjunction with school sites, or with ponding basins.

Policy 5.29 Developed public recreation land will be within walking distance of potential users. For purposes of this Element, an optimum walking distance for neighborhood parks will be one-half mile is within ¼ mile.

Physical

EXISTING GREENHOUSE GASES AND LINKS TO GLOBAL CLIMATE CHANGE

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect.

Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for enhancing the greenhouse effect (Ahrens 2003). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (California Energy Commission 2006a). A byproduct of fossil fuel combustion is CO_2. Methane, a highly potent GHG, results from offgassing associated with agricultural practices and landfills. Processes that absorb and accumulate CO_2, often called CO_2 "sinks," include confined animal facilities, uptake by vegetation, and dissolution into the ocean.

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California is the 12th to 16th largest emitter of CO_2 in the world and produced 492 million gross metric tons of carbon dioxide equivalents in 2004 (California Energy Commission 2006a). Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potentials to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, methane is a much more potent GHG than CO_2. As described in the General Reporting Protocol of the California Climate Action Registry (2006), one ton of CH_4 has the same contribution to the greenhouse effect as approximately 21 tons of CO_2. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 40.7% of total GHG emissions in the state (California Energy Commission 2006a). This category was followed by the electric power sector (including both in-state and out-of-state sources) at 22.2% and the industrial sector at 20.5% (California Energy Commission 2006a).

FEEDBACK MECHANISMS AND UNCERTAINTY

Many complex mechanisms interact within Earth's energy budget to establish the global average temperature. For example, a change in ocean temperature would be expected to lead to changes in the circulation of ocean currents, which, in turn would further alter ocean temperatures. There is uncertainty about how some factors could affect global climate change because they have the potential to both enhance and neutralize future climate warming. Examples of these conditions are described below.

Direct and Indirect Effects of Aerosols

Aerosols, including particulate matter, reflect sunlight back to space. As particulate matter attainment designations are met, and fewer emissions of particulate matter occur, the cooling effect of anthropogenic aerosols would be reduced, and the greenhouse effect would be further enhanced. Similarly, aerosols act as cloud condensation nuclei, aiding in cloud formation and increasing cloud lifetime. Clouds can efficiently reflect solar radiation back to space (see discussion of the cloud effect below). As particulate matter emissions are reduced, the indirect positive effect of aerosols on clouds would be reduced, potentially further amplifying the greenhouse effect.

The Cloud Effect

As global temperature rises, the ability of the air to hold moisture increases, facilitating cloud formation. If an increase in cloud cover occurs at low or middle altitudes, resulting in clouds with greater liquid water content such as stratus or cumulus clouds, more radiation would be reflected back to space, resulting in a negative feedback mechanism, wherein the side effect of more cloud cover resulting from global warming acts to balance further warming. If clouds form at higher altitudes in the form of cirrus clouds, however, these clouds actually allow more solar radiation to pass through than they reflect, and ultimately they act as a GHGs themselves. This results in a positive feedback mechanism in which the side effect of global warming acts to enhance the warming process. This feedback mechanism, known as the "cloud effect" contributes to uncertainties associated with projecting future global climate conditions.

Other Feedback Mechanisms

As global temperature continues to rise, CH_4 gas currently trapped in permafrost would be released into the atmosphere when areas of permafrost thaw. Thawing of permafrost attributable to global warming would be expected to accelerate and enhance global warming trends. Additionally, as the surface area of polar and sea ice continues to diminish, the Earth's albedo, or reflectivity, is also anticipated to decrease. More incoming solar radiation will likely be absorbed by the Earth rather than being reflected back to space, further enhancing the greenhouse effect. The scientific community is still studying these and other positive and negative feedback mechanisms to better understand their potential effects on global climate change.

3.17.2 IMPACT EVALUATION CRITERIA

Significance Thresholds

No air district in California, including the SJVAPCD, has identified a significance threshold for GHG emissions or a methodology for analyzing air quality impacts related to greenhouse gas emissions. The State has identified 1990 emission levels as a goal through adoption of AB 32. However, no standards have yet been adopted quantifying 1990 emission targets. It is recognized that for most projects there is no simple metric available to determine if a single project would help or hinder meeting the AB 32 emission goals. In addition, at this time AB 32 only applies to stationary source emissions. Consumption of fossil fuels in the transportation sector accounted for over 40% of the total GHG emissions in California in 2004. Current standards for reducing vehicle emissions considered under AB 1493 call for "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles," and do not provide a quantified target for GHG emissions reductions for vehicles. Under SB 375, the California Air Resources Board (CARB) has two years to give each of California's MPOs a GHG emissions reduction target for cars and light trucks, which will then be incorporated into that MPO's SCS or APS. It is important to note that achieving reduction is essentially a regional effort.

Emitting CO_2 into the atmosphere is not itself an adverse environmental effect. It is the increased concentration of CO_2 in the atmosphere resulting in global climate change and the associated consequences of climate change that results in adverse environmental effects (e.g., sea level rise, loss of snowpack, severe weather events). Although it is possible to generally estimate a project's incremental contribution of CO_2 into the atmosphere, it is typically not possible to determine whether or how an individual project's relatively small incremental contribution might translate into physical effects on the environment. Given the complex interactions between various global and regional-scale physical, chemical, atmospheric, terrestrial, and aquatic systems that result in the physical expressions of global climate change, it is impossible to discern whether the presence or absence of CO_2 emitted by the Project would result in any altered conditions.

Given the challenges associated with determining a project-specific significance criteria for GHG emissions when the issue must be viewed on a global scale, a quantitative significance criteria is not proposed for the Project. For this analysis, a project's incremental contribution to global climate change would be considered significant if, due to the size or nature of the project, it would generate a substantial increase in GHG emissions relative to existing conditions.

ESTIMATED EMISSIONS OF GREENHOUSE GASES FROM THE PROJECT

GHG emissions associated with the Project were estimated using CO_2 emissions as a proxy for all GHG emissions. This is consistent with the current reporting protocol of the California Climate Action Registry (CCAR). Calculations of GHG emissions typically focus on CO_2 because it is the most commonly produced GHG in terms of both number of sources and volume generated, and because it is among the easiest GHGs to measure; however, it is important to note that other GHGs have a higher global warming potential than CO_2. For example, as stated previously, 1 pound of methane has an equivalent global warming potential of 21 pound of CO_2 (California Climate Action Registry 2006). Nonetheless, emissions of other GHGs from the Project (and from almost all GHG emissions sources) would be low relative to emissions of CO_2 and would not contribute significantly to the overall generation of GHGs from the Project.

Although the CCAR provides a methodology for calculating GHG emissions, the process is designed to be applied to a single or limited number of entities or operations where detailed information on emissions sources is available (e.g., usage of electricity and natural gas, numbers and types of vehicles and equipment in a fleet, type and usage of heating and cooling systems, emissions from manufacturing processes). Information at this level of detail is not available for the Project area. For example, the ultimate GHG emissions from the approximately 486 acres of additional Commercial uses in the proposed General Plan Update Plan could vary substantially depending on the type and amount of office and commercial uses that are developed, the density of employees in each facility, the hours of operation for each facility, and other factors. Similarly, GHG emissions from the proposed residences could vary substantially based on numerous factors, such as the sizes of homes, the type and extent of energy efficiency measures that might be incorporated into each home's design, the type and size of appliances installed in the home, and whether solar energy facilities are included on any of the residences. Given the lack of detailed design and operational information available at this time for facilities in the Project area, the CCAR emissions inventory methodology is not appropriate for estimating GHG emissions from the Project.

The URBEMIS modeling program was utilized in creating the CO_2 emission calculations. The program estimates CO_2 emissions from Project-generated land uses. Based on the URBEMIS analysis, it is estimated that implementation of the proposed Plan Update at full buildout will emit approximately 4.8 million tons of CO_2 per year from Project-generated emissions while buildout under the 1997 General Plan would result in emission of 3.6 million tons of CO_2 per year.

3.17.3 IMPACTS

Project Impacts and Mitigation Measures

As described above in the "Physical Setting" discussion, the cumulative increase in GHG concentrations in the atmosphere has resulted in and will continue to result in increases in global average temperature and associated shifts in climatic and environmental conditions. Multiple adverse environmental effects are attributable to global climate change, such as sea level rise, increased incidence and intensity of severe weather events (e.g., heavy rainfall, droughts), and extirpation or extinction of plant and wildlife species. Given the significant adverse environmental effects linked to global climate change induced by GHGs, the emission of GHGs is considered a significant cumulative impact. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006a); therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, city, and individual on Earth. The challenge in assessing the significance of an individual project's contribution to global GHG emissions and associated global climate change impacts is to determine whether a project's GHG emissions – which, it can be argued, are at a micro scale relative to global emissions – result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Global climate change is projected to affect water resources in California. For example, an increase in the global average temperature is projected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), and is a major source of supply for the state. Although current forecasts vary (see, e.g., DWR 2006), this phenomenon could lead to significant challenges in securing an adequate water supply for a growing population and California's agricultural industry. An increase in precipitation falling as rain rather than snow could also lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events. This scenario would place more pressure on California's levee/flood control system.

Global climate change is expected to influence many interconnected phenomena, which will in turn affect the rate of climate change itself. Faced with this overwhelmingly complex system, scientists who model climate change must make decisions about how to simplify the phenomenon, such as assuming a fixed rate of temperature change or a certain level of aerosol production or a particular theory of cloud formation. These assumptions make the models applicable to particular aspects of the changing ecosystem, given a good guess about how the future will be. Rather than try to be predictive, the models represent possible scenarios that come with a set of presuppositions. Even when results are quantified, such quantifications are meaningless unless viewed in the light of those presuppositions. For these reasons, a range of models must be examined when trying to assess the potential effects of climate change and the resulting analysis is most appropriately qualitative (See Intergovernmental Panel on Climate Change (IPCC) 2001). This section, therefore, provides a qualitative analysis of the impacts of global climate change as they affect water resources in California and in the project area.

In 2003, global emissions of carbon (i.e., only the carbon atoms within CO_2 molecules) solely from fossil fuel burning totaled an estimated 7,303 million metric tons (Marlands et al. 2006). This translates to approximately 29,400 million tons of CO_2. This is only a portion of global CO_2 emissions because it addresses only fossil fuel burning and does not address other CO_2 sources such as burning of vegetation. Total estimated CO_2 emissions from all sources associated with the Project would be less than 0.0165% of this partial global total. CO_2 emissions in California totaled approximately 391 million tons in 2004 (California Energy Commission 2006a). Total CO_2 emissions from the Project, as estimated above, would be 1.23% of this statewide total.

Impact #3.17.3.1 – Development of the Project could potentially result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change: The project will have a significant cumulative impact on global climate change due to the increase of population and vehicles in the area. CO_2 emissions created from the Project as mentioned above will contribute to GHG's local, regionally, and globally.

THE PROJECT'S MITIGATING FACTORS

Broadly speaking, climate change mitigation and adaptation strategies fall into three categories: 1) transportation sector strategies; 2) electricity sector strategies, including renewable energy and energy efficiency; and 3) all other adaptation strategies, such as carbon sequestration, participation in emissions trading markets and research and public education (California Energy Commission, 2003). As noted herein, the Plan Update incorporates goals, objectives and policies that minimize the human and spatial environmental footprint in the Project area, including transportation and electricity impacts. Implementation of these measures will help reduce potential GHG emissions resulting from buildout under the General Plan.

The state's primary source of GHG emissions is the consumption of fossil energy (California Energy Commission 2003). The proposed Plan Update contains several policies, listed above in the General Plan Consistency discussion, that would reduce consumption of fossil energy within the Project area, and thereby reduce potential GHG emissions.

"SMART GROWTH" FACTORS

The proposed Plan Update has several components that will promote smart growth development scenarios, which will help reduce potential GHG emissions. Many of these are mentioned in the Goals and Policies section above. The proposed Plan Update encourages use of alternative modes of transportation that produce less greenhouse gas emissions than vehicular travel, or none at all. Also, policies encourage people to walk, ride bicycles, take public transportation, and rideshare when commuting to work. Finally, the General Plan land use plan creates a compact development pattern that offers a wide variety of density typologies and minimizes vehicle miles traveled.

TRAFFIC FACTORS

Implementation of the Plan Update's transportation and circulation policies and mitigation measures will also help reduce potential GHG emissions by providing multi-modal transportation opportunities. Alternative modes of transportation such as pedestrian trails and pathways and public transit routes will reduce overall fuel consumption and GHG emissions.

ENERGY FACTORS

In addition to targeting GHG emissions through the transportation sector, the proposed General Plan Update contains several goals and policies that will reduce energy consumption and in return reduce GHG emissions. Policies include promoting green/sustainable building standards for private residential, multifamily, and commercial projects and encouraging Leadership in Energy and Environmental Design (LEED) features for new construction including commercial, residential, industrial and public facilities. LEED was established to provide the building industry with design tools and standards which create high performing, environmentally friendly, sustainable buildings.

Conclusion: Policies of the proposed General Plan, as shown above, will reduce Global Climate Change impacts, but buildout under the proposed Plan Update will nonetheless result in a substantial amount of GHG emissions. Because it cannot be determined to a reasonable degree of certainty that buildout under the Plan Update will not result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change, the impacts of the proposed project on global climate change are considered **significant, cumulatively considerable and unavoidable.**

Mitigation Measure # 3.17.3.1: The City of Selma will require the following:

- When approving new development, require truck idling to be restricted during construction.

- Require new development to implement the following design features, where feasible:

  1. Recycling:

     - Design locations for separate waste and recycling receptacles;
     - Reuse and recycle construction and demolition waste;
     - Recover by-product methane to generate electricity; and
     - Provide education and publicity about reducing waste and available recycling services.

2. Promote pedestrian, bicycle and transit modes of travel through informational programs and provision of amenities such as transit shelters, secure bicycle parking and attractive pedestrian pathways.

3. Large canopy trees should be carefully selected and located to protect building(s) from energy-consuming environmental conditions, and to shade 50% of paved areas within 10 years. Trees near structures act as insulators from weather, thereby decreasing energy requirements. Trees also store carbon.

4. Encourage mixed-use and higher-density development to reduce vehicle trips, promote alternatives to vehicle travel and promote efficient delivery of services and goods. Average residential density in significant new development areas should have a minimum average density of 6.8 dwelling units per acre.

5. Address the "urban heat island" effect through such measures as requiring light-colored and reflective roofing materials and paint; light-colored roads and parking lots; shade trees in parking lots, and shade trees on the south and west sides of new or renovated buildings.

6. Transportation and motor vehicle emissions reduction

   - Use low or zero-emission vehicles, including construction vehicles;
   - Create car sharing programs;
   - Create local “light vehicle” networks, such as neighborhood electric vehicle (NEV) systems;
   - Provide shuttle service to public transit;
   - During construction, post signs that restrict truck idling;
   - Set specific limits on idling time for commercial vehicles, including delivery and construction vehicles; and
   - Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where signals are installed, require the use of Light Emitting Diode (LED) traffic lights.

7. Water Use Efficiency

   - Conservative use of both potable and non-potable water to the maximum extent practicable; low flow appliances (i.e., toilets, dishwashers, shower heads, washing machines, etc.); automatic shut off valves for sinks in restrooms; drought resistant landscaping; “Save Water” signs near water faucets;
   - Create water efficient landscapes;

- Use graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash facilities, and water from washing machines; and

- Provide education about water conservation and available programs and incentives.

8. Energy Efficiency

- Automated control system for heating/air conditioning and energy efficient appliances;

- Utilize lighting controls and energy efficient lighting in buildings;

- Use light colored roof materials to reflect heat;

- Take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use;

- Install solar panels on carports and over parking areas;

- Increase building energy efficiency beyond Title 24 requirements. In addition, implement other green building design methods such as natural daylighting and on-site renewable electricity generation; and

- Require that projects use efficient lighting.

Effectiveness of Mitigation Measure: Implementation of the mitigation measures above and proposed policies of the 2035 General Plan will reduce this impact, but it will remain **significant, cumulatively considerable and unavoidable.**

Impact #3.17.3.2 - Climate Change could potentially result in an impact on City of Selma water resources: From a statewide perspective, global climate change could affect California's environmental resources through potential, though uncertain, changes related to future air temperatures and precipitation and their resulting impacts on water temperatures, reservoir operations, stream runoff, snowpack, and sea levels (Kiparsky and Gleick 2003). These changes in hydrological systems could threaten California's economy, public health, and environment (California Energy Commission 2003). The types of potential climate effects that could occur on California's water resources include:

Water Supply. Several recent studies have shown that existing water supply systems are sensitive to climate change (Wood, 1997). Potential impacts of climate change on water supply and availability could directly and indirectly affect a wide range of institutional, economic, and societal factors (Gleick 1997). Much uncertainty remains, however, with respect to the overall impact of global climate change on future water supplies. For example, models that predict drier conditions (i.e. parallel climate model [PCM]) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows (Brekke, 2004). Both projections are equally probable based on which model is chosen for the analyses (Ibid.). Much uncertainty also exists with respect to how climate change will affect future demand for water supply (DWR 2006). Still, changes in water supply are expected to occur and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky and Gleick 2003; see also Cayan et al. 2006a).

Surface Water Quality. Global climate change could affect surface water quality as well. Water quality is affected by several variables, including the physical characteristics of the watershed, water temperature, and runoff rate and timing. A combination of a reduction in precipitation, a shift in volume and timing of runoff flows, and increased temperature in lakes and rivers could affect a number of natural processes that eliminate pollutants in water bodies. For example, the overall decrease in stream flows could potentially concentrate pollutants and prevent the flushing of contaminants from point sources. Still, considerable work remains to determine the potential effect of global climate change on water quality.

Groundwater. Little work has been done on the effects of climate change on specific groundwater basins, groundwater quality or groundwater recharge characteristics (Kiparsky and Gleick 2003). Changes in rainfall and changes in the timing of the groundwater recharge season would result in changes in recharge. Warmer temperatures could increase the period where water stays on the surface by reducing the length of time that soil is frozen. Conversely, warmer temperatures could lead to higher evaporation or shorter rainfall seasons, which could shorten recharge seasons. Warmer, wetter winters would increase the amount of winter runoff available for groundwater recharge. This additional winter runoff, however, would be occurring at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity. Corresponding reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge in non-winter seasons. The extent to which our climate will change, and the impact of that change on groundwater, are both unknown. A reduced snowpack, coupled with increased rainfall, could require a change in the operating procedures for California's existing dams and conveyance facilities (Kiparsky and Gleick 2003). As discussed in Section 3.16 (Utilities/Service Systems), the Plan Update area will rely solely on groundwater pumped from local aquifers.

Fisheries and Aquatic Resources. In California, the timing and amounts of water released from reservoirs and diverted from streams are constrained by their effects on various native fish, especially those that are listed under the federal and state endangered species acts as threatened or endangered. Several potential hydrological changes associated with global climate change could influence the ecology of aquatic life in California and have several negative effects on cold-water fish (Department of Water Resources [DWR] 2006). For example, if climate change raises air temperature by just a few degrees Celsius, this change could be enough to raise the water temperatures above the tolerance of salmon and trout in many streams, favoring instead non-native fishes such as sunfish and carp (DWR 2006). Unsuitable summer temperatures would be particularly problematic for many of the threatened and endangered fish that spend summers in cold-water streams, either as adults, juveniles, or both (DWR 2006). In short, climate change could significantly affect threatened and endangered fish in California. It could also cause non-threatened and non-endangered fish to reach the point where they become designated as such (DWR 2006).

Flood Control. It is difficult to assess implications of climate change for flood frequency, in large part because of the absence of detailed regional precipitation information from climate models and because human settlement patterns and water-management choices can substantially influence overall flood risk (Kiparsky and Gleick 2003). Still, increased amounts of winter runoff could be accompanied by increases in flood event severity and warrant additional dedication of wet season storage space for flood control as opposed to supply conservation. This need to manage water storage facilities to handle increased runoff could in turn lead to more frequent water shortages during high water demand periods (Brekke 2004). It is recognized that these impacts would result in increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply (DWR 2006).

Sudden Climate Change. Most global climate models project that anthropogenic climate change will be a continuous and fairly gradual process through the end of this century (DWR 2006). California is expected to be able to adapt to the water supply challenges posed by climate change, even at some of the warmer and drier projections for change. Sudden and unexpected changes in climate, however, could leave water managers unprepared and could, in extreme situations, have significant implications for California and its water supplies. For example, there is speculation that some of the recent droughts that have occurred in California and the western United States could have been due, at least in part, to oscillating oceanic conditions resulting from climatic changes. The exact causes of these events are, however, unknown, and evidence suggests such events have occurred during at least the past 2,000 years (DWR 2006).

The following topics summarize current literature related to the impact of global climate change on water resources in California's Central Valley.

Climate Warming and Water Management Adaptation for California. Tanaka et al. (2006) explored the ability of California's water supply system to adapt to long-term climatic and demographic changes using the California Value Integrated Network (CALVIN), a statewide economic-engineering optimization model of water supply management. The results show agricultural water users in the Central Valley are the most sensitive to climate change, particularly under the driest and warmest scenario (i.e. PCM 2100), predicting a 37% reduction of Valley agricultural water deliveries and a rise in Valley water scarcity costs by $1.7 billion. Though the results of the study are only preliminary, they suggest that California's water supply system appears "physically capable of adapting to significant changes in climate and population, albeit at a significant cost." Such adaptation would entail changes in California's groundwater storage capacity, water transfers, and adoption of new technology.

Potential Implications of PCM Climate Change Scenarios for Sacramento-San Joaquin River Basin Hydrology and Water Resources. VanRheenen et al. (2004) studied the potential effects of climate change on the hydrology and water resources of the Sacramento-San Joaquin River Basin using five PCM scenarios. The study concludes that most mitigation alternatives examined satisfied only 87% to 96% of environmental targets in the Sacramento system, and less than 80% in the San Joaquin system. Therefore, system infrastructure modifications and improvements could be necessary to accommodate the volumetric and temporal shifts in flows predicted to occur with future climates in the Sacramento-San Joaquin River basins.

Estimated Impacts of Climate Warming on California Water Availability Under Twelve Future Climate Scenarios. Zhu et al (in press) studied climate warming impacts on water availability derived from modeled climate and warming stream flow estimates for six index California basins and distributed statewide temperature shift and precipitations changes for 12 climate scenarios. The index basins provide broad information for spatial estimates of the overall response of California's water supply and the potential range of impacts. The results identify a statewide trend of increased winter and spring runoff and decreased summer runoff. Approximate changes in water availability are estimated for each scenario, though without operations modeling. Even most scenarios with increased precipitation result in a decrease in available water. This result is due to the inability of current storage systems to catch increased winter stream flow to offset reduced summer runoff.

Trends in Snowfall versus Rainfall in the Western United States. To better understand the nature of the observed changes in snowpack and stream flow timing in the west, Knowles et al. (2006) addressed historical changes in the relative contributions of rainfall and snowfall. The study documents a regional trend toward smaller ratios of winter-total snowfall water to winter-total precipitation during the period of 1949-2004. The trends toward decreased winter-total snowfall are a response to warming across the region, with the most significant decreases occurring where winter wet-day minimum temperatures were on average warmer than -5 degrees Celsius over the study period. The authors suggest that, if warming trends continue, the snowfall fraction of precipitation is likely to continue to decline, which combined with earlier melting of the remaining accumulations of snowpack, will diminish the West's natural freshwater storage capacity. This trend could, in turn, exacerbate tensions between flood control and storage priorities that many western reservoir managers face.

Climate Warming and Water Supply Management in California. Medellin et al. (2006) use the CALVIN model under a high emissions "worst case" scenario, called a dry-warming scenario. The study found that climate change would reduce water deliveries 17% in 2050. The reduction in deliveries was not equally distributed, however, between urban and agricultural areas. Agricultural areas would see their water deliveries drop by 24% while urban areas would only see a reduction of 1%. There was also a geographic difference: urban scarcity was almost absent outside of southern California.

Climate Scenarios for California. Cayan et al. (2006b) considered two GHG emissions scenarios, a medium-high and a low. The study found that California will experience a warming trend from 2000 to 2100, with temperatures rising between 1.7 and 5.8º C, depending on the model and the scenario chosen. This increase in temperature could potentially impact snowpack levels as the state experiences less snow and more rain. The results also indicate that snowpack in the Sierra Nevada could be reduced 32% to 79%, depending on the model and scenario chosen. The study does not consider the ability of California's water supply system to adapt to these potential changes.

Our Changing Climate - Assessing the Risks to California, California Climate Change Center 2006 Biennial Report. In 2003, the California Energy Commission's Public Interest Energy Research (PIER) program established the California Climate Change Center (CCCC) to conduct climate change research relevant to the state. Executive Order S-3-05 called for the CalEPA to prepare biennial science reports on the potential impact of continued climate change on certain sectors of California's economy. CalEPA entrusted PIER and its CCCC to lead this effort. The climate change analysis contained in its first biennial science report is the product of a multi-institution collaboration among the California Air Resources Board, DWR, CEC, CalEPA and the Union of Concerned Scientists.

With respect to the most severe consequences of global climate change on California's water supplies, the study concludes that major changes in water management and allocation systems could be required in order to adapt to the change. As less winter precipitation falls as snow, and more as rain, water managers would have to balance the need to construct reservoirs for water supply with the need to maintain reservoir storage for winter flood control. The assessment suggests that additional storage could be developed, but with environmental and economic costs.

Climate Warming and California's Water Future. Lund et al. (2003) examined the effects of a range of climate warming estimates on the long-term performance and management of California's water system. The study estimates changes in California's water availability, including effects of forecasted changes in 2100 urban and agricultural water demands using a modified version of the CALVIN model. The main conclusions are summarized as follows:

- Methodologically, it is useful and realistic to include a wide range of hydrologic effects, changes in population and water demands, and changes in system operations in climate change studies

- A broad range of climate warming scenarios show significant increase in wet season flows and significant decreases in spring snowmelt. The magnitude of climate change effects on water supplies is comparable to water demand increases from population growth in the twenty-first century

- California's water system would be able to adapt to the severe population growth and climate change modeled. This adaptation would be costly, but it would not threaten the fundamental prosperity of the state, although it could have major impacts on the agricultural sector. The water management costs represent only a small proportion of California's current economy.

Under the driest climate warming scenarios, Central Valley agricultural users could be quite vulnerable to climate change. Wetter hydrology could increase water availability for these users. The agricultural community would not be compensated for much of its loss under the dry scenario. The balance of climate change effects on agricultural yield and water use is unclear. While higher temperatures could increase evapotranspiration, longer growing seasons and higher carbon dioxide concentrations could increase crop yield.

Population growth is expected to be more problematic than climate change in Southern California. Population growth, conveyance limits on imports, and high economic value of water in Southern California, could lead to high implementation of wastewater reuse and substantial use of seawater desalination along the coast.

Under some wet warming climate scenarios, flooding problems could be substantial. In certain cases, major expansions of downstream floodways and alterations in floodplain land use could become desirable.

California's water system could economically adapt to all the climate warming scenarios examined in the study. New technologies for water supply, treatment, and water use efficiency, implementation of water transfers and conjunctive use, coordinated operation of reservoirs, improved flow forecasting, and the cooperation of local, regional, state and federal government can help California adapt to population growth and global climate change. Even if these strategies are implemented, however, the costs of water management are expected to be high and there is likely to be less "slack" in the system compared to current operations and expectations.

As described by the literature survey above, overall, climate change is expected to have a greater effect in Southern California. In the Sacramento Valley/Sierra Nevada area, climate change will have a greater effect on agricultural users than urban users. For example, for 2020 conditions, where optimization is allowed (i.e., using the CALVIN model), scarcity is essentially zero in the Sacramento Valley for both urban and agricultural users, and generally zero for urban users in the San Joaquin and Tulare Basins. Rather, most water scarcity will be felt by agricultural users in Southern California, though Southern California urban users, especially Coachella urban users, will also experience some scarcity. By the year 2050, urban water scarcity will remain almost entirely absent north of the Tehachapi Mountains, although agricultural water scarcity could increase in the Sacramento Valley to about 2% (Medellin et al. 2006; see also Tanaka et al. 2006 and Lund et al. 2003 for further discussion of global climate change impacts on agricultural uses).

Based on the conclusions of current literature regarding California's ability to adapt to global climate change, it is reasonably expected that, over time, the State's water system will be modified to be able to handle the projected climate changes, even under dry and/or warm climate scenarios (DRW 2006). Although coping with climate change effects on California's water supply could come at a considerable cost, based on a thorough investigation of the issue, it is reasonably expected that statewide implementation of some, if not several, of the wide variety of adaptation measures available to the state, will likely enable California's water system to reliably meet future water demands. For example, traditional water supply reservoir operations may be used, in conjunction with other adaptive actions, to offset the impacts of global warming on water supply (Medellin et al. 2006; see also Tanaka et al. 2006 and Lund et al. 2003). Other adaptive measures include better urban and agricultural water use efficiency practices, conjunctive use of surface and ground waters, desalination, and water markets and portfolios (Medellin et al. 2006; see also Lund et al. 2003, Tanaka et al. 2006). More costly statewide adaptation measures could include construction of new reservoirs and enhancements to the state's levee system (California Energy Commission 2003). As described by Medellin et al. 2006, with adaptation to the climate, the water deliveries to urban centers are expected to decrease by only 1%, with Southern California shouldering the brunt of this decrease.

Although California could potentially experience an increased number of single-dry and multiple-dry years as a result of global climate change, based on current knowledge, it is reasonably expected that such increase would not significantly affect the reliability of the City of

Selma's water supply. This is due to the proposed Project's location in Northern California and the reasonable expectation that California's water system can be modified to handle projected climate changes as explained above.

Conclusion: Because considerable uncertainty remains with respect to the overall impact of global climate change on future water supply in California, it is unknown to what degree global climate change will impact the City of Selma water supply and availability in the future. However, based on consideration of the recent regional and local climate change studies described in the literature review above, the impacts of global climate change on the City's water supply would be **less than significant.**

Mitigation Measures: No mitigation measures are required.

CHAPTER FOUR

EVALUATION OF ALTERNATIVES

CHAPTER FOUR - EVALUATION OF ALTERNATIVES

4.1 Introduction

The Plan Update has been described and analyzed in the previous sections with an emphasis on identifying potentially significant impacts and recommended mitigation measures to avoid those impacts to the extent feasible. The *CEQA Guidelines* require that alternatives to the proposed project be discussed in the EIR. The value of such discussion is to inform public decision-makers and the public of the different environmental impacts which may be associated with each potential alternative, and to enable a reasoned judgment to be made as to which alternative to the proposed project may be environmentally superior. The analysis of this section is consistent with *CEQA Guidelines* Section 15126.6.

As noted in CEQA, "because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment, the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."

"The range of potential alternatives to the proposed project," state the *CEQA Guidelines*, "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives may be included in the administrative record."

CEQA Guidelines discussion observes that the range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making.

4.2 Discussion of Alternatives

The following discussion presents a description of the proposed Plan Update alternatives considered in this EIR and an analysis of the alternatives in the context of the *CEQA Guidelines.* The basic project objectives that were used to guide the selection of the alternatives are those enumerated in Section 2.2 of this EIR, and are restated below:

1. Achievement of the General Plan goals objectives and policies, as noted in each element thereof.

2. Moderate, planned growth, which is in conformance with community objectives.

3. A compact and contiguous form of development.

4. Development of a set of internally consistent development policies.

5. Development of additional employment opportunities and a diversification of the local economy.

6. Provision of high quality City services and delivery that is responsive to the needs of Selma residents.

7. Development of Selma as a regional retail hub for Fresno County.

8. Provision of a wide variety of housing types to meet the needs of all Selma residents, and to promote local retail growth.

9. Development of adequate fiscal resources to meet community needs and reduce the tax burden on local residents.

In addition, the alternatives were selected to address the Plan Update's environmental impacts that were found to be significant and unavoidable, even with the proposed mitigation measures, including the following: agricultural resources, air quality, hydrology, traffic, utilities, and global warming.

Alternatives Considered:

- **Existing General Plan Alternative (No Project).** Under this alternative, the Plan Update would not be adopted, and the existing 1997 City of Selma General Plan would remain in effect. Impacts related to a continuance of agricultural operations would be continued in the long-term.

- **Reduced Growth Alternative.** Under this alternative, slightly less new development would be allowed in comparison with the General Plan Update and growth would be restricted to a slightly smaller area within the Planning Area boundary. This alternative was considered feasible because the City could grow at a slower pace than expected.

- **Concentrated Growth Alternative.** Under this alternative, the total amount of new development would be similar to that allowed under the Plan Update but residential densities would be increased in and around existing developed areas, leaving more land designated as Agriculture or Reserve.

These alternatives are summarized in the next section and compared with the proposed project. This chapter concludes with an analysis of the comparative environmental superiority of the various alternatives, as required by CEQA.

4.2.1 EXISTING GENERAL PLAN (NO PROJECT) ALTERNATIVE

The No Project Alternative is required under CEQA. Under the “No Project” or existing General Plan alternative, development would occur as allowed under the existing LAFCO approved SOI with the same General Plan Land Use map currently in effect (see Figure 2-3). Lands currently used or planned for longer term agricultural use would continue in that use with the associated impacts. The No Project alternative is not considered feasible because the Existing General Plan does not comply with legislative policy mandates for air quality, flooding, global warming, and consistency. It also does not represent current policy preferences by the community. Based on these observations it has determined to be infeasible from a legal standpoint.

The No Project Alternative would have the following impacts relative to adoption of the Plan Update unless mitigated by other City policies/ordinances, including environmental review:

- **Aesthetics**
  Future development in Selma will change the appearance of the City under either the No Project Alternative or the proposed Plan Update. Of specific concern for Selma, in terms of aesthetics, is preserving its traditional small-town character as well as the agricultural character created by the farm lands surrounding the City. The No Project Alternative contains fewer policies and actions specifically related to preserving and enhancing community character than the proposed Plan Update.

- **Agriculture**
  The No Project Alternative would designate 337 fewer acres for urban development, compared to the Plan Update. While some of this area may develop as very low density residential uses, as allowed by the City and County’s agricultural designations, agricultural land use would not benefit from the additional conservation policies and mitigations contained in the Plan Update. While there would be an apparent overall decrease in the amount of agricultural resources lost to urban development, the amount of agricultural land lost to development for a specific population level would be significantly reduced under the Plan Update because of the higher overall densities prescribed by it. Under the Plan Update the population holding capacity of the existing SOI and City limits would be increased by approximately 20 percent. However, under this alternative, the impacts, including cumulative impacts, would remain significant and unavoidable to agricultural resources, as the alternative would still result in the conversion of agricultural land to urban uses. Agricultural impacts under the No Project Alternative would be reduced in comparison with the Plan Update.

- **Air Quality**
  The No Project Alternative would result in fewer urban uses and less vehicle emissions and stationary source air emissions. Construction-related emissions would also be lessened under the No Project Alternative. As a result, the No Project Alternative would result in a reduction of air quality impact relative to the proposed Plan Update. However, implementation of the No Project Alternative would not avoid a significant, unavoidable and cumulative air quality impact since the air basin is non-attainment for selected criteria pollutants. The existing General Plan contains fewer policies with regard to air quality improvement and mitigation

than the Plan Update. For the same population level, implementation of the No Project Alternative would result in greater air quality impacts than the Plan Update.

- **Biological Resources**
  Implementation of the No Project Alternative would reduce the amount of land converted from farmland to urban uses by 481 acres and decrease the amount of potential wildlife habitat/foraging land lost. In addition, there would be a reduction in the potential for other sensitive biological resources to be affected by conversion of land to urbanized uses.

- **Cultural Resources**
  Historic resources could be affected equally under both General Plan scenarios because the historical resources of the City are located in the existing developed areas. The proposed General Plan includes mitigation to reduce potential impacts to cultural resources to a less than significant level.

- **Geology/Soils**
  Implementation of the No Project Alternative would have similar potential impacts with regard to geology and soils as implementation of the proposed General Plan for what development would occur, but overall these impacts would be lessened due to less development.

- **Hazards and Hazardous Materials**
  Implementation of the No Project Alternative would result in a reduction in new urban development in comparison with implementation of the Plan Update and would therefore expose fewer people to hazards and hazardous material sources, and reduce the number of potential new hazardous materials generators. While new development under both the No Project Alternative and the proposed General Plan would be subject to General Plan policies and local, State and federal regulations that would reduce the potential for hazards and hazardous materials impacts to a less than significant level, the No Project Alternative would result in fewer potential impacts relative to the proposed General Plan.

- **Hydrology and Water Quality**
  Implementation of the No Project Alternative would reduce the amount of land converted from farmland to urban development, thereby reducing the amount of land subject to grading for construction. However, undeveloped land may still be cleared on a regular basis for agricultural activities, leaving bare soil open to erosion. Since Agriculture consumes more water than an equivalent acreage of urban development, the No Project alternative will consume more ground and surface water than the Plan Update. Urban development under this alternative would be subject to the same General Plan policies as well as federal, state and local regulations as the proposed General Plan, which would reduce the potential impacts on hydrology and water quality to less than significant levels.

- **Land Use and Planning**
  Neither the proposed Plan Update nor the No Project Alternative would divide any existing communities, and implementation of the No Project Alternative would not differ from implementation of the proposed General Plan in this regard. Implementation of the No

Project Alternative would result in land use inconsistencies, less coordination with the specific plans currently underway, and future projects would not be subject to policies proposed for inclusion in the Plan Update designed to improve regional planning coordination.

- **Mineral Resources**
  Impacts to mineral resources are not an issue within the City of Selma and implementation of the No Project Alternative would have no different effect on this resource than implementation of the proposed Plan Update.

- **Noise**
  Implementation of the No Project Alternative would generate less traffic and less traffic related noise than implementation of the proposed Plan Update. Noise impacts would, therefore, be lessened in comparison with the proposed Plan Update.

- **Population and Housing**
  The No Project Alternative would result in a smaller buildout population than that which would occur under the proposed Plan Update. Similar to the Plan Update, the No Project Alternative would not displace housing and population, or create new population growth beyond that which is expected or planned.

- **Public Services**
  As noted above, the No Project Alternative would result in a smaller population at buildout than that which would occur under the proposed Plan Update, which would place a smaller demand on public services. Such development would not be subject to the new Public Services policies, and would result in less commercial development, and reduced fiscal resources.

- **Recreation**
  The No Project Alternative would result in a smaller population at buildout than that which would occur under the proposed Plan Update, which would place a smaller demand on parks/recreation services. Although the proposed General Plan includes policies that would ensure adequate provision of parks/recreation services, resulting in a less than significant impact, Implementation of the No Project Alternative would result in fewer potential impacts on parks/recreation than the proposed General Plan.

- **Transportation/Traffic**
  Implementation of the No Project Alternative would generate less traffic than implementation of the Plan Update. While the No Project Alternative would generate less traffic, the alternative does not provide, in detail, the improvements that would be necessary for the roadway system to accommodate projected traffic volumes. Nevertheless, the analysis of future traffic for the Project shows that the Plan Update would result in levels of service that exceed "C" on more roadway segments than in the No Project Alternative. The No Project Alternative avoids significant impacts by maintaining a level of service of "C" or better on portions of Floral, Nebraska, Mountain View and McCall Avenues and Whitson

and 2nd Streets. Therefore, implementation of the No Project Alternative would result in fewer traffic and circulation impacts when compared with the proposed Plan Update.

- **Utilities/Service Systems**
  Implementation of the No Project Alternative would result in a smaller population at buildout than the proposed Plan Update at buildout, which would place a smaller demand on utilities. Both the Plan Update and the No Project alternative would have impacts that are less than significant.

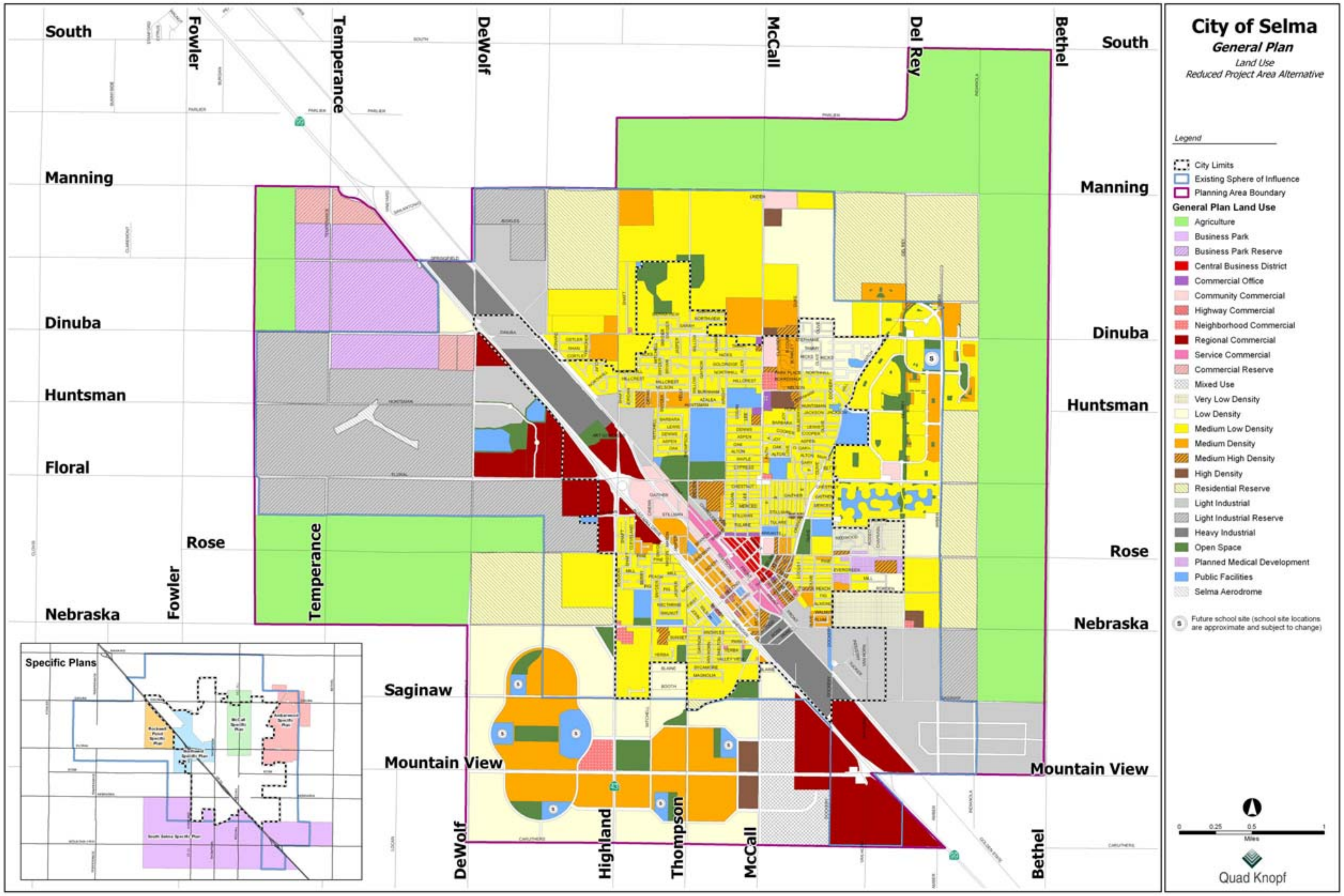
- **Global Climate Change**
  Implementation of the No Project Area Alternative would result in a reduction of locally generated greenhouse gas emissions. It may be argued that development that is not accommodated in Selma would occur elsewhere in the region to accommodate population and jobs growth, and there would be no real avoidance or reduction in impacts. The Plan Update includes policies to lessen such impacts. If development occurs elsewhere these policies may or may not be imposed on new development.

4.2.2 REDUCED GROWTH ALTERNATIVE

The Reduced Growth Alternative would update the General Plan elements but would restrict growth to a slightly smaller area and result in slightly less new development within the Planning Area boundary. Figure 4-1 shows the Reduced Growth Alternative.

- **Aesthetics**
  The Reduced Growth Alternative would contain the same goals, policies and standards addressing the visual appearance of new development as the Plan Update. As a result, the potential project-level aesthetic impacts of new development would be mitigated in the same manner as they would under the Plan Update.

- **Agriculture**
  The Reduced Growth Alternative would result in an approximately 100-acre reduction of land designated for urban uses in comparison with the Plan Update. While some of this area may develop as very low density residential uses, as allowed by the County's agricultural designations, there would be a decrease in the amount of agricultural resources lost to urban development. However, under this alternative, the impacts, including cumulative impacts, would remain significant and unavoidable to agricultural resources, since the alternative would still result in the conversion of agricultural land to urban uses. The Reduced Growth Alternative, however, would have less impact to agricultural resources than the proposed Plan Update.



Quad Knopf	REDUCED GROWTH ALTERNATIVE	Figure 4 - 1

- **Air Quality**
  The Reduced Growth Alternative would result in the same population level, commercial designations, etc., but less land being designated for urban uses. There would essentially be the same volume of traffic generated, which would result in similar emissions compared to the Plan Update. Vehicle trips may be shorter under this alternative; however, for short local trips, trip length is not a significant factor in total overall vehicle emissions. Air quality impacts resulting from implementation of this alternative would result in significant unavoidable and cumulative impacts as with the Plan Update.

- **Biological Resources**
  There are limited biological resources in the Planning Area due to urbanization and intense agricultural production. Implementation of the Reduced Growth Alternative would decrease the amount of land converted from farmland to urban development and there may be a reduction in the potential for biological resources to be affected by conversion of land to urbanized uses. Therefore, the Reduced Growth Alternative would result in a reduction in biological resource impacts in comparison with the proposed Plan Update. Both the Plan Update and the Reduced Project alternative's impacts would be less than significant.

- **Cultural Resources**
  This alternative would result in less extensive grading activities, but there still would be the potential for disturbance of unknown cultural resources in conjunction with implementation of the Reduced Growth Alternative. Because this alternative would also be subject to the Plan Update policies and mitigation designed to reduce potential impacts to cultural and historical resources to a less than significant level, the Reduced Growth Alternative impact to cultural resources would also be reduced to a less than significant level. As a result, the Reduced Growth Alternative would be similar to the proposed Plan Update with regard to cultural and historic resources impact.

- **Geology/Soils**
  The Reduced Growth Alternative would be subject to the same General Plan policies as the proposed General Plan, as well as federal, state and local regulations, that would reduce the potential for geology or soils-related impacts to a less than significant level and the Reduced Growth Alternative would result in similar impacts to geology and soils as the Plan Update.

- **Hazards and Hazardous Materials**
  The Reduced Growth Alternative would be subject to the same General Plan policies and standards, as well as federal, State and local regulations, that would reduce the potential for hazards and hazardous materials related impacts to a less than significant level for both the Plan Update and this alternative.

- **Hydrology and Water Quality**
  Implementation of the Reduced Growth Alternative would result in a decrease in the amount of land converted from farmland to urban development in comparison with the proposed Plan Update, thereby decreasing the amount of land subject to grading for new construction. However, vacant land may still be cleared on a regular basis for agricultural activities, leaving bare soil open to erosion and water use under this alternative could potentially be

increased in that agricultural irrigation demands could exceed urban use demands. Urban development under this alternative would be subject to the same Plan Update policies as the proposed General Plan, as well as federal, State and local regulations, which would reduce the potential impacts on hydrology and water quality to a less than significant level.

- **Land Use and Planning**
  The area surrounding the City limits and within the Planning Area does not include any established communities that would be divided by the Reduced Growth Alternative, and the Reduced Growth Alternative would be subject to the same General Plan policies in regards to updating other land use plans and policies for consistency. The Reduced Growth Alternative would have similar land use impacts as the Plan Update.

- **Mineral Resources**
  Impacts to mineral resources are not an issue within the City of Selma and implementation of the Reduced Growth Alternative would have no different effect on this resource than implementation of the proposed Plan Update.

- **Noise**
  The Reduced Growth Alternative would include the same General Plan noise policies as the proposed Plan Update reducing potential noise impacts to a less than significant level for both.

- **Population and Housing**
  As is the case with the proposed Plan Update, this alternative would not result in displacement of housing or people. Both the Reduced Growth Alternative and Plan Update would have less than significant impacts.

- **Public Services**
  The Reduced Growth Alternative would include the same General Plan noise policies as the proposed Plan Update, reducing potential public services impacts to a less than significant level. However, due to less development, the Reduced Growth Alternative would result in fewer public services impacts in comparison to the proposed Plan Update.

- **Recreation**
  Implementation of the Reduced Growth Alternative would result in fewer housing units and would place a smaller demand on parks/recreation services. The Plan Update includes policies that would ensure adequate provision of parks/recreation services, resulting in a less than significant impact.

- **Transportation/Traffic**
  Although the Reduced Growth Alternative would include the same General Plan policies as the proposed Plan Update and a similar level of additional urban development, there would be fewer street improvements, commensurate with development under the Reduced Growth Alternative, compared to implementation of the proposed Plan Update. Consequently, implementation of the Reduced Growth Alternative would reduce the severity of some of the

significant unavoidable impacts to portions of the circulation system in comparison compared to the Plan Update.

- **Utilities/Service Systems**
  The Reduced Growth Alternative would include the same General Plan policies designed to minimize impacts relative to utilities as the proposed Plan Update.

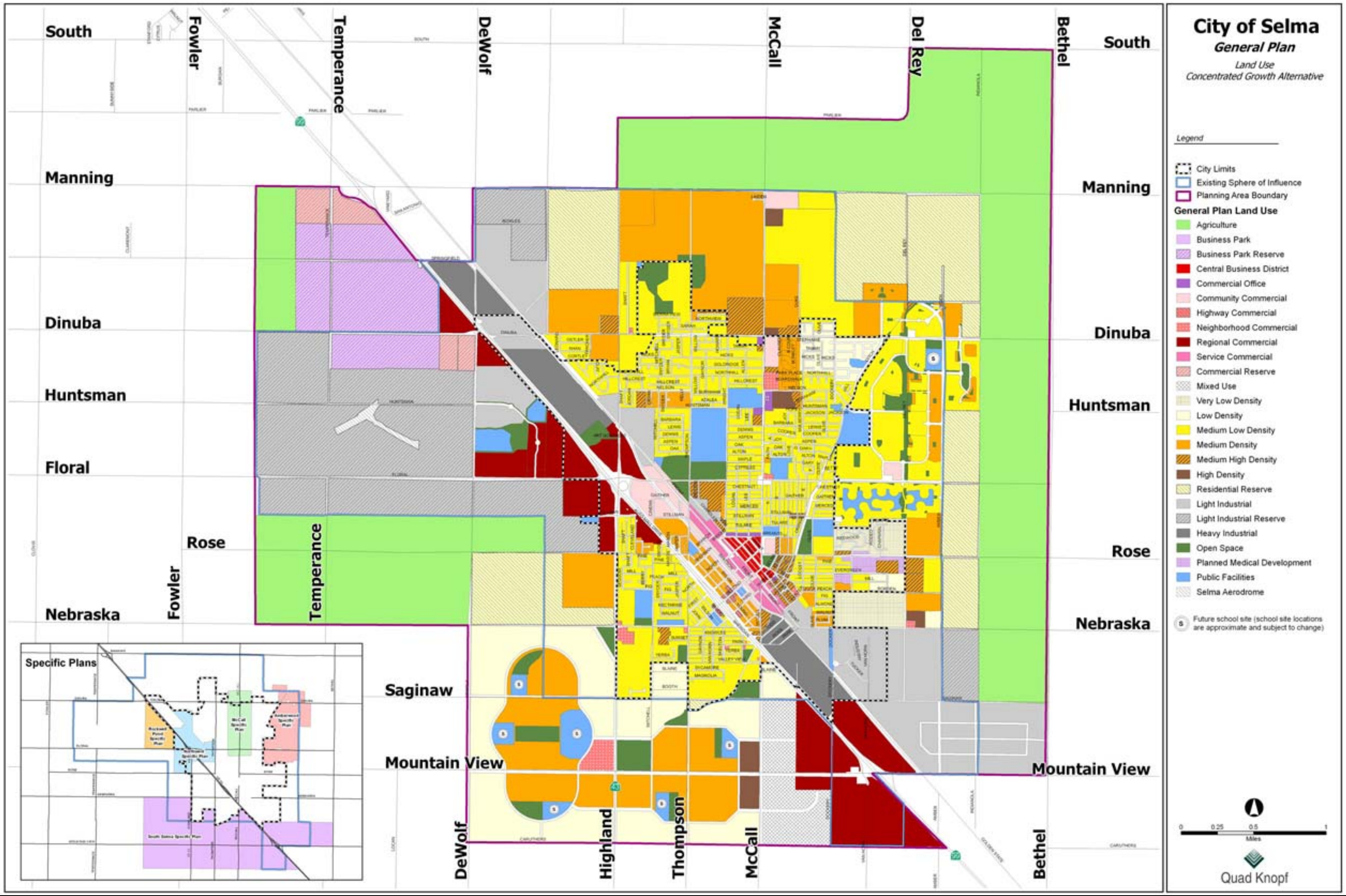
- **Global Climate Change**
  Implementation of the Reduced Growth Alternative would result in less land being designated for urban uses. Global climate change impacts resulting from implementation of this alternative could be less due to slightly less development, but would remain significant and unavoidable.

4.2.3 CONCENTRATED GROWTH ALTERNATIVE

The Concentrated Growth Alternative assumes the same number of residential units in 2035 as the proposed Plan Update, as well as the same goals, objectives, and policies. However, under the Concentrated Growth Alternative, the density of residential development would increase to reduce the amount of land needed to provide the same growth capacity proposed by the Plan Update. Under the Concentrated Growth Alternative some Low and Medium-Low Density Residential areas in the city limits and SOI would be designated as High and Medium-High Density Residential. Additional High and Medium-High Density Residential uses would be focused around the intersections of Dinuba and McCall, Dinuba and Highland, and just east of the hospital south of Rose. As a result, more of the land in the Planning Area would be left in a "Reserve" land use designation or in agricultural use. Figure 4-2 shows the Concentrated Growth Alternative.

The Concentrated Growth Alternative would have the following impacts relative to adoption of the Plan Update.

- **Aesthetics**
  The Concentrated Growth Alternative would contain the same policies addressing the visual appearance of new development as the proposed Plan Update. Consequently, the potential project-level aesthetic impacts of new development would be self-mitigated in the same manner as would occur under the Plan Update.



CONCENTRATED GROWTH ALTERNATIVE

Figure
4 - 2

- **Agriculture**
  The primary difference between the Concentrated Growth Alternative and the Plan Update is that fewer acres would be designated for urban development, with an increase of medium and high-density residential development over a more limited area. While some of the agricultural land not planned for development under the Concentrated Growth Alternative may develop with very low density residential uses, as allowed by the County's agricultural designations, there would be a 125-acre decrease in the amount of agricultural resources lost to urban development. However, under the Concentrated Growth Alternative, impacts to agricultural resources, including cumulative impacts, would remain significant and unavoidable, as the alternative would still result in the conversion of agricultural land to some non-agricultural uses. The Concentrated Growth Alternative would have a less severe impact on agricultural resources than implementation of the Plan Update, but these impacts would still remain significant and unavoidable.

- **Air Quality**
  Implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential square footage and would, therefore, generate a similar number of vehicle trips compared to the Plan Update. However, the Concentrated Growth Alternative would result in placement of residential development in closer proximity to existing and proposed commercial areas. As a result, there may be a slight decrease in vehicle trips generated per dwelling unit compared to the Plan Update. Residents may drive shorter distances. The resulting reduction in vehicle miles traveled associated with the Concentrated Growth Alternative would result in a slight decrease in mobile source emissions; however, for short local trips, trip length is not a significant factor in total overall vehicle emissions. This reduction would not avoid the significant, unavoidable, and cumulative impact that population growth would have on air quality.

- **Biological Resources**
  Implementation of the Concentrated Growth Alternative would decrease the amount of land converted from farmland to urban development and there would be a reduction in the potential for biological resources to be affected by conversion of land to urbanized uses. Both the Plan Update and the Concentrated Growth Alternative would have less-than-significant impacts to biological resources.

- **Cultural Resources**
  This alternative would result in less extensive grading activities, but there would still be the potential for disturbance of unknown cultural resources. Because this alternative would also be subject to the Plan Update policies and mitigation designed to reduce potential impacts to cultural and historical resources to a less than significant level, the Concentrated Growth Alternative's impact to cultural resources would also be reduced to a less than significant level. As a result, the Concentrated Growth Alternative would be similar to the proposed Plan Update with regard to cultural and historic resources impact.

- **Geology/Soils**
  The Reduced Growth Alternative would be subject to the same General Plan policies as the Plan Update, as well as federal, state, and local regulations that would reduce the potential

for geology or soils-related impacts for both the Plan Update and this alternative to a less than significant level.

- **Hazards and Hazardous Materials**
  Implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential square footage within the planning area and would generate a similar increase in population and amount of hazardous materials and waste as implementation of the proposed General Plan. The Concentrated Growth Alternative would be subject to the same General Plan policies as the proposed General Plan, as well as federal, state, and local regulations reducing the potential for hazards and hazardous materials related impacts to a less than significant level and implementation of the Concentrated Growth Alternative would, therefore, result in a similar impact as the Plan Update.

- **Hydrology and Water Quality**
  Implementation of the Concentrated Growth Alternative would result in a decrease in the amount of land converted from farmland to urban development in comparison with the proposed Plan Update, thereby decreasing the amount of land subject to grading for new construction. However, vacant land may still be cleared on a regular basis for agricultural activities, leaving bare soil open to erosion and water use under this alternative could potentially be increased in that agricultural irrigation demands could exceed urban use demands. Urban development under this alternative would be subject to the same Plan Update policies as the proposed General Plan, as well as federal, State and local regulations, which would reduce the potential impacts on hydrology and water quality to a less than significant level, resulting in a similar level of impact in comparison with the proposed Plan Update.

- **Land Use and Planning**
  The area surrounding the City limits and within the Planning Area does not include any established communities that would be divided by the Concentrated Growth Alternative, and the Concentrated Growth Alternative would be subject to the same General Plan policies in regards to updating other land use plans and policies for consistency as the Plan Update. The Concentrated Growth Alternative would have similar land use impacts to the Plan Update.

- **Mineral Resources**
  Impacts to mineral resources are not an issue within the City of Selma and implementation of the Concentrated Growth Alternative would have no different effect on this resource than implementation of the proposed Plan Update.

- **Noise**
  Implementation of the Concentrated Growth Alternative would result in generation of similar noise impacts due to a similar number of housing units and non-residential uses and related vehicle trips in comparison with the Plan Update. The Concentrated Growth Alternative would include the same General Plan noise policies as the Plan Update, reducing the noise impacts for both to a less than significant level.

- **Population and Housing**
  In comparison with the proposed Plan Update, implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential uses and the same planned population growth as the proposed Plan Update. As is the case with the proposed Plan Update, this alternative would not result in displacement of housing or people.

- **Public Services**
  Implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential uses accompanied by similar demand for public services in comparison with the proposed Plan Update. The Concentrated Growth Alternative would include the same General Plan public services related policies as the proposed Plan Update reducing potential public services impacts to a less than significant level.

- **Recreation**
  In comparison with the proposed Plan Update, the Concentrated Growth Alternative would result in a similar number of housing units and demand for parks/recreation services throughout the community. The same General Plan parks/recreation related policies would apply to this alternative as the proposed Plan Update.

- **Transportation/Traffic**
  Implementation of the Concentrated Growth Alternative would result in essentially the same number of vehicular trips as the Plan Update. The Concentrated Growth Alternative would include the same General Plan policies as the proposed Plan Update, but there would be a reduction in the extent of new public streets compared to implementation of the Plan Update. Implementation of the Concentrated Growth Alternative would not reduce the severity of significant impacts to deficient street segments or intersections in comparison with the proposed Plan Update. Both would have significant, unavoidable impacts.

- **Utilities/Service Systems**
  Implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential uses, accompanied by similar demand for utilities in comparison with the proposed Plan Update. The Concentrated Growth Alternative would include the same General Plan policies pertaining to utilities as the proposed Plan Update, reducing potential utility-related impacts to a less than significant level.

- **Global Climate Change**
  Implementation of the Concentrated Growth Alternative would result in a similar number of housing units and non-residential square footage and would, therefore, generate a similar number and length of vehicle trips contributing to global warming compared to the Plan Update. The Concentrated Growth Alternative would result in placement of residential development in closer proximity to existing and proposed commercial areas. As a result, a slight decrease in vehicle trips generated compared to implementation of the proposed Plan Update might occur. The reduction in vehicle miles traveled associated with the Concentrated Growth Alternative could result in a slight reduction in greenhouse gas emissions contributing to global warming. This improvement would, however, not avoid a significant, unavoidable, and cumulative impact.

4.3 Comparison of Alternatives and the Project

Table 4-1 shows a qualitative comparison of the alternatives and the Project. This comparison provides the means to determine, in conformance with Section 15126.6 of the CEQA Guidelines, if any of the alternatives are feasible, and if feasible, if they would mitigate, avoid or substantially lessen environmental impacts associated with the Project.

4.4 Conclusions

In accordance with the *CEQA Guidelines*, reasonable project alternatives have been evaluated for their comparative environmental superiority. Based on Table 4-1 and the analyses developed in this EIR, the Reduced Growth Alternative is the environmentally superior alternative because it has more improvement areas and serves to reduce the severity of three significant impacts (agriculture, air quality, and transportation), whereas the Concentrated Growth Alternative reduces only two. The No Project alternative (existing General Plan) is environmentally inferior to the Plan Update and the other alternatives and is infeasible because it fails to achieve certain legal requirements for General Plan consistency and content.

It is noteworthy, however, that none of the alternatives reduce the severity of any significant environmental impacts to a less-than-significant level.

Table 4-1
Environmental Impacts of Alternatives Compared to Project with Mitigations

Topic	Plan Update with Mitigations	No Project Alternative	Reduced Growth	Concentrated Growth
Feasible?	Yes	No	Yes	Yes
Aesthetics	Less than Significant	W	S	S
Agriculture	Significant, Cumulative	B	B	B
Air Quality	Significant, Cumulative	W	B	B
Biological Resources	Less than Significant	S	S	S
Cultural Resources	Less than Significant	S	S	S
Geology/Soils	Less than Significant	S	S	S
Hazards and Hazardous Materials	Less than Significant	S	S	S
Hydrology & Water Quality	Less than Significant	S	S	S
Land Use and Planning	Less than Significant	W	S	S
Mineral Resources	No Impact	S	S	S
Noise	Less than Significant	B	S	S
Population and Housing	Less than Significant	S	S	S
Public Services	Less than Significant	S	S	S

Topic	Plan Update with Mitigations	No Project Alternative	Reduced Growth	Concentrated Growth
Recreation	Less than Significant	B	B	S
Transportation/ Traffic	Significant	B	B	S
Utilities/ Service Systems	Less than Significant	B	S	S
Global Climate Change	Significant, Cumulative	W	B	B

S = Same
B = Better
W = Worse

CHAPTER FIVE

CUMULATIVE IMPACTS

CHAPTER FIVE – CUMULATIVE IMPACTS

5.1 Introduction

CEQA requires that an EIR examine the cumulative impacts associated with a project. The range of projects to be included in the cumulative impacts analysis encompasses "past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those outside of the control of the agency." Section 15130 requires cumulative impacts to be discussed "where they are significant." A cumulative effect is deemed significant if the project's incremental contribution to a cumulative impact is "considerable." A cumulative impact is not considered significant if the impact can be mitigated to below the level of significance through mitigation, including providing improvements and/or contributing funds through fee-payment programs. The EIR must examine "reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project" (CEQA, Section 15130).

The Guidelines allow for the use of two alternative methods to determine the scope of projects for the cumulative impact analysis:

- List Method – A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency (Section 15130(A)).

- General Plan Projection Method – A summary of projections contained in an adopted General Plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact (Section 15130 (B)).

The General Plan Projection Model was selected to conduct the cumulative impact analysis for this EIR. Although the City has not adopted the General Plan Update, the Draft will be used as the basis for this analysis as it contains the most current predicted improvements and development guidelines of the City.

5.2 Cumulative Setting

For the purposes of this EIR, the cumulative setting is based on a two-fold approach. For some impact issue areas (i.e., air quality, traffic), the cumulative setting is defined by specific regional boundaries (air basin, regional roadway network, etc.) or projected regional or area-wide conditions, contributing to cumulative impacts. For the remaining impact issue areas, the cumulative setting is based on development anticipated within the vicinity of the City, including surrounding cities within Fresno County and the County as a whole. This analysis is based primarily on impacts contained in the existing General Plan documents for these jurisdictions, including the adjacent cities of Fowler, Kingsburg and Parlier and the County of Fresno.

5.3 Cumulative Impacts Analysis

5.3.1 AESTHETICS

The Plan Update would result in changes to the visual character of the Selma area from a rural, agricultural base to one that is more characterized by urban uses, with increased light and glare sources. The Plan Update policies and standards, in conjunction with adopted City regulations, would reduce Project-level aesthetic impacts to a less than significant level. However, while the Plan Update would not result in a Project-level significant aesthetics impact, when combined with the overall growth trends in Fresno County, cumulative conversion of the County's visual character from a rural, agricultural character to a more urbanized environment could ultimately result in a cumulatively considerable aesthetics impact. Within the timeframe of the Plan Update, it is unlikely that rural Fresno County near Selma would be substantially converted from agricultural land to urban uses and implementation of the 2035 General Plan Update within the boundaries of the proposed Sphere of Influence would **not result in a cumulatively considerable** aesthetic impact.

5.3.2 AGRICULTURAL RESOURCES

With the implementation of the proposed Project there would be a loss of existing agricultural lands within the City of Selma planning area. While the Plan Update includes policies to minimize this impact, there would still be a Project-level significant and unavoidable impact. The loss of agricultural land within the City's planning area as a result of urban development is part of an overall trend within Fresno County. In total Fresno County expects to convert approximately 75,000 acres of agricultural land over the next 25 years, with some experts projecting the conversion of over 1 million acres in the Central Valley over this same period. The proposed Project includes several policies directing the City to work at a regional level to control the conversion of agricultural land to urban uses. However, because the County is projected to continue to urbanize at a significant rate, the loss of agricultural lands as a result of the proposed Project would contribute to a **significant and cumulatively considerable** impact to agricultural resources.

5.3.3 AIR QUALITY

Cumulative air quality impacts were considered in terms of the various land uses proposed under the General Plan Update and the traffic projections generated by the traffic model. Because of significant air quality issues in the San Joaquin Valley Air Basin, implementation of the 2035 General Plan Update would result in a **significant, unavoidable and cumulatively considerable** air quality impact.

5.3.4 BIOLOGICAL RESOURCES

Due to intensive urbanization and agricultural use in the Planning Area there are few natural lands in the Planning Area and little habitat is available for common and special-status plant and animal species. Nevertheless, some special-status species occur in the vicinity of the Planning Area. The increase in urbanization facilitated by implementation of the General Plan Update could contribute to the cumulative loss of biological resources. However, as discussed in Section 3.4, Biological Resources, Project-specific impacts to biological resources will be mitigated to a less than significant level by Plan Update policies and standards, implementation of agency-mandated surveys, and mitigation measures for special-status species. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.5 CULTURAL RESOURCES

While grading and other construction activities have the potential to impact cultural resources in Selma and the Planning Area, Plan Update policies and compliance with federal and State regulations reduce the Project-specific impact to a less than significant level. Regional development throughout the County could also affect cultural resources located in other areas of Fresno County. However, development in these areas would also be subject to federal and State laws and local regulations protecting cultural resources, including historical resources. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.6 GEOLOGY AND SOILS

New development in Fresno County and the Central Valley will continue to expose people and property to potential seismic hazards and adverse soil conditions. The policies contained in the Plan Update, along with compliance with federal, State and local regulations addressing building construction, would reduce the Project-level impacts associated with geology and soils to a less than significant level. Development projects in other communities would also be subject to County and State laws and regulations, local general plan policies and planning, building and engineering regulations. Review and permitting of specific development projects, including environmental review in accordance with CEQA, would be expected to involve characterization and consideration of site-specific geologic and soils conditions, and implementation of individual project mitigations where needed. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.7 HAZARDOUS SUBSTANCES AND WASTES

While there would be an increase in population and employment in Selma, the Plan Update would not result in a significant impact related to hazards and hazardous materials due to local, regional, State and federal regulations and policies of the General Plan. Similarly, as growth occurs in the County, additional people would be exposed to the risk of hazardous materials, wastes, safety hazards near airport/airstrips, and wildland fires. However, as would occur in Selma, regional, State and federal regulations would apply to development countywide, thereby reducing the potential for cumulative impacts associated with hazards and hazardous materials. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.8 HYDROLOGY AND WATER QUALITY

The quality of groundwater in most of the Plan Area is generally suitable for public supply. Although the Plan Update would allow new development that could contribute to erosion and create additional urban pollutants that could end up in the surface or groundwater systems, Implementation of the General Plan policies and adherence to federal, state and local regulations will reduce potential water quality impacts to a less than significant level. Adherence to Federal, State and local regulations, development in accordance with the City of Selma Storm Water Management Plan and CID regulations, and implementation of existing and proposed General Plan Policies will reduce potential storm water drainage impacts resulting from development under the proposed Plan Update to a less than significant level.

Based on the Plan Update land use diagram, about 14,700 acres of land would ultimately be urban (excludes CID canals and recharge ponds). California Water Service (2006) has estimated the water requirement for year 2030 would be about 27,600 acre-feet per year. If groundwater pumpage alone is used to supply the urban demand for the 2035 planning area, the increased pumpage would be about 8,000 acre-feet per year compared to existing conditions. There would be an estimated urban consumptive use of about 15,000 acre-feet per year under full development of the Plan Area. This would be about 13,000 acre-feet per year less than the estimated present consumptive use in the Plan Area. The amount of wastewater generated in the Plan Area would be about 13,000 acre feet per year. If all of this was exported out of the Plan Area, there would be an average water deficit of about 15,000 acre-feet per year in the Plan Area. If the canal water formerly used for irrigation in the Plan Area (15,000 acre-feet per year) were used or recharged in the Plan Area under full development, then the deficit would be eliminated. If the 10,000 acre-feet of additional wastewater was used or percolated in the Plan Area, this would reduce the deficit significantly. The ground water analysis prepared for the Plan Update supports a finding of less than significant impact. The analysis of ground water quality and supply prepared for this EIR shows that implementation of the Plan Update would **not result in a cumulatively considerable** impact.

5.3.9 LAND USE

The land use analysis in Section 3.8 of the Plan Update found that implementation of the policies and standards in the 2035 General Plan and compliance with the LAFCo process as the Plan Update is implemented would ensure that conflicts between the General Plan and other plans, policies, and regulations applicable to the Selma area are reduced to less than significant. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

The land use analysis in Section 3.8 also found that new development resulting from implementation of the Plan Update would potentially result in the loss of special-status species habitat being destroyed. However, since the majority of the land surrounding the City of Selma is intensely farmed, the likelihood of such habitat existing in the Planning Area is remote. With application of the mitigation measures presented in Section 3.4, Biological Resources, this impact is considered less than significant. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.10 MINERAL RESOURCES

The cumulative Planning Area is not known for the presence of locally important mineral resources. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.11 NOISE

Increased urban development is accompanied by increased noise. The Plan Update contains an update to the Noise Element which has several specific development policies and standards to minimize and mitigate noise impacts. Uses that generate noise and construction noise are time restricted to minimize impacts to adjacent land uses and have performance standards for noise levels at property lines. Based on the implementation of these policies, build-out of the Plan Update would result in a **less than significant cumulative impact**.

5.3.12 POPULATION AND HOUSING

As discussed in Section 3.12, the Plan Update includes policies to control and direct growth in a well-planned manner, and would improve jobs and housing opportunities in the community. As a result, there would not be a significant or unavoidable project-level impact. Growth would also occur outside of Selma, in other nearby cities within Fresno and Tulare Counties. Fresno County and other incorporated jurisdictions are required by State law to use the General Plan process, as well as other planning processes, such as utility master plans, specific and community plans, to plan for and control future growth. As a result, there would not be a cumulative impact associated with unplanned growth. With regards to the jobs/housing imbalance in Fresno County, the Plan Update would contribute to a positive improvement in the jobs/housing balance with the contribution of additional employment opportunities. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.13 PUBLIC SERVICES

The following provides a cumulative analysis broken down by each category of service or utility.

Fire Protection

Future regional growth would result in increased demand for fire services throughout the City. As discussed in Section 3.13, Public Services, the City will continue to collect development impact fees and implement a variety of policies and standards designed to address and ensure adequate and efficient fire services will meet future needs. Implementation of Mitigation Measures 3.13.3.1a and 3.13.3.1b would result in a less than significant impact to fire services. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerably** impact.

Police Protection

Future regional growth would result in a need for expanded police protection services throughout the City. As discussed in Section 3.13, Public Services, the City will continue to collect development impact fees and implement a variety of policies and standards designed to address and ensure adequate law enforcement will meet future needs. Implementation of Mitigation Measures 3.13.3.2a, 3.13.3.2b, and 3.13.3.2c would result in a less than significant impact to police protection services. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

School Facilities

Future regional growth would result in increased demand for schools throughout the City. As discussed in Section 3.13, Public Services, it is unknown exactly where these school facilities would occur to support the cumulative increase in population resulting from growth within and outside of the City. As specific school facility expansion or improvement projects are identified, additional project-specific, second-tier environmental analysis would be completed. Additionally, the payment of school impacts fees (pursuant to SB 50), is deemed as a matter of law to help mitigate these potential impacts to school facilities. Implementation of the Plan Update policies and payment of school impact fees would result in a less than significant impact on school facilities. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

Electrical Utilities and Natural Gas

Growth in the region will continue to require construction/expansion of utility infrastructure and, as discussed in Section 3.13, Public Services, without definitive plans, it cannot be determined at this time whether these potential impacts would be substantial and would therefore have to be characterized as significant and unavoidable. However, it is known that projects that cannot be served by gas or electric facilities cannot be feasibly built and this constraint would be self-mitigating. Each utility also has in-kind, fees, or rate infrastructure funding methodologies that assure that facilities will be installed or funded. Potential impacts resulting from the construction and/or expansion of any required private electrical utility or natural gas infrastructure are speculative and would have to be evaluated at the time of actual development. The cumulative impact would therefore be **less than significant**.

5.3.14 RECREATION

As discussed in Section 3.14, Recreation, new development under the Plan Update has the potential to increase the demand for parks and recreation facilities. The Plan Update will not directly result in the construction or expansion of recreational facilities, however; new parks and recreational facilities will eventually be built as the community grows. Future facilities will be funded and built in accordance with policies and standards of the 2035 General Plan Update and it is not anticipated that construction of these facilities will have an adverse physical effect on the environment in that their locations will be in developed, or developing, areas with ample infrastructure to accommodate them.

Implementation of the 2035 Plan Update policies referenced in Section 3.14 would result in a less than significant impact. As a result, implementation of the 2035 General Plan Update would **not result in a cumulatively considerable** impact.

5.3.15 TRANSPORTATION AND CIRCULATION

Cumulative traffic impacts of the General Plan Update are more fully described in Section 3.15 Transportation/Traffic in Chapter 3 of this Draft EIR. The traffic model used considered growth under the Draft General Plan Update in conjunction with the projected regional growth for Fresno County. Therefore, the transportation analysis of the General Plan Update is inherently cumulative in nature, because the implementation of the proposed Project would take place over many years and would occur in conjunction with other growth and development throughout the region.

As identified in Chapter 3 the proposed Project would result in a substantial increase in vehicular traffic on roadways in the Planning Area resulting in a significant and unavoidable impact and some road segments were identified as not meeting LOS standards and there were significant impacts from growth to the transportation system. Because this analysis was based on a cumulative model, the project's incremental contribution to traffic impacts would be **cumulatively considerable**.

Because this analysis was based on a cumulative model, the Project's incremental contribution to traffic impacts would be **cumulatively considerable**.

5.3.16 UTILITIES/SERVICE SYSTEMS

Future regional growth would result in a need for expanded utilities/service systems throughout the County. However, only growth within Selma and its Planning Area would result in the need for the City to construct additional facilities to serve its population, potentially resulting in additional environmental impacts. The Project-specific analysis in Section 3.16 for the General Plan Update took into consideration potential growth within the area that would be provided utility service by the City of Selma and only wastewater treatment capacity was identified at this first-tier level analysis as being significant and unavoidable. Because the Selma-Kingsburg-Fowler County Sanitation District (SKFCSD) also provides wastewater treatment to Fowler, Kingsburg, and other incorporated areas along the corridor, future growth in their service area will result in a **cumulative significant impact with regard to wastewater**. The Plan Update would **not contribute to a significant cumulative impact** associated with the provision of water infrastructure, water quality, storm drainage and solid waste.

5.3.17 GLOBAL CLIMATE CHANGE

Policies of the Plan Update will reduce global climate change impacts. However, buildout under the Plan Update will nonetheless result in a substantial amount of GHG emissions contributing to global climate change. Because it cannot be determined to a reasonable degree of certainty that buildout under the Plan Update will not result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change, the impacts of the proposed project on global climate change are considered a **significant, unavoidable and cumulatively considerable** impact.

CHAPTER SIX

OTHER CEQA REQUIREMENTS

CHAPTER SIX - OTHER CEQA REQUIREMENTS

The CEQA Guidelines, Section 15126.2(b), requires a description of any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, not withstanding their effect, should be described. The Project was evaluated with respect to specific resource areas to determine whether implementation would result in significant adverse impacts. The resource areas analyzed included aesthetics; agricultural resources; air quality; biological resources; cultural resources; geology/soils; hazards/ hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation/traffic; utilities/service systems; and greenhouse gases/global climate change. A specific significance threshold was defined for each potential impact associated with each resource area. Based on the environmental impact assessment presented in Chapter Three of this DEIR, the resource areas of aesthetics, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, and recreation would not result in significant impacts either with or without mitigation. When significant impacts were identified, mitigation measures were developed that would reduce impacts to below a level of significance. Most of the significant impacts identified in Chapter Three of this EIR can be mitigated to below a level of significance. The remaining resource areas (agriculture, air quality, public services, transportation/traffic, utilities/service systems, and global climate change) would result in some form of significant impact.

Where the decision of a public agency allows the occurrence of significant effects which are identified in the Final EIR but are not at least substantially mitigated, the Lead Agency shall state in writing the specific reasons to support its action based on the Final EIR and/or the information in the record (Section 15093(b)). This statement is called a “Statement of Overriding Consideration.” This statement will be prepared at the end of the CEQA review process, after the Final EIR for this project has been completed.

6.1 Effects Not Found to be Significant

CEQA Guidelines, Section 15128, states that “An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR.” During the scoping process for this EIR, it was determined that only the issues found to be potentially significant in the Initial Study should be evaluated in detail; therefore, only the potentially significant effects of the Project were analyzed in detail.

Results of the comprehensive environmental analysis are presented in Chapter Three of this DEIR. Potential effects that were found to be less than significant before mitigation are listed below with additional information provided in the Initial Study in Appendix A.

AESTHETICS

Impact #3.1.3.1 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

AGRICULTURE

None

AIR QUALITY

Impact #3.3.3.4 Create objectionable odors affecting a substantial number of people.

BIOLOGICAL RESOURCES

Impact #3.4.3.13 Project Consistency with Local Policies or Ordinances Protecting Biological Resources (Evaluation Criteria E).

Impact #3.4.3.14 Impacts to Habitat Conservation Plans or Other Plan Conflict (Evaluation Criteria F).

CULTURAL RESOURCES

None

GEOLOGY/SOILS

Impact #3.6.3.1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault or strong seismic ground shaking.

Impact #3.6.3.2 Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

HAZARDS AND HAZARDOUS MATERIALS

Impact #3.7.3.1 Result in a safety hazard for people living or working in the project area due to proximity to a private or public use airstrip.

HYDROLOGY AND WATER QUALITY

Impact #3.8.3.1 Water Quality

Impact #3.8.3.3 Groundwater Depletion

LAND USE AND PLANNING

Impact #3.9.3.1 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact #3.9.3.2 Conflict with any applicable Habitat or Natural Community Conservation Plan.

MINERAL RESOURCES

None

NOISE

Impact #3.11.3.1 Result in a substantial permanent, temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project that would expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Impact #3.11.3.2 Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

Impact #3.11.3.3 Construction Noise.

POPULATION AND HOUSING

Impact #3.12.3.1 Induce substantial unexpected population growth in an area, either directly or indirectly.

Impact #3.12.3.2 Employment and Job Growth.

PUBLIC SERVICES

Impact #3.13.3.3 Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives.

Impact #3.13.3.4 Result in substantial adverse physical impacts associated with the provision of new or physically altered electrical or natural gas facilities, need for new or physically altered electrical or natural gas facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

RECREATION

Impact #3.14.3.1 Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated and/or include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

TRANSPORTATION/TRAFFIC

None

UTILITIES/SERVICE SYSTEMS

Impact #3.16.3.1 Exceed wastewater treatment requirements of the Regional Water Quality Control Board.

Impact #3.16.3.3 Require the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.

Impact #3.16.3.4 Require new or expanded water entitlements in order to ensure sufficient water supplies.

Impact #3.16.3.5 Require the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effect

GLOBAL CLIMATE CHANGE

Impact #3.17.3.2 Climate Change could potentially result in an impact on City of Selma water resources.

6.2 Significant Environmental Effects Requiring Mitigation

Multiple environmental impacts have been identified that can be reduced to a level of less than significant upon incorporation of mitigation measures. These impacts are listed below. Refer to Chapter 3 of the DEIR for a full analysis of impacts and mitigation measures.

AESTHETICS

None

AGRICULTURE

None

AIR QUALITY

Impact #3.3.3.2 Expose sensitive receptors to substantial pollutant concentrations.

Impact #3.3.3.3 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

BIOLOGICAL RESOURCES

Impact #3.4.3.1 Potential Project Impacts To Protected Special-Status Plant Species.

Impact #3.4.3.2 Potential Project Impacts To Vernal Pool, Vernal Pool Tadpole And Conservancy Fairy Shrimp.

Impact #3.4.3.3 Potential Project Impacts to the San Joaquin Kit Fox.

Impact #3.4.3.4 Potential Project Impacts to the California Tiger Salamander and the Western Spadefoot.

Impact #3.4.3.5 Potential Project Impacts to Swainson's Hawks.

Impact #3.4.3.6 Potential Project Impacts to Burrowing Owls.

Impact #3.4.3.7 Potential Project Impacts to Valley Elderberry Longhorn Beetles.

Impact #3.4.3.8 Potential Project Impacts to Nesting Raptors (Evaluation Criteria A and provisions of the CDFG Code).

Impact #3.4.3.9 Potential Project Impacts to Migratory Birds (Evaluation Criteria A and the Migratory Bird Treaty Act).

Impact #3.4.3.10 Impacts to Riparian Habitat or Other Sensitive Natural Communities (Evaluation Criteria B and the Oak Woodland Protection Act).

Impact #3.4.3.11 Impacts to Federally Protected Wetlands and Jurisdictional Waters (Evaluation Criteria C and the California State Porter-Cologne Act).

Impact #3.4.3.12 Impacts to Fish or Wildlife Movement, Wildlife Corridors and Nursery Sites (Evaluation Criteria D).

CULTURAL RESOURCES

Impact #3.5.3.1 Cause a substantial adverse change in the significance of a historical resource as defined in, or pursuant to, §15064.5, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred.

GEOLOGY/SOILS

None

HAZARDS AND HAZARDOUS MATERIALS

None

HYDROLOGY AND WATER QUALITY

Impact #3.8.3.2 Storm Water Drainage and Disposal

Impact #3.8.3.4 Potential Flooding and Dam Inundation Hazards

LAND USE AND PLANNING

None

MINERAL RESOURCES

None

NOISE

None

POPULATION AND HOUSING

None

PUBLIC SERVICES

Impact #3.13.3.1 Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

Impact #3.13.3.2 Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

RECREATION

None

TRANSPORTATION/TRAFFIC

None

UTILITIES/SERVICE SYSTEMS

None

GLOBAL CLIMATE CHANGE

None

6.3 Significant Environmental Effects that Cannot be Avoided

Section 15126.2(b) of the CEQA Guidelines requires that the DEIR describe any significant impacts, including those that cannot be reduced to a level of insignificance. Where there are impacts that cannot be alleviated with the implementation of feasible mitigation measures, their implications and the reasons the project is being proposed, notwithstanding their effect, should be described.

The environmental impacts that will result from the proposed project are discussed in detail in Chapter Three of this DEIR. The following is a brief review of the impacts that have been found to be significant and unavoidable.

AESTHETICS

None

AGRICULTURE

Impact #3.2.3.1	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
Impact #3.2.3.2	Conflict with existing zoning for agricultural use, or a Williamson Act contract.
Impact #3.2.3.3	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.

AIR QUALITY

Impact #3.3.3.1	Conflict with or obstruct implementation of the applicable air quality plan or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state

ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors.

BIOLOGICAL RESOURCES

None

CULTURAL RESOURCES

None

GEOLOGY/SOILS

None

HAZARDS AND HAZARDOUS MATERIALS

None

HYDROLOGY AND WATER QUALITY

None

LAND USE AND PLANNING

None

MINERAL RESOURCES

None

NOISE

None

POPULATION AND HOUSING

None

PUBLIC SERVICES

None

RECREATION

None

TRANSPORTATION/TRAFFIC

Impact #3.15.3.1 Significant Increase in Traffic and Exceedance of Traffic Thresholds.

UTILITIES/SERVICE SYSTEMS

Impact #3.16.3.2 Require the construction of new wastewater facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.

GLOBAL CLIMATE CHANGE

Impact #3.17.3.1 Development of the Project could potentially result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change.

6.4 Significant Irreversible Environmental Changes

Section 15126.2(c) of the CEQA Guidelines requires an EIR to address significant irreversible environmental changes which would be involved in the proposed project should it be implemented. An example of such an irreversible commitment is the construction of a new roadway that would provide public access to previously inaccessible areas.

A project would generally result in a significant irreversible impact if:

- The project would involve a large commitment of nonrenewable resources.
- Primary and secondary impacts would commit future generations to similar uses.
- The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project.

COMMITMENT OF RESOURCES

Development allowed under the General Plan Update would irretrievably commit nonrenewable resources to the construction and maintenance of buildings, infrastructure and roadways. These nonrenewable resources include mining resources such as sand, gravel, steel, copper and other metals. Buildout of the proposed General Plan also represents a long-term commitment to the consumption of fossil fuels, natural gas, and gasoline. Increased energy demands would be used for construction, lighting, cooling and heating of residences, and transportation of people within, to, and from the Planning Area. The proposed General Plan policies and standards promoting energy conservation (Open Space, Conservation and Recreation Element policies 5.3, 5.6, 5.21 and Land Use Element Policy 1.21) would result in some savings in non-renewable energy supplies.

Implementation of the proposed General Plan would also result in an irreversible commitment of limited, renewable resources such as lumber and water. Policies and standards contained in the proposed General Plan that promote resource and water conservation and green building (Open

Space, Conservation and Recreation policies 5.2, 5.6, 5.16, 5.19 and Land Use Element Policy 1.21) would result in some savings of renewable resources.

CHANGES IN LAND USE THAT COMMIT FUTURE GENERATIONS

Development under the Draft General Plan would result in the conversion of agricultural and vacant land to employment generating commercial/industrial uses and residential uses, and the intensification of underutilized areas. This development would constitute a long-term commitment to residential, commercial, industrial, public facility and other urban uses. The proposed General Plan Planning Area includes 486 additional acres of land designated for urban use in comparison with the existing General Plan Planning Area (see Table 2-2). Over 3,000 acres not currently designated by the Selma General Plan for agricultural uses are proposed to be designated Agriculture in the proposed General Plan.

IRREVERSIBLE DAMAGE FROM ENVIRONMENTAL ACCIDENTS

Irreversible changes to the physical environment could occur from accidental release of hazardous materials associated with development activities. However, compliance with federal and State hazardous materials regulations and proposed General Plan policies, as outlined in Section 3.7, is expected to maintain this potential impact at a less than significant level.

6.5 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires a discussion of how the potential growth-inducing impacts of the proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Induced growth is distinguished from the direct employment, population, or housing growth of a project. If a project has characteristics that "may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively," then these aspects of the project must be discussed as well. Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place in the absence of the proposed project. For example, a project could induce growth by lowering or removing barriers to growth or by creating or allowing a use such as an industrial facility that attracts new population or economic activity. CEQA Guidelines also indicate that the topic of growth should not be assumed to be either beneficial or detrimental. Negative impacts associated with growth inducement occur only where the projected growth would cause adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct and indirect. Direct growth-inducing impacts are generally associated with the provision of urban services to an undeveloped area. The provision of these services to a site, and the subsequent development, can serve to induce other landowners in the vicinity to convert their property to urban uses. Indirect, or secondary growth-inducing impacts consist of growth induced in the area by the additional demands for housing, goods, and services associated with the population increase caused by, or attracted to, a new project.

The proposed Project consists of the adoption and implementation of a General Plan Update. The primary economic effect of this project will be continued growth through the 2035 planning period due to the additional public services, utilities, and infrastructure planned for by the General Plan Update to support predicted growth.

Although there are no specific development plans on file, adoption of the General Plan Update will directly result in the rezoning of existing agricultural and vacant land to allow commercial, residential, industrial, and other land uses. This will facilitate the growth and future development of the area, resulting in a possible exceedance of predicted growth. However, the purpose of the growth management policies and standards of the proposed General Plan are to define the limits for extending City services and infrastructure so as to accommodate new development anticipated within the time frame of this General Plan. The General Plan Update includes the Sphere of Influence boundary and the outer boundary which is the Planning Area.

The indirect growth inducing impacts of the project are held as potentially significant impacts according to *Appendix G of the CEQA Guidelines*. However, the policies of the General Plan Update have been formulated to control such growth and to guide new development in the area in an orderly manner compatible with existing uses.

Chapter Seven

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CHAPTER SEVEN – REFERENCES AND PERSONS CONTACTED

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CHAPTER EIGHT

PERSONS WHO PREPARED THIS EIR

CHAPTER EIGHT – PERSONS WHO PREPARED THIS EIR

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Bill C. Thiessen – Senior Consultant

APPENDICES

APPENDIX A

CITY OF SELMA
GENERAL PLAN UPDATE 2035

Notice of Preparation/ Initial Study

August 2008

Quad Knopf

Notice of Preparation/Initial Study

City of Selma

General Plan Update 2035

Lead Agency:

City of Selma
1710 Tucker Street
Selma, CA 93662
(559) 891-2200
Contact: Michael Gaston, AICP
Community Development Director

Prepared by:

Quad Knopf

5110 West Cypress Avenue
Visalia, California 93278
(559) 733-0440
Contact: James Alcorn, AICP

August 2008

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NOTICE OF PREPARATION

NOTICE OF PREPARATION

To: State Clearinghouse
(Agency)

1400 Tenth Street
(Address)

Sacramento, California 95814

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:	**Consulting Firm** (if applicable):
City of Selma (Agency Name)	Quad Knopf, Inc. (Firm Name)
1710 Tucker Street (Street Address)	5110 West Cypress Avenue (Street Address)
Selma, California 93662 (City/State/Zip)	Visalia, California 93277 (City/State/Zip)
Michael Gaston, AICP, Community Development Director (Contact)	James Alcorn, AICP (Contact)

The City of Selma will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. A responsible agency/trustee agency scoping meeting will be held at City Hall on September 3, 2008 at 3:00 p.m. at 1710 Tucker Street (City Council Chambers) in Selma for input. Your agency may need to use the EIR prepared by our agency when considering permits or other approvals.

The project description, location and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (☒ is ☐ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date *but not later than 30 days* after receipt of this notice. The 30-day review period for this document will be from August 25, 2008 to September 24, 2008.

Please send your response to Michael Gaston, Community Development Director at the address shown above. We will need the name for a contact person in your agency. Copies of the General Plan can be reviewed at City Hall at the address above.

Project Title: City of Selma General Plan Update 2035 EIR

Project Location: City of Selma, County of Fresno

Project Description: (brief) The proposed General Plan Update is a comprehensive update of the City's General Plan consisting of the following elements: Land Use, Circulation, Noise, Safety, Open Space, Conservation and Recreation, and Public Services and Facilities. The Housing Element is not a part of the General Plan Update and is being updated separately. The proposed project includes a Background Report and a Preferred Land Use and Circulation plan to guide growth through the planning period and beyond. The Plan Update also includes 40,000 population and 70,000 population Urban Development Boundaries (UDB) that limit development to within those boundaries until specific population thresholds are met.

Date 8/19/08

Signature James Alcorn
James Alcorn
Title Consultant
Telephone (559) 733-0440
Fax (559) 627-2336

CHAPTER ONE

INTRODUCTION

CHAPTER ONE – INTRODUCTION

1.1 Purpose and Authority

The proposed project for which this Initial Study has been prepared for is the approval of a General Plan Update for the City of Selma. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code 21000 et. seq. The City of Selma (pursuant to CEQA) will act as the Lead Agency for this project.

1.2 Determination

On the basis of the Initial Study and evaluation of past Environmental Impact Reports for the General Plan and Elements of the General Plan, it has been determined that the project could have potentially significant effects on the environment associated with the following environmental issues: aesthetics, agricultural resources, air quality, biological resources, geology and soils, hazards and hazardous materials, hydrology/water quality, land use/planning, noise, population/housing, public services, recreation, transportation/traffic, and utilities/service systems. Therefore, an Environmental Impact Report will be prepared.

CHAPTER TWO

PROJECT SUMMARY

CHAPTER TWO – PROJECT SUMMARY

2.1 Project Timeframe

The City of Selma (City) is the Lead Agency for the preparation of this Initial Study (IS). The IS addresses a proposal to update the City's General Plan. The General Plan Update will cover the planning period from 2007 to the year 2035, and will be utilized to guide the growth and development of the area within the adopted Planning Area boundary. The Plan Update's Draft Goals, Objectives and Policies (excluding the Housing Element, which is being prepared separately from this project) can be found in Appendix A.

2.2 Project Location

The proposed project is located in south central Fresno County, California in the Central San Joaquin Valley. The geographic area covered by the project was determined by the Selma City Council to be the Planning Area illustrated on Figure 2-2. This area includes area within the City limits of Selma and the unincorporated territory surrounding the presently incorporated City. Figure 2-1 shows Selma's Regional Location and Figure 2-2 shows Selma's current City limits, Sphere of Influence (SOI) and the project Planning Area.

2.3 Surrounding Land Use

Surrounding land uses consist of agricultural uses and rural residential homes. The City of Fowler is directly to the northwest, the City of Kingsburg is directly to the southeast and the City of Parlier is to the northeast.

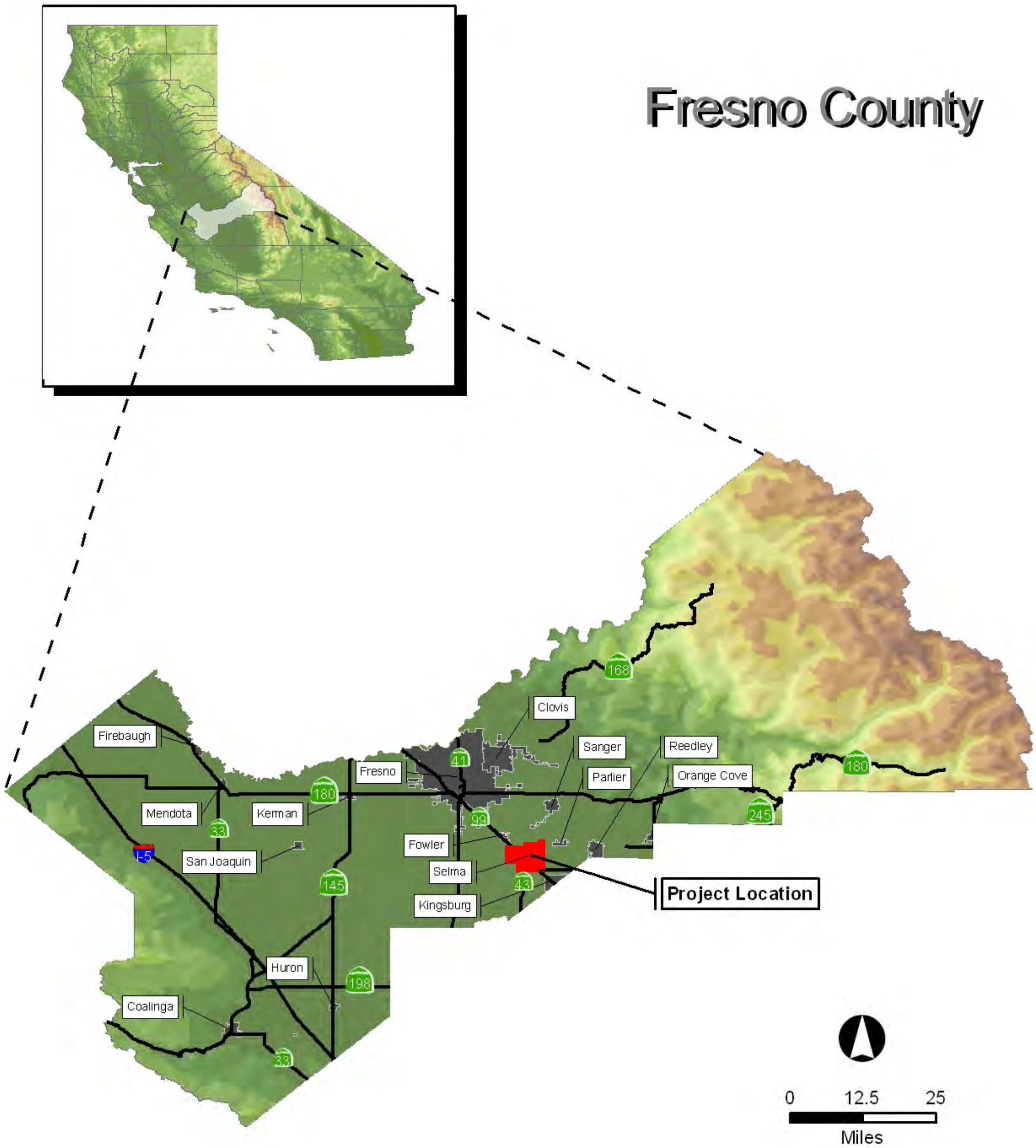
2.4 Project Setting

Incorporated as a General Law City in 1893, Selma's current population, as of January 1, 2008, according to the Department of Finance (DOF), is 23,286 persons. Selma is expected to reach approximately 69,572 persons by 2035 based on an average 4% growth per year.

The current City limits contain 4.9 square miles (3,136 acres), of which 1,924 acres is urbanized. The SOI encompasses approximately 13 square miles and the Planning Area encompasses approximately 31 square miles. Table 2-1 shows the existing General Plan Land Use designations (by acreage) within the City and SOI. Figure 2-3 is the current General Plan Land Use Map.

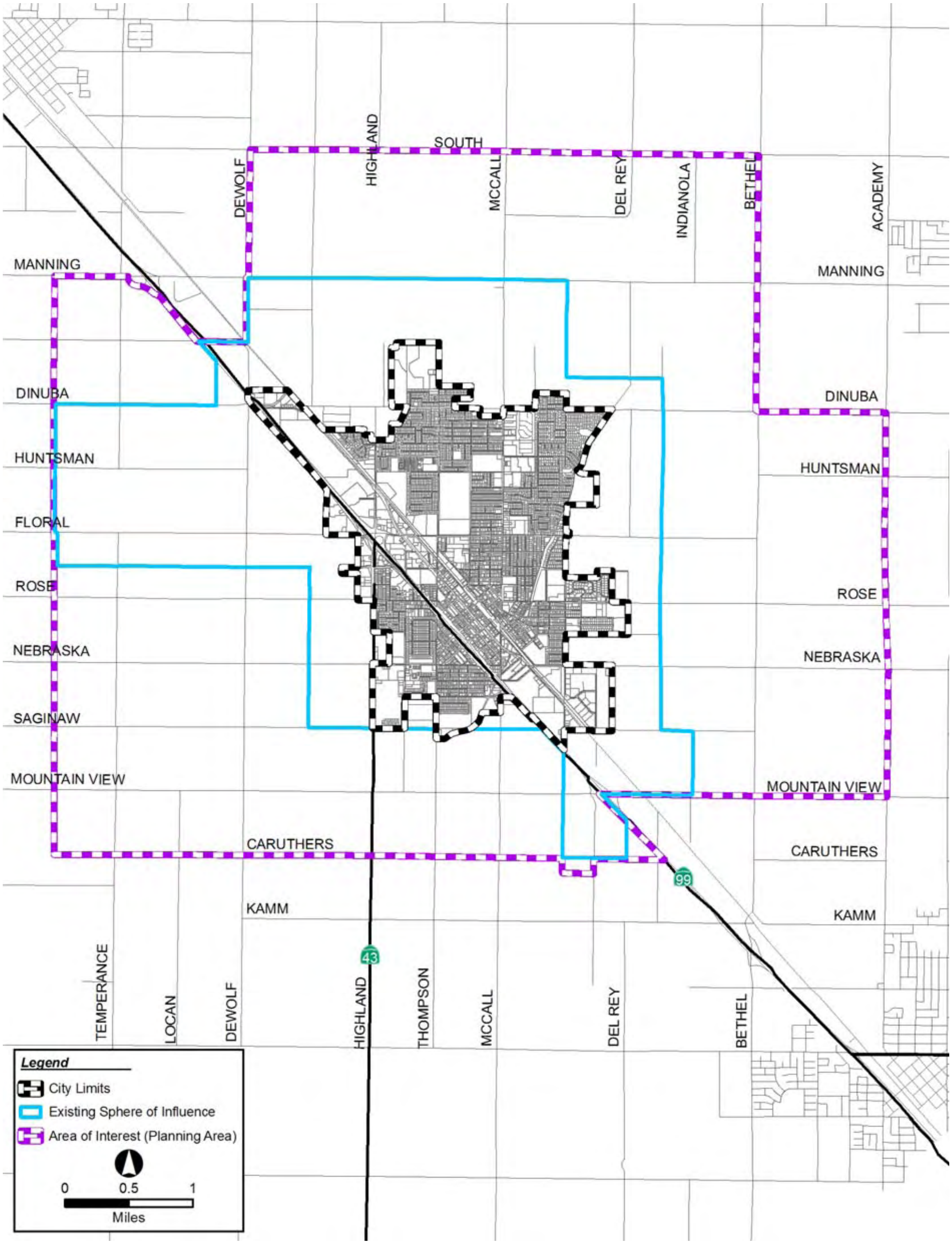
2.5 Project Description

The proposed project is an update of the City of Selma's General Plan. California state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (§65300). The General Plan Update includes revised policies and standards for the Noise, Safety, Open Space, Conservation and Recreation, Circulation, Land Use, and the Public Services and Facilities Elements. The Housing Element will be updated separately from this update.



REGIONAL LOCATION

Figure 2 - 1



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SELMA CITY LIMITS, SOI AND PROJECT PLANNING AREA

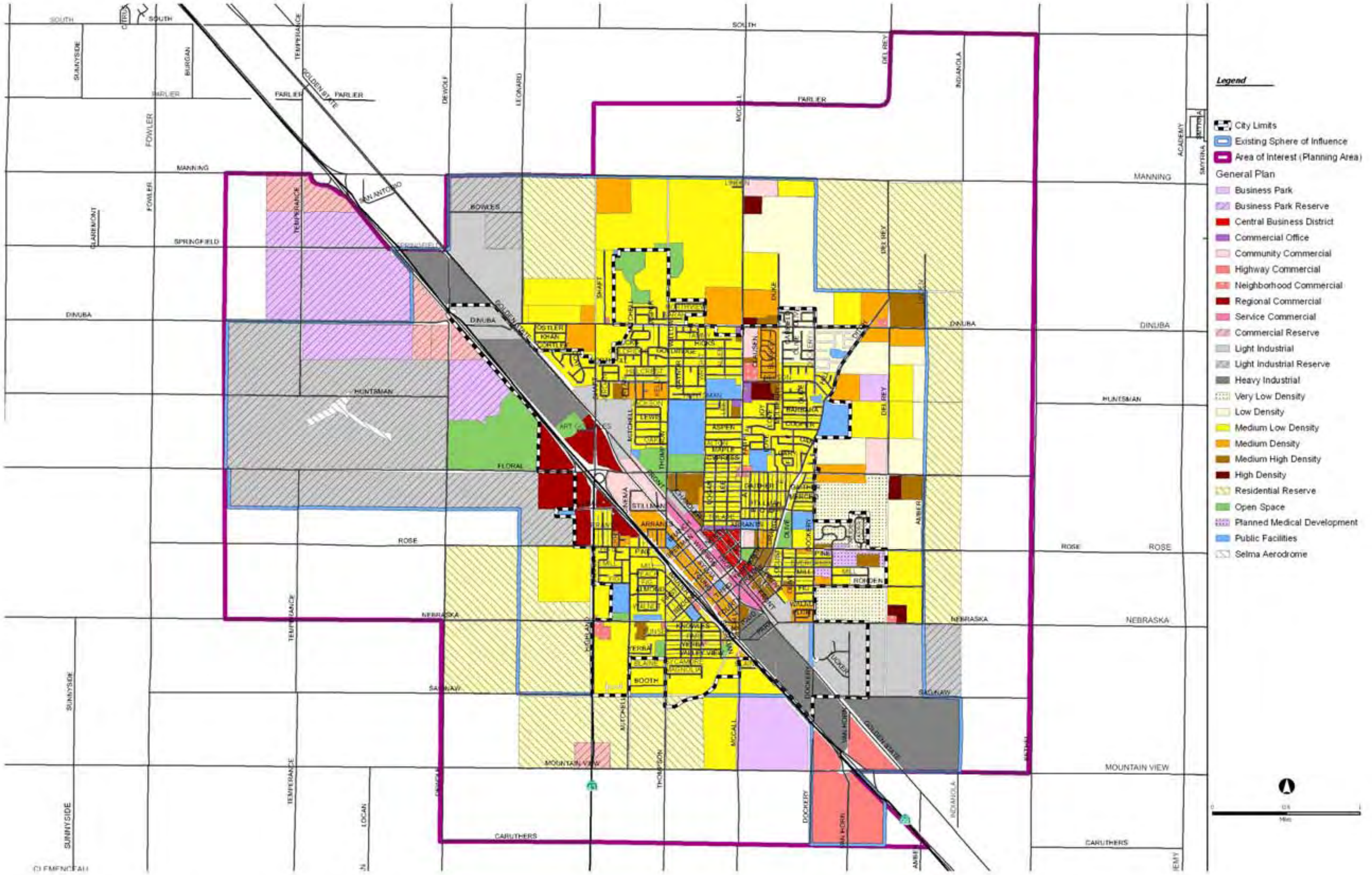
Figure 2 - 2

Figure 2-4 shows the proposed Land Use and Circulation Map for the General Plan Map Update and Table 2-2 shows the General Plan Land Use designations for the proposed project (City limits, SOI and Planning Area). The geographic expansion of urban land use designations defines the limits for extending City services and infrastructure to accommodate new development anticipated within the 2007-2035 time-frame of the General Plan. Policies in the proposed General Plan limit leap-frog development and provide for an orderly transition from rural to urban land uses.

Table 2-1
Existing General Plan Land Use (in Acres)
City Limits and SOI

General Plan Land Use Category	City Limits	SOI
Residential-Very Low Density	33	200
Residential – Low Density	90	490
Residential – Medium Low Density	989	2,017
Residential – Medium Density	136	389
Residential – Medium High Density	78	135
Residential – High Density	11	45
Residential Reserve	6	441
Subtotal Residential	**1,343**	**3,717**
Business Park	1	233
Highway Commercial	5	201
Commercial – Central District	19	19
Commercial – Community	87	126
Commercial – Regional	116	243
Service Commercial	39	39
Commercial – Neighborhood	22	27
Commercial Office	9	11
Subtotal Commercial	**298**	**899**
Light Industrial	240	480
Light Industrial Reserve	1	1,355
Heavy Industrial Reserve	205	496
Subtotal Industrial	**446**	**2,331**
Planned Medical Development	24	24
Selma Aerodome	0	22
Public Facilities	173	175
Open Space	112	283
Subtotal Other	**309**	**504**
Total (All Land Uses)	**2,396**	**7,451**

Source: Quad Knopf, Fresno County GIS.
Note: Right-of-way not included in land use totals.



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EXISTING GENERAL PLAN LAND USE DESIGNATIONS

Figure 2 - 3

Table 2-2
Proposed General Plan Land Use Designations within City Limits, SOI, and Planning Area (Acres)

General Plan Land Use Category	Existing General Plan Designations	Proposed General Planning Area	Change in Planned Land Use
High Density	57	85	+28
Medium High Density	87	93	+6
Medium Density	845	1,387	+542
Medium Low Density	1,773	1,858	+85
Low Density	481	1,072	+591
Very Low Density	129	129	0
Extremely Low Density	0	7,738	+7,738
Residential Reserve	152	992	+840
Subtotal Residential	**3,524**	**13,354**	**+9,830**
Community Commercial	114	114	0
Neighborhood Commercial	23	49	+26
Regional Commercial	699	825	+126
Service Commercial	39	39	0
Highway Commercial	5	5	0
Central Business District	19	19	0
Commercial Office	11	11	0
Commercial Reserve	0	0	0
Subtotal Commercial	**910**	**1,061**	**+152**
Heavy Industrial	252	252	0
Light Industrial	1,449	1,666	+217
Light Industrial Reserve	565	565	0
Subtotal Industrial	**2,266**	**2,483**	**+217**
Planned Medical Development	24	24	0
Business Park	0	0	0
Business Park Reserve	121	532	+411
Public Facilities	267	367	+100
Selma Aerodrome	22	22	0
Park/Open Space[2]	215	430	+215
Mixed Use[1]	0	193	+193
Agriculture[1]	0	0	0
Total	**7,349**	**18,467**	**+11,118**
Right-of-Way	948	1,309	+361
Total With ROW	**8,297**	**19,776**	**+11,479**

Source: Quad Knopf, Fresno County GIS
Note: Totals may be off due to rounding. [1]The Agriculture and Mixed Use land use designations are new with the General Plan Update. [2]The Open Space designation has been changed to Park/Open Space for the General Plan Update. ROW is estimated based on the total acreage of each boundary subtracting the land use acreage totals.

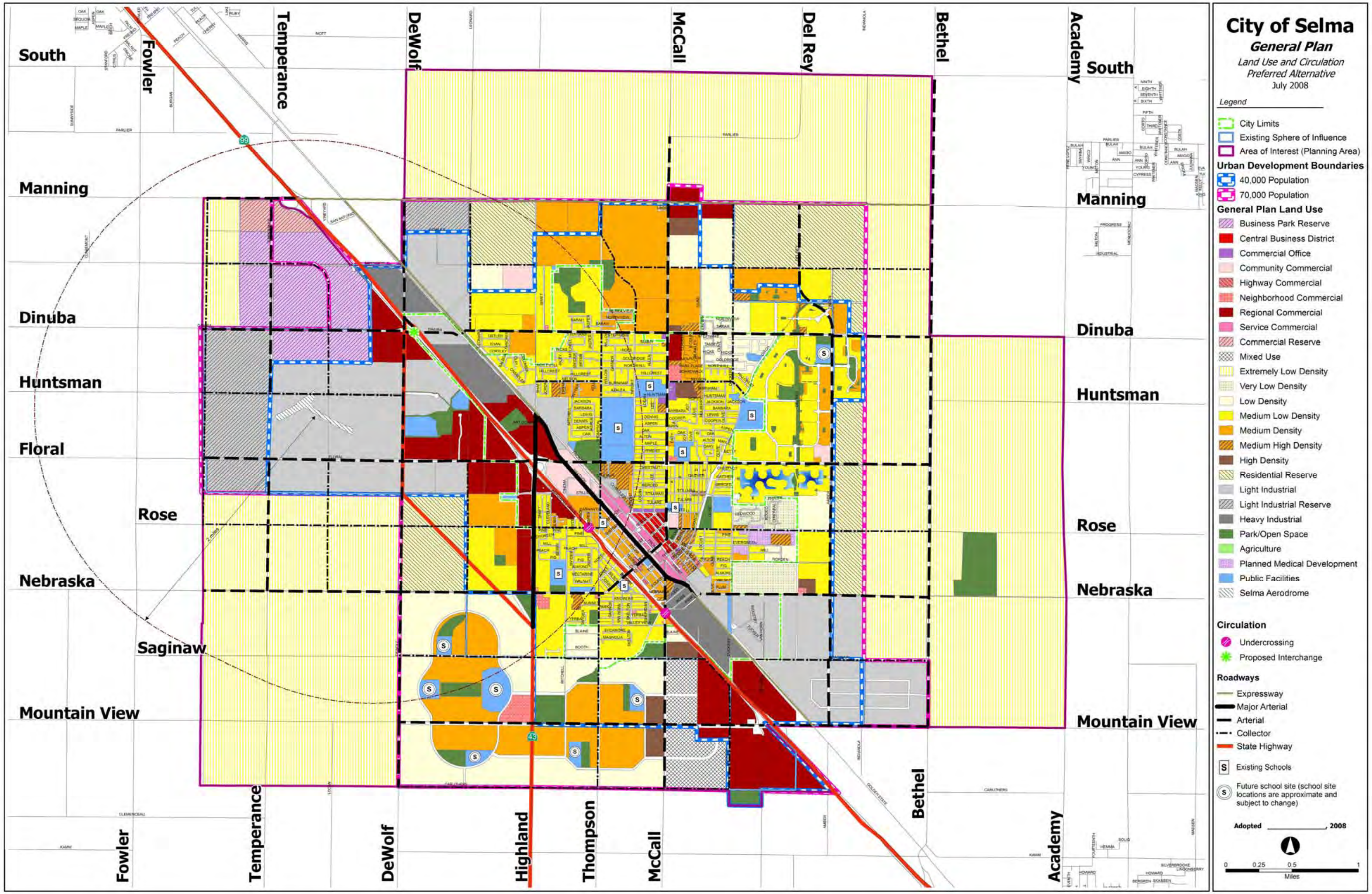

Figure 2 - 4

PROPOSED LAND USE AND CIRCULATION

Quad Knopf

The General Plan Update also includes, as shown on the Land Use and Circulation map and in the Policies Document, populations based growth phasing boundaries. These boundaries will be used to define intermediate growth boundaries to ensure that growth occurs in an organized manner. Boundaries have been defined for 40,000 population and 70,000-population levels development. Development will occur within those boundaries until the City's population exceeds the corresponding UDB population. The City is not to develop or annex residential, business park or industrial areas designated as "Reserve" within the Planning Area until such time as additional land is needed for these purposes, as determined by growth policies.

Two new land use designations have been added for the General Plan Update, Mixed-Use and Agriculture. The Mixed-Use designation includes the following uses: restaurants, commercial, medical offices/clinics, government, inns/hotels, and high density residential (10-20 du/ac). It may also include parks, recreational, and public facilities. The Agriculture designation provides for the continuation of agricultural uses in areas not planned for urban uses. The existing General Plan designation of Open Space has been changed to Park/Open Space which is consistent with existing land uses with the Open Space designation.

The residential designations provide for residential uses ranging from 0-2.0 units per gross acre (Very Low Density) to 13.0-19.0 units per gross acre (High Density). The land use designations provide for a mixture of housing types, lot sizes and affordability within the community. Proposed policies also encourage walking within new neighborhoods, easy access to neighborhood parks, incorporation of environmental and conservation features, infill development, and contiguous development.

The commercial land use designations provide a full range of commercial activity appropriate to the community. Regional Commercial areas have been added along SR 99 to enable the community to capitalize on its regional location, and Community Commercial and Neighborhood Commercial uses have been added to service the local population in areas that are convenient to residents in the City and in surrounding communities.

Industrial land use designations including Light Industrial, Heavy Industrial, Business Park, Light Industrial Reserve, and Business Park Reserve, provide for a broad range of industrial development within the City. The existing industrial areas of the City will remain industrial and are planned for expansion. Some of the areas within the existing General Plan that have a "Reserve" industrial/business park designation have had the "Reserve" designation removed to accommodate anticipated industrial development within the planning period.

The remaining land use designations such as Public Facilities, Park/Open Space, etc. provide land for future facilities such as schools and government uses, and parkland.

Finally, there are proposed land uses and roadways for three Specific Planned areas: 1) Rockwell Pond; 2) Amberwood: and South Selma. Land use and development issues have been coordinated with these proposals as part of the General Plan Update process, with final land uses included in the proposed Land Use and Circulation map. These Specific Plan areas will be primary new growth areas for Selma during the planning period.

2.6 City Action Requested

The City of Selma is the Lead Agency under CEQA and has approval authority over the proposed project. Once adopted the General Plan Update will become the official General Plan for the City of Selma. In order to accomplish that the following actions are required:

- Certification of the Environmental Impact Report

- Approval of the General Plan Update

CHAPTER THREE

ENVIRONMENTAL CHECKLIST

CHAPTER THREE – ENVIRONMENTAL CHECKLIST FORM

1. Project title: City of Selma General Plan Update 2035

2. Lead agency name and address: City of Selma
1710 Tucker Street
Selma, CA 93662

3. Contact person and phone number: Michael Gaston, Community Development Director
(559) 891-2200

4. Project location: City of Selma, County of Fresno

5. Project sponsor's name and address: City of Selma
1710 Tucker Street
Selma, CA 93662

6. General plan designation: Various

7. Zoning: Various

8. Description of project: The project consists of the adoption of a comprehensive General Plan Update for the City of Selma. The General Plan Update will include Noise, Safety, Open Space, Conservation and Recreation, Circulation, Land Use, Public Services and Facilities, and Housing elements (the Housing Element has only been reformatted). The General Plan Update also includes a Background Report, Policy Document and a Land Use and Circulation Map. Urban land use designations have been added to define the limits for extending City services and infrastructure so as to accommodate new development anticipated within the 2007-2035 timeframe of the General Plan. Policies in the proposed General Plan limit leap-frog development and provide for an orderly transition from rural to urban land uses.

Proposed General Plan Land Use Designations within City Limits, SOI, and Planning Area (Acres)

General Plan Land Use Category	Proposed General Plan City Limits	Proposed General Plan SOI	Proposed General Planning Area
High Density	11	57	85
Medium High Density	78	87	93
Medium Density	151	845	1,387
Medium Low Density	991	1,773	1,858
Low Density	96	481	1,072
Very Low Density	51	129	129
Extreme Low Density	0	1	7,738
Residential Reserve	0	152	992

Subtotal Residential	**1,378**	**3,525**	**13,354**
Community Commercial	87	114	114
Neighborhood Commercial	21	23	49
Regional Commercial	154	699	825
Service Commercial	39	39	39
Highway Commercial	5	5	5
Central Business District	19	19	19
Commercial Office	10	11	11
Commercial Reserve	0	0	0
Subtotal Commercial	**335**	**910**	**1,061**
Heavy Industrial	183	252	252
Light Industrial	242	1,449	1,666
Light Industrial Reserve	0	565	565
Subtotal Industrial	**425**	**2,266**	**2,483**
Planned Medical Development	24	24	24
Business Park	0	0	0
Business Park Reserve	0	121	532
Public Facilities	192	267	367
Selma Aerodrome	0	22	22
Park/Open Space[2]	95	215	430
Mixed Use[1]	N/A	1	193
Agriculture[1]	N/A	0	0
Total	**2,449**	**7,451**	**18,467**
Right-of-Way	742	948	1,309
Total With ROW	**3,191**	**8,399**	**19,776**

Source: Quad Knopf, Fresno County GIS
Note: Totals may be off due to rounding. [1]The Agriculture and Mixed Use land use designations are new with the General Plan Update. [2]The Open Space designation has been changed to Park/Open Space for the General Plan Update. ROW is estimated based on the total acreage of each boundary subtracting the land use acreage totals.

9. Surrounding land uses and setting: The plan area contains residential, commercial, agricultural, public facility, and industrial land uses. The areas immediately adjacent to the project area are primarily in agricultural use; however, the cities of Kingsburg, Fowler and Parlier are very near or adjacent to Selma's Planning Area.

10. Other public agencies whose approval, as responsible agencies under CEQA is required to implement the General Plan Update (e.g., permits, financing approval, or participation agreement): County of Fresno, Caltrans, Selma-Kingsburg-Follower Community Services District.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒	Aesthetics	☒	Agriculture Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Geology /Soils
☐	Hazards & Hazardous Materials	☒	Hydrology / Water Quality	☒	Land Use / Planning
☐	Mineral Resources	☒	Noise	☒	Population / Housing
☒	Public Services	☒	Recreation	☒	Transportation/Traffic
☒	Utilities / Service Systems	☒	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _______________ Date 8/19/08

Signature _______________ Date _______________

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section 17, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) **Earlier Analysis Used**. Identify and state where they are available for review.
   b) **Impacts Adequately Addressed**. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) **Mitigation Measures**. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impact to less than significant.

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
1. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

*Response 1a): **Less Than Significant Impact.** The proposed project involves an update to the City of Selma General Plan, which includes an Open Space, Conservation and Recreation Element. New development as a result of the General Plan Update will result in the conversion of agricultural land to urban uses which could be seen by some as an adverse effect on a scenic vista. However, this is subjective. Development in accordance with the General Plan will not result in an adverse effect on a scenic vista. The Sierra Nevada will still be visible to the east on clear days. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response 1b): **No Impact.** SR 99 and SR 43 both pass through the Selma Planning Area. These state routes have not been officially designated as scenic highways in the California State Scenic Highway Program (http://www.dot.ca.gov/hq/LandArch/scenic_highways/). Therefore, the proposed project will have no impact on scenic resources such as trees or rock outcroppings on a state scenic highway. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response 1c): **Less Than Significant Impact.** See Response 1a).*

*Response 1d): **Potentially Significant Impact.** The update to the City of Selma General Plan could result in light or glare impacts, which could adversely affect day or nighttime views in the area. The Draft EIR will evaluate the potential light or glare impacts to the aesthetic environment of Selma as well as on sensitive receptors. Mitigation measures will be recommended as appropriate.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
2. AGRICULTURE RESOURCES -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☒	☐	☐	☐

*Response2a): **Potentially Significant Impact.** Most of the land surrounding the City of Selma consists of Prime Farmland, Unique Farmland or Farmland of Statewide Importance pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. The proposed project could result in the conversion of 6,478 acres of existing prime farmland to non-agricultural use in the 70,000 population UDB, which would be a potentially significant impact. This issue will be analyzed further in the Draft EIR and mitigation measures will be recommended as appropriate.*

*Response2b): **Potentially Significant Impact.** Update of the proposed General Plan will result in development of agricultural lands. The policies of the Open Space, Conservation and Recreation Element (reference Appendix A) will prevent unnecessary and premature development of agricultural lands. Much of the land outside the City limits and within the SOI is currently under Williamson Act contract. In order to develop these lands for non-agricultural uses, the contracts must be cancelled or a notice of non-renewal must be filed. This issue will be further addressed in the Draft EIR, (Selma General Plan Update, Background Report, June 2008). Mitigation measures will be recommended as appropriate.*

*Response2c): **Potentially Significant Impact.** There are 6,946 acres of Williamson Act lands in the Planning Area, and 3,036 acres within the proposed Urban Development Boundaries. See Response 2 a) and 2 b).*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
3. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Response 3a): ***Potentially Significant Impact.*** *The increase in industrial, residential and commercial acreage would generate additional traffic volumes and allow for the development of additional stationary air emissions sources, and consequently, greater air quality impacts. The San Joaquin Valley Air Pollution Control District considers an increase of 10 tons per year of Ozone precursors as a significant environmental impact, an emission level equal to approximately ___ new dwelling units. The proposed project will exceed this level.*

Selma is located in the San Joaquin Valley, which has been designated by the San Joaquin Valley Air Pollution Control District as an area of severe non-attainment for ozone (one-hour). Proposed projects as a result of the adoption of the General Plan will be required to comply with the San Joaquin Valley Air Pollution Control District's regulations. An analysis of air quality in the Selma area will be conducted for the Draft EIR.

Pursuant to State regulations, the project includes special air quality policies to address this issue. The Draft EIR will evaluate the potential impacts of the proposed project to air quality and recommend mitigation measures as appropriate. The Draft EIR will also evaluate the potential impacts of the project on greenhouse gases/climate change.

Response 3b) 3c): ***Potentially Significant Impact.*** *See Response 3 a).*

Response 3d): ***Potentially Significant Impact.*** *The updated General Plan will direct development (through the policies which it adopts) in such a way as to place sensitive receptors away from areas of substantial pollutant concentrations as much as feasible. This issue, however, will be discussed further in the Draft EIR and mitigation measures will be recommended as appropriate.*

Response 3e): ***Less than Significant Impact.*** *There are no known components of the proposed General Plan that will generate objectionable odors. Policies of the General Plan Update require area and stationary source projects that generate significant amounts of air pollutants or objectionable odors to incorporate mitigation in their design. This impact is therefore considered less than significant and will not be discussed further in the Draft EIR.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan,	☐	☒	☐	☐

or other approved local, regional, or state
habitat conservation plan?

Response 4a): ***Potentially Significant Impact.*** *The City and its Planning Area contain a variety of natural habitats, which could include several candidate, sensitive, or special status species that are known to, or would likely, occur in the Selma vicinity. Special-status species that have the potential to occur in the Selma area include the San Joaquin kit fox (Vulpes macrotis mutica), California tiger salamander (Ambystoma californiense), Swainson's hawk (Swainson's hawk) and Pallid bat (Antrozous pallidus). While there are records of the San Joaquin kit fox, Swainson's hawk and Pallid bat occurring within the vicinity (Selma General Plan Background Report, June 2008), it is not likely they would occur in the Planning Area, except as potential transient foragers. There is potential California tiger salamander habitat located in the Planning Area; however, no occurrences of this species have been recorded within the Planning Area.*

The effects of land use intensification or habitat modification may adversely impact sensitive or special status species within the City and its Planning Area. The Draft EIR will further evaluate the potential impacts of the proposed project to candidate, sensitive, and special status species. Mitigation measures will be recommended as appropriate.

Response 4b): ***Less Than Significant Impact.*** *Land in the Planning Area is either urbanized or under intensive agricultural use. There is no riparian habitat or sensitive natural community within the Planning Area. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Response 4c): ***Potentially Significant Impact.*** *The Background Report indicates that there are known wetlands in the Planning Area. Should wetlands be present on a specific project site as a result of adoption of the proposed project, mitigation must include the avoidance or replacement of such areas in order to protect existing habitat. This issue will be further addressed in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 4d): ***Potentially Significant Impact.*** *The proposed project would involve the intensification of land uses throughout the City and its Planning Area. As previously discussed, a variety of habitats and wildlife species are present within the Selma vicinity and development as a result of the proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species. The Draft EIR will evaluate the potential impacts of the proposed project and recommend mitigation measures as appropriate.*

Response 4e): ***No Impact.*** *Currently there is no such local ordinance protecting biological resources. As discussed above, appropriate mitigation measures to protect biological resources will be recommended in the Draft EIR as appropriate.*

Response 4f): ***Less Than Significant With Mitigation Incorporation.*** *There are no Habitat Conservation Plans or Natural Community Conservation Plans for the Planning Area. However, the Recovery Plan for Upland Species of the San Joaquin Valley, (USFWS 1998)* *does apply to the Selma Planning Area. There are no specific conflicts with provisions, objectives or goals of the Recovery Plan. The impact would be less than significant with incorporation of appropriate mitigation measures and will be discussed further in the Draft EIR.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

*Response 5a): **Potentially Significant Impact.** The proposed project is an update to the City of Selma General Plan. Section 15064.5 defines a historic resource as a resource listed or determined to be eligible for listing by the State Historical Resources Commission for listing in the California Register of Historical Resources, a resource included in a local register of historical resources, or any object, building, structure, site, area, place, record, or manuscript determined by the lead agency to be "historically significant" if the resource meets the following criteria for listing in the California Register of Historical Places:*

- *i) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;*
- *ii) Is associated with the lives of persons important in our past;*
- *iii) Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or*
- *iv) Has yielded, or may be likely to yield, information important in prehistory or history.*

The fact that a resource is not listed in or determined to be eligible for listing in the California Register of Historical Resources, is not included in a local register of historical resources, or identified in a historical survey does not preclude a lead agency from determining that the resource may be a historical resource.

According to a cultural records search conducted by the Center for Archaeological Research at California State University, Bakersfield for the General Plan Background Report, 20 *cultural resource studies have been conducted within the Planning Area and 21 cultural resources have been reported within it. In addition, there are numerous buildings within the City of Selma that appear to be more than 50 years old. These structures will necessitate the preparation of a Historic Architectural Survey Report to determine if they are eligible for the National Register of Historic Places. There are potentially significant impacts to these resources that will be further addressed in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 5b): ***Less Than Significant With Mitigation Incorporation.*** *Although there is no record evidence of archaeological sites in the Planning Area, there is the potential during project-related excavation and construction, as a result of the General Plan Update, for the discovery of cultural resources. This impact is potentially significant; however, the Draft EIR will include mitigation to reduce this impact to a less than significant level.*

Response 5c): ***Less Than Significant With Mitigation Incorporation.*** *There is the potential during project-related excavation and construction, as a result of implementation of the General Plan Update, for the discovery of unique paleontological or geologic features. This impact is potentially significant. The Draft EIR will include appropriate mitigation to reduce this impact to a less than significant level.*

Response 5d): ***Potentially Significant Impact.*** *The proposed project is not expected to disturb human remains within the City and its Planning Area. However, in the event that human remains are discovered, all ground-disturbing activity shall be immediately halted, and the appropriate actions would be taken in consultation with pertinent agencies, including Native American involvement, if necessary. The Draft EIR will evaluate the potential impacts of the proposed project on sensitive cultural resources and recommend mitigation measures as appropriate.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
6. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☒	☐	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Response 6a): The City of Selma is not located on a known fault, according to the Alquist Priolo Earthquake Fault Zones as of May 1, 1999 (California Geological Survey, Website, November 2007). Built areas of the project site are flat and not subject to landslides, but the ground may be subject to shaking from nearby earthquakes. Enforcement of California Building Code and Uniform Building Code requirements will mitigate the potential impacts of ground shaking to a less than significant level (Selma General Plan Update, Background Report, June 2008). The impacts would be less than significant with appropriate mitigation incorporation; however, the issue will be discussed further in the Draft EIR.

Response 6b): ***Less Than Significant Impact.*** *The Planning Area is comprised of various soil types and series. Slopes of these soils are relatively flat with a very gentle southwestward slope and low shrink-swell potential (Selma General Plan Update, Background Report, June 2008). Development as a result of the proposed General Plan will not be located in areas of steep slope and will not increase the slopes or grading of soil in the Planning Area substantially enough to increase the rate of runoff and subsequent soil erosion or loss of topsoil. This issue will not be discussed further in the Draft EIR and no mitigation measures are necessary.*

Response 6c): ***Less Than Significant with Mitigation Incorporation.*** *The Five Counties Seismic Safety Element places Selma within the V1 Seismic Zone, characterized by a relatively thick section of sedimentary rock overlying a granitic basement. Primary hazards due to ground shaking are "low" because of the distance from seismic faults. Secondary hazards are as follows: landslides, minimal; subsidence/settlement, low to moderate; liquefaction, low; seiching, minimal. The Seismic Safety Element states that the Uniform Building Code, Zone II building standards should be adequate for normal facilities. The Draft EIR will evaluate any potential impacts the proposed project may have on geologic/soil stability. Mitigation measures will be recommended as appropriate.*

Response 6d): ***Less Than Significant with Mitigation Incorporation.*** *See response 6 b) and c). This issue will be discussed further in the Draft EIR and mitigation measures will be recommended as appropriate.*

Response 6e): ***No Impact.*** *New development as a result of the proposed General Plan will be connected to the City's existing sewer system. This issue will not be discussed further. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
7. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Response 7a): ***Less Than Significant Impact.*** *The new Safety Element would address hazardous material management issues and policies, and the Circulation Element would provide policies regarding the City's truck routes, transit and roadway system. Hazardous materials are transported along State Routes 99 and 43 within Selma's Planning Area. This condition could pose a potential risk for spills or leaks from non-stationary sources. The General Plan Update could result in the intensification of land uses, specifically the expansion of commercial/retail along the SR 99 corridor. This intensification could contribute to public and environmental hazards during the transport, use, or disposal of hazardous materials. However, this issue is considered less than significant because of adherence to State and Federal rules/regulations, and will not be discussed further in the Draft EIR. No mitigation measures are necessary.*

Response 7b): ***Less Than Significant Impact.*** *The new Safety Element would address hazardous material management issues and policies, while the Circulation Element would provide policies regarding the City's truck routes, transit and roadway system. According to the proposed Circulation Element of the General Plan, trucks, which would be transporting hazardous materials in the Planning Area, are restricted to designated truck routes. This restriction will reduce the probability of accidental upset during the transporting of hazardous materials. Railroad operations, which could be transporting hazardous materials, will continue in the same manner as of present, with or without the General Plan Update. The impact is considered less than significant and will not be discussed further in the Draft EIR. No mitigation measures are necessary.*

Response 7c): ***Less Than Significant Impact.*** *The City of Selma is within the Selma Unified School District covering grades K-12. The policies of the Land Use Element of the proposed General Plan include the location of schools as focal points for residential neighborhoods, thus locating them away from land uses associated with hazardous materials. The proposed project will not result in hazardous materials, emissions, substances or waste being released* *within ¼ mile of an existing or proposed school. Furthermore, Education Code Section 17521 and the California Code of Regulations (CCR), Title 5, sections 14001 through 14012, outline the powers and duties of the California Department of Education regarding school sites and the construction of school buildings. The impact is considered less than significant and will not be discussed further in the Draft EIR. No mitigation measures are necessary.*

Response 7d): ***Less Than Significant Impact.*** *According to the U.S. EPA's Superfund Information Systems website, there are two known hazardous sites within the Selma City limits. One is the Selma Treating Company at 1735 Dockery Avenue which has been cleaned up and under current conditions potential or actual human exposures are under control. The other site is Upright Incorporated at 1755 Park. This site is not on the National Priorities List and has a discovery and preliminary assessment date of 1986 and 1987 respectively. There are 2 known hazardous cleanup sites within the Planning Area. Projects proposed as a result of the General Plan's adoption will be evaluated based on their relative location on or near hazardous sites. Adoption of the City's General Plan, including policies to minimize potential hazards to the City's residents, sites and structures, will be a less than significant impact with regards to creating a significant hazard to the public or the environment. This issue will not be addressed further in the Draft EIR and no mitigation measures are necessary.*

Response 7e): ***Less Than Significant Impact.*** *There are two privately owned airports in the Selma Planning Area (Selma Aerodome and Quinn Airport). The Land Use Element includes the following policy (1.94) with regards to development near an airport: "Development occurring within the primary and secondary review radii of the Fresno County Airports Land Use Policy Plan shall be reviewed for consistency with the Airport/Land Use Safety Compatibility Criteria (Table 1-1 and Figure 1-2) as adopted by the Fresno County Airport Land Use Commission". The proposed General Plan land use designations will result in compatible land uses being located near both airports; therefore, the impact will be less than significant. This issue will not be addressed further in the Draft EIR and no mitigation measures are necessary.*

Response 7f): ***Less Than Significant Impact.*** *See Response 7e)*

Response 7g): ***No Impact.*** *The proposed General Plan includes an objective (4.5 C) to establish and maintain a plan for responding to seismic disaster and for the provision of emergency services and policies to develop and adopt an Emergency Operations Plan which shall include action plans in the event of an earthquake or other disaster (4.2); to maintain and continue to update, with the County of Fresno and other agencies, an Emergency Services Plan (4.3); and to prepare a local emergency evacuation plan responding to the complete failure of Pine Flat Dam at peak capacity (4.22). Policies of the proposed General Plan will not interfere with emergency response or access. No impact has been identified and this issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Response 7h): ***Less Than Significant Impact.*** *Because most of the land in the Selma Planning Area is devoted to agriculture and urban uses, the risk of wildland fires is minimal. The impact is less than significant and will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
8. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☒	☐	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒	☐	☐
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☒	☐	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒	☐	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Response 8a): ***Potentially Significant Impact.*** *Pursuant to the Clean Water Act, the U.S. Environmental Protection Agency established regulations under the National Pollutant Discharge Elimination System (NPDES) program to control direct stormwater discharges. In California, the State Water Resources Control Board administers the NPDES permitting program and is responsible for developing NPDES permitting requirements. The NPDES program regulates industrial pollutant discharges, which include construction activities. Pollutants can also be introduced through operation of the project, including the use of fertilizers and pesticides, and the accumulation of oil or other automotive fluids on parking and drive aisle surfaces. Various devices such as inlet inserts (catch basin inserts) and Fossil Filters or their equivalent can be used in the storm drains to decrease the level of pollutants, debris, and sediment discharged to storm drain facilities. The proposed project is an update to the City of Selma General Plan. The Draft EIR will evaluate the project's effect on water quality standards and water discharge requirements. Mitigation measures will be recommended as appropriate.*

Response 8b): ***Potentially Significant Impact.*** *Development as a result of the proposed General Plan Update will lead to additional urbanization in the Planning Area. Urbanized lands generally consume equal amounts of water as agricultural land on a per acre basis, however, urbanizing lands may reduce the amount of permeable land surface through which water in the form of rainfall or surface flows can recharge the water table. This could result in a net deficit in aquifer recharge. In Selma, water for domestic use comes from groundwater* *sources. This potentially significant impact will be discussed further in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 8c): ***Less Than Significant Impact.*** *The proposed General Plan could result in minor alterations of the existing drainage pattern and rate of runoff in the area. However, all development will be connected to the City's storm water drainage facilities, and the City is required to prepare a Storm Water Management Program/Plan to be submitted to the EPA. The impact is considered less than significant and will not be discussed further in the Draft EIR. No mitigation measures are necessary.*

Response 8d): ***Less Than Significant Impact.*** *According to the Background Report for the General Plan (June 2008), the City of Selma does not have a history of flooding. The proposed project could result in minor alterations of the existing drainage pattern and rate of runoff in the area. However, all development will be connected to the City's storm water drainage facilities, and the City is required to prepare a Storm Water Management Program/Plan to be submitted to the EPA. The Storm Water Management Program/Plan will include Best Management Practices for the following six minimum control measures:*

- *Public education and outreach on storm water impacts*
- *Public involvement/participation*
- *Illicit discharge detection and elimination*
- *Construction site storm water runoff control*
- *Post-construction storm water management in new development and redevelopment*
- *Pollution prevention/good housekeeping for municipal operations*

The General Plan Update includes policies to discourage channel and slope modification where they increase the rate of surface runoff and increase the potential for erosion (5.18); to evaluate territories within its Planning Area to identify areas of potential localized flood hazards (4.16); and in areas identified as being potentially subject to flooding, where the exact area and depth of flooding is uncertain, the applicant or developer of an annexation or development proposal shall be responsible for the preparation of a civil engineering report evaluating the flooding potential (4.17). The impact is less than significant and will not be discussed further in the Draft EIR. No mitigation measures are necessary.

Response 8e): ***Less Than Significant with Mitigation Incorporation.*** *The Public Services and Facilities Element of the proposed General Plan includes policies addressing the development and funding of storm drainage facilities. The increased urbanization within the Planning Area will increase demand on the storm drain system. Such increases may have the potential for significant environmental impacts but can be mitigated to a less than significant level by incorporating best management practices for storm runoff in individual project designs. This potentially significant impact will be discussed further in the Draft EIR and mitigation measures will be recommended as appropriate.*

Response 8f): ***Potentially Significant Impact.*** *According to Calwater's 2006 Water Quality Report for the Selma District, water in the Selma vicinity met or surpassed all water quality standards during the reporting period. All drinking water, however, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The* *presence of contaminants does not necessarily indicate that water poses a health risk. The proposed project would involve the intensification of land uses and, therefore, would have the potential to impact water quality standards. This issue will be further evaluated in the Draft EIR and mitigation measures will be recommended as appropriate.*

Response 8g): ***Less Than Significant With Mitigation Incorporation.*** *Flood zone mapping prepared by the Federal Emergency Management Agency indicates that there are a few areas in the Selma Planning Area that are in the 100-year flood zone (reference the General Plan Background Report, Figure 10-2, June 2008, separately bound). Most of the land in the Planning Area within the 100-year flood zone is not designated residential with the exception of a small area south of Nebraska Avenue and west of Highland Avenue which is designated Low Density Residential (reference the Preferred Land Use and Circulation alternative in Figure 2-4).*

The proposed Safety Element includes policies to identify flood hazards (4.16 and 4.19); and to encourage new development to avoid floodplains or to mitigate and protect against flood impacts if development is to be located in such areas (4.20). This potentially significant impact can be reduced to a less than significant level with the implementation of appropriate mitigation measures. This issue will be analyzed further in the Draft EIR and mitigation measures will be recommended as appropriate.

Response 8h): ***Less Than Significant With Mitigation Incorporation.*** *See response 8g)*

Response 8i): ***Less Than Significant With Mitigation Incorporation.*** *According to the General Plan Update Background Report (page 10-2 and Figure 10-1), the City of Selma would be entirely within the inundation zone if Pine Flat Dam failed. There are also canals such as the Centerville and Kingsburg Canal and Fowler Switch Canal which could spill over or fail in the event of a major storm(s). Even though the likelihood of these events taking place is minimal, they're still concerns for the City of Selma. The Safety Element of the proposed General Plan includes objectives and policies to minimize flooding. The Element includes the following two specific policies regarding Pine Flat Dam failure:*

4.21 The City shall seek and petition the County of Fresno, Council of Fresno County Governments and other agencies and cities impacted by potential dam failure, to participate in the completion of a disaster plan dealing with Pine Flat Dam failure.

4.22 The City shall prepare a local emergency evacuation plan responding to the complete failure of Pine Flat Dam at peak capacity. The evacuation plan shall be coordinated with other responsible and impacted jurisdictions.

The Draft EIR will evaluate any potential impacts the proposed project may contribute to flooding hazards and mitigation measures will be recommended as appropriate.

Response 8j): ***No Impact.*** *The Planning Area is not located near a lake, ocean, or other large body of water where seiche or tsunami would be a threat. Selma and the surrounding area are also relatively flat and would not be affected by mudflow. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
9. LAND USE AND PLANNING -- Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐

Response 9a): ***No Impact.*** *The proposed General Plan consists of goals, objectives, policies, and standards that will plan and direct growth in the Planning Area in an orderly fashion, and will not result in the division of the community. The proposed project attempts to balance the community on both sides of SR 99. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Response 9b): ***Potentially Significant Impact.*** *The consistency of the General Plan Update with other land use plans, policies, or regulations governing Selma and its SOI will be evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 9c): ***Less Than Significant With Mitigation Incorporation.*** *See response 4f).*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
10. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Response10a): ***No Impact.*** *A review of the USGS Mineral Information, the California Geological Survey, and the California Division of Oil, Gas and Geothermal Resources databases indicates there are no known mineral resources in, around or under the Selma Planning Area. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Response 10b): ***No Impact.*** *See response 10 a).*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
11. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

*Response 11a): **Potentially Significant Impact.** The proposed project is an update to the City of Selma's General Plan. The proposed project may entail the alteration of and intensification of land uses, which may result in temporary, periodic, or permanent increases in ambient noise in excess of standards established in the general plan or noise ordinance. A noise analysis will*

be conducted and issues relating to noise will be further evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.

Response 11b): ***Potentially Significant Impact.*** *The proposed project may entail the alteration or intensification of land uses, which may result in temporary, periodic, or permanent increase in ambient noise or groundborne vibration or noise levels. A noise analysis will be conducted and issues relating to noise will be further reviewed and analyzed in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 11c): ***Potentially Significant Impact.*** *Noise levels in the Planning Area may increase due to the increased population predicted by the General Plan Update. However, the Plan's Noise Element includes policies to locate noise sensitive uses in compatible areas and to regulate noise producing development to limit noise levels in the City. This issue is potentially significant and will be discussed further in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Response 11d): ***Potentially Significant Impact.*** *See response 11 a) and c).*

Response 11e): ***No Impact.*** *There are no public airports in the Selma Planning Area. Therefore, the proposed project will not expose people residing or working in the area to excessive noise levels from a public airport. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Response 11f): ***Less Than Significant Impact.*** *There are two private airports in the Selma Planning Area. The Selma Aerodome is located north of Floral Avenue and West of DeWolf Avenue adjacent to Rockwell Pond on the west side of town. The Quinn Airport is located between State Route 99 and Golden State Boulevard south of East Dinuba Avenue. New development as a result of the proposed project will not expose people residing in the area to excessive noise levels over current conditions. However, both areas surrounding the airports are designated for industrial uses which could expose future employees in the project area to excessive noise levels.*

The Noise Element includes objectives and policies discouraging industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) from locating near the boundary of planned or zoned noise sensitive land uses if resulting exterior noise levels will exceed 65 dB L_{dn} *(or CNEL) at the boundary (3.7); and all projects within the impact area of an Airport, shall be evaluated for potential noise impacts from aircraft overflights based on the standards in the Fresno County Airports Land Use Policy Plan and this Noise Element (3.15). This impact is less than significant and will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
12. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

*Response 12a): **Potentially Significant Impact.** The proposed project could result in the intensification of land uses within the City and its Planning Area, and thereby potentially induce population growth in the area both directly and indirectly. This issue will be further evaluated in the Draft EIR and mitigation measures will be recommended as appropriate.*

*Response 12b): **No Impact.** The proposed project would involve the intensification of several types of land uses within the City and its Planning Area, including residential, commercial/retail and industrial development. However, these intensifications would not result in the displacement of substantial numbers of existing housing or necessitate the construction of replacement housing. This issue will not be addressed further in the Draft EIR and no mitigation measures are necessary.*

*Response 12c): **No Impact.** The General Plan Update would primarily involve the intensification of land uses in the City and its Planning Area. The proposed project would not displace substantial numbers of people and necessitate the construction of replacement housing elsewhere. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
13. PUBLIC SERVICES --				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☒	☐	☐	☐
Police protection?	☒	☐	☐	☐
Schools?	☒	☐	☐	☐
Parks?	☒	☐	☐	☐
Other public facilities?	☐	☐	☒	☐

Response 13a):

Fire Protection

Potentially Significant Impact. *The General Plan Update could result in the intensification of land uses, and thereby increased overall demand on fire protection services within the City and its SOI. This issue will be further evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Police Service

Potentially Significant Impact. *The General Plan Update could result in the intensification of land uses, and thereby increased overall demand on police protection services within the City and its SOI. This issue will be further evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Schools

Potentially Significant Impact. *The proposed project is an update to the City of Selma General Plan. The General Plan Update could result in the intensification of residential land uses, and thereby increase overall demand on school services within the City and its SOI. This issue will be further evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Parks

Potentially Significant Impact. *The proposed project is an update to the City of Selma General Plan. The General Plan Update could result in the intensification of land uses, and thereby increase overall demand on parks and recreational services within the City and its SOI. This issue will be further evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

Other Public Facilities

Less Than Significant Impact. *Other public facilities in the City of Selma include a public library, a post office, and utility and transportation facilities. The proposed General Plan provides adequate land designated for public use to accommodate the growth required of such facilities to serve the growing population. The provision of other public facilities necessitated by growth called for under the proposed General Plan should have a less than significant impact on public facilities. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
14. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☒	☐	☐	☐

*Response 14a): **Potentially Significant Impact.** The proposed General Plan includes goals, objectives, policies and standards to provide recreational opportunities and facilities in the City of Selma. If the City was unable to provide recreational facilities for its future growth, for whatever reason, this would be a potentially significant impact. This potentially significant impact will be discussed further in the DEIR. Mitigation measures will be recommended as appropriate.*

*Response 14b): **Potentially Significant Impact.** It is likely that recreation areas will be expanded to accommodate the needs of current and future residents. The construction may take place on lands that are currently in open space or agriculture which may create a potentially significant impact. This impact will be discussed further in the DEIR. Mitigation measures will be recommended as appropriate.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
15. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

*Response15a): **Potentially Significant Impact.** The proposed project includes an update to the Land Use and Circulation Elements. The General Plan Update could result in the intensification of land uses. A future conditions traffic analysis will be conducted for the General Plan and Draft EIR. The Draft EIR will evaluate the potential impacts related to traffic load, capacity of the street system, as well as level of service standards established by the county congestion management agency. Mitigation measures will be recommended as appropriate.*

*Response15b): **Potentially Significant Impact.** The proposed project is an update to the City of Selma General Plan and includes an update to the Land Use and Circulation Elements. The General Plan Update could result in the intensification of land uses. A future conditions traffic analysis will be conducted for the General Plan and Draft EIR. The EIR will evaluate the potential impacts related to traffic load, capacity of the street system, as well as level of service standards established by the county congestion management agency. Mitigation measures will be recommended as appropriate.*

*Response15c): **No Impact.** No aspect of the General Plan update is expected to result in a change in air traffic patterns, including increase in traffic levels or change in location that result in substantial safety risks. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response15d): **Less Than Significant Impact.** The proposed General Plan calls for eliminating or modifying intersections at awkward angles, and for new streets to be designed with safe intersection geometrics and lines of sight. It also calls for growth to be accommodated in, or contiguous with, the existing urbanized area. These policies will help prevent unsafe intersections and incompatible vehicular uses on area roadways. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response 15e): **Less Than Significant Impact.** The proposed General Plan includes policies to ensure that emergency access is maintained. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response 15f): **Less Than Significant Impact.** The Parking Regulations of the City's Zoning ordinance outline the amount and type of parking required for the following uses: residential; commercial; office and professional; schools and public facilities; and recreational. The proposed General Plan is consistent with the Zoning Ordinance and includes policies and standards to ensure that all new development includes adequate parking. This impact is less than significant. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

*Response 15g): **No Impact.** Selma is served by a City transit system. The proposed General Plan includes policies to seek additional funding for sidewalk construction and to continue monitoring bicycle accidents and establishing additional paths as needed, and to ensure the safety of pedestrians and bicyclists. These policies will improve existing alternative transportation plans, and will not result in conflicts. This issue will not be addressed further in the Draft EIR. No mitigation measures are necessary.*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
16. UTILITIES AND SERVICE SYSTEMS -- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☒	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

*Response 16a): **Potentially Significant Impact.** New development as a result of the General Plan Update will result in the construction of new water, wastewater, and storm drainage facilities. The Selma-Kingsburg-Fowler County Sanitation District (SKF CSD) provides sanitary sewer service to an area covering Selma, Kingsburg, Fowler, and some surrounding areas. SKF owns the wastewater treatment plant (WWTP) and some of the property surrounding the plant, as well as the system's "interceptor" sewer lines and four pump stations. Each city owns its own local sewer collection system (which drains to the interceptors) including sewers, pump stations, and other appurtenances. The District operates and maintains each city's facilities, and refurbishes and replaces them to the extent that funds are available. Each entity is responsible for expanding the facilities it owns. If SKF/the City is unable to accommodate the increased wastewater as a result of the proposed project then this could be a potentially significant impact and will be discussed further in the Draft EIR. Mitigation measures will be recommended as appropriate.*

*Response 16b) and 16c): **Potentially Significant Impact.** See Response 16 a).*

*Response 16d): **Potentially Significant Impact.** The proposed General Plan calls for additional urbanization in the Planning Area. Urbanized lands generally consume equal amounts of water as agricultural land per acre, but may reduce the amount of permeable land surface through which water in the form of rainfall or surface flows can recharge the water table. This may result in a net deficit in aquifer volume. New development will require a new water supply, storage and delivery facilities. The implementation of impact fees is a funding method that is recommended to have new development pay for a portion of the new facilities. This is a potentially significant impact and will be discussed further in the Draft EIR. Mitigation measures will be recommended as appropriate.*

*Response 16e): **Potentially Significant Impact.** See Response 16 a).*

*Response 16f): **Less Than Significant Impact.** The City of Selma is served by the American Avenue Landfill which is operated by the County of Fresno and is approximately 6.5 miles southwest of Kerman. According to the Fresno County Public Works Department, the County's Sold Waste Division has indicated that "…it is estimated that the landfill will be able to continue operations until 2031 when it will be full and will have to be closed."*

The City collects recyclable materials separately from waste. Recyclables can be put in a blue container for weekly pickup and removal. Recyclables are taken to the Fresno County Recycling facility in Kerman where they are processed and then sold to recycled materials users. Yard waste in Selma is collected in a separate green container by the City's private waste collection contractor and is taken to the contractor's facility, where it is processed. California Assembly Bill 939 required all cities to have reduced landfill tonnage by 25% by the end of 1995 and 50% by the end of 2000. Selma took this challenge seriously and reached the 50% waste reduction requirement partially through the introduction of the separate container collection system. Since then, additional partnerships have been established to reduce the amount of waste throughout the community. In 2006, Selma Disposal and Recycling Inc. and the Selma Unified School District created a recycling program in the *school system with paper only bins. With this system in place, the Selma Unified School District was able to divert over 50 tons of paper out of the landfills.*

The County will have to either expand the American Avenue Landfill or divert waste to another landfill or an altogether new landfill. The City of Selma will continue to do their part to reduce the amount of waste to County landfills with their recycling efforts. The impact is considered less than significant and will not be addressed further in the Draft EIR. No mitigation measures are necessary.

Response 16g): ***Less Than Significant Impact.*** *See response 16f).*

Issues:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
17. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to significantly degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of a rare or endangered plant or animal; or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Response 17a): ***Potentially Significant Impact.*** *The proposed project has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, and eliminate important examples of the major periods of California history or prehistory. The Draft EIR will evaluate these topics in greater detail to determine whether the proposed project would generate significant environmental impacts. Mitigation measures will be recommended as appropriate to reduce potentially significant impacts to a less than significant level. A Mitigation Monitoring and Reporting Program will also be developed. If necessary, a Statement of Overriding Considerations will be drafted for*

consideration by the City Council should significant and unavoidable impacts be identified in the Final EIR.

Response 17b): ***Potentially Significant Impact.*** *The proposed project has the potential to result in cumulatively considerable impacts (e.g., air quality, noise, and traffic impacts). The project's contribution to temporary and long-term impacts resulting from new development may exceed the applicable cumulatively considerable thresholds. Therefore, the project's contribution to overall cumulative impacts is considered potentially significant. The analysis undertaken in the DEIR will determine the level of significance of these impacts. Mitigation measures will be recommended as appropriate.*

Response 17c): ***Potentially Significant Impact.*** *Development and growth in Selma as a result of the proposed General Plan will have the potential to increase traffic congestion, add to the air quality problem, increase noise levels, and have a potentially significant impact on the demand for and provision of public services. Cumulatively, these impacts could have considerable adverse effects on the community. The significance of these impacts will be evaluated in the Draft EIR. Mitigation measures will be recommended as appropriate.*

APPENDICES

APPENDIX A

DRAFT GENERAL PLAN POLICIES STATEMENT

SELMA GENERAL PLAN UPDATE

Draft General Plan Policies Statement

August 2008

Quad Knopf

CITY OF SELMA
GENERAL PLAN UPDATE 2035

General Plan Policies Statement

City Council
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Jim Avalos
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Planning Commission
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070214

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INTRODUCTION

Introduction

SELMA GENERAL PLAN POLICIES STATEMENT

Introduction

California state law requires each city and county to adopt a General Plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (§65300). The California Supreme Court has called the General Plan the "constitution for future development." Selma's General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. State law specifies that each General Plan address seven issue areas ("elements"): land use, circulation, open space, conservation, housing, safety and noise. Additional elements may be added as a local option.

The Selma General Plan provides comprehensive planning for the future. It encompasses what the City is now, what it intends to be, and provides the overall framework of how to achieve this future condition. Estimates are made about future population, household types, and employment, so that plans for land use, circulation and public facilities can be made to meet future needs. The General Plan represents an agreement on the fundamental values and a vision that is shared by the residents and the business community of Selma and the surrounding area of interest. Its purpose is to provide decision makers and City staff with direction for confronting present issues, as an aid in coordinating planning issues with other governmental agencies, and for navigating the future.

- The Land Use Element provides the central policy context on which to base all land use decision making in Selma. It is through the implementation of the goals, objectives and policies that the future land use pattern of Selma will continue to be shaped.

- The Housing Element looks at the current and future need for housing units, the capacity in the City for additional units, the types of households that will need some form of assistance or special housing, and ways to perpetuate existing housing. Selma's current Housing Element was completed in 2004. The Housing Element is not a part of the General Plan Update and will be updated separately.

- Transportation routes, design standards for streets and neighborhoods, bicycle and pedestrian facilities, and current and future traffic levels on City streets are among the issues covered in the Circulation Element of the General Plan.

- Open space and recreation issues include discussion of parks and recreation resources, targeted growth of these facilities, the creation of a city-wide bike/pedestrian path system and payment strategies to pay for future facilities. The Open Space and Conservation Elements have been combined along with the optional Element, Recreation. The Element also includes policies and standards with regard to air quality.

- Conservation issues include strategies for an orderly transition from agriculture to urban uses, groundwater recharge, conservation of ground water resources, energy conservation, and commitment to conservation of agricultural lands.

Existing and future noise from traffic, rail, airport and other activities are issues discussed in the Noise Element.

- The Safety Element of the General Plan analyzes conditions in the City and surrounding area that may be hazardous to those who live and work there, such as flood inundation, fire, seismic hazards, geologic hazards and hazardous materials.

Each of these issue areas have goals, objectives, and policies and standards designed to provide a safe and pleasant environment in the future. Selma's General Plan contains not only the seven mandatory elements required by state law, but also optional elements. These include: Public Services and Facilities and Recreation. Each General Plan chapter covers an aspect of the City's growth and development. Components of each section are interrelated and therefore must be consistent with each other. Taken together, they provide the guidance for all aspects of planning for the future.

Having adopted the General Plan, the City assumes the responsibility to implement it, to report on its continuous status, and to communicate with citizens and other agencies regarding the Plan's policies.

Organization of the General Plan

This General Plan is an update, expansion and reorganization of the 1997 General Plan. Significant changes to the 1997 General Plan have occurred: including updating the goals, objectives and policies; creating an existing conditions or Background Report; expanding the boundaries of the Sphere of Influence (SOI), the creation of Urban Development Boundaries (UDB), an updated circulation system; the development of three new specific plan areas (Rockwell Pond, Amberwood and South Selma); and a new Planning Area beyond the SOI. The Planning Area encompasses the City limits and SOI, and unincorporated territory bearing a relation to the City's planning.

The Selma General Plan Update consists of three separate documents – a General Plan Background Report, the General Plan Policies Statement, and the Environmental Impact Report (EIR) and technical appendices. The General Plan Policies document contains six (6) chapters. The focus of each element consists of goals, objectives and policies associated with the major issue areas. Some of the elements contain related background information required by State law. The EIR presents three alternatives and documents how the proposed plan will impact the environment as compared to the alternative plans. The technical appendices contain technical reports and background information (i.e., noise, traffic, cultural, etc.) which provide a more detailed analysis.

Context

The Selma General Plan Planning Area is located in the Central San Joaquin Valley in south-central Fresno County, approximately 207 miles north of Los Angeles and 209 miles south of San Francisco. The closest major city, Fresno, is located approximately 15 miles northwest of Selma. The Selma General Plan covers a 31 square mile Planning Area which encompasses the City of Selma, the SOI and unincorporated land outside the SOI within Fresno County. All lands outside of the City's boundary are regulated by the Fresno County General Plan and zoning designations. However, State law requires that cities plan for areas outside of their immediate jurisdiction; if the areas have a direct relationship to the city's planning needs. The SOI also establishes future growth areas and the area in which annexations may be permitted.

The Selma Planning Area consists of three distinct geographical areas: The City, which represents the incorporated City within the City limit boundaries; the SOI which is slightly larger than the City's previous SOI; and the Planning Area or Area of Interest, which includes unincorporated Fresno County lands outside of the City's SOI.

Intent of the Plan

This General Plan was developed through a cooperative effort involving the City Council, Planning Commission, City staff and their consultants, and interested citizens who participated in "visioning workshops" and public hearings. The General Plan Update process disclosed a number of important issues which have been instrumental in shaping the plan. Some of these issues are summarized as follows:

- The community needs more walkable, neighborhood oriented subdivisions.
- Selma needs to maintain its "small town" atmosphere.
- More mix of uses needed in the downtown area.
- More recreational opportunities needed in all areas of town.
- More senior housing needed throughout town.
- Expansion of the city-wide bike/pedestrian path system.
- More variety in housing (recessed/detached garages, smaller setbacks, mix of housing).
- New Industrial development to be an expansion of existing industrial areas.
- Selma needs to be more balanced on both sides of SR 99.
- Railroad tracks and SR 99 are aesthetic and noise nuisances.
- Only two SR 99 interchanges in the community which leads to congestion.

Administering the General Plan Program

Once adopted, the General Plan does not remain static. State law provides direction on how cities can maintain the plan as a contemporary policy guide. Government Code section 65400

[b] directs the Community Development Department to report annually to the City Council on the status of the general plan and progress made in its implementation.

Over time it may be necessary to re-evaluate the goals, objectives and polices and modify them due to changes in the environment, regional considerations, and the economy. Up to four general plan amendments per year for each mandatory element are permitted by State law. It is required that any decision on a general plan amendment be supported by findings of fact.

General Plan Requirements

While they allow considerable flexibility, state planning laws do establish some requirements for the issues that general plans must address. The California Government Code establishes both the content of general plans and rules for their adoption and subsequent amendment. Together, state law and judicial decisions establish three overall guidelines for general plans.

- **The General Plan must be comprehensive.** This requirement has two aspects. First, the General Plan must be geographically comprehensive. That is, it must apply throughout the entire incorporated area and it should include other areas that the City determines are relevant to its planning. Second, the General Plan must address the full range of issues that affects the City's physical development.

- **The General Plan must be internally consistent.** This requirement means that the General Plan must fully integrate its separate parts and relate them to each other without conflict. The internal consistency requirement has five dimensions: equal status among elements, consistency between elements, consistency within elements, area plan consistency and text and diagram consistency.

- **The General Plan must be long-range.** Since the General Plan affects the welfare of current and future generations, state law requires that the plan take a long-term perspective (§65300). The General Plan projects conditions and needs into the future as a basis for determining objectives. It also establishes long-term policies for day-to-day decision-making based upon those objectives.

CHAPTER ONE

LAND USE ELEMENT

Land Use Element

1.0 LAND USE ELEMENT

1.1 Introduction

The Land Use Element is a guide to future land use within Selma and affects many of the issues addressed in the other General Plan Elements. The Land Use Element identifies the type and location of future land uses within the City. The specific land uses and their location in turn affect the remaining General Plan Elements. For example, the location and type of land uses outlined in the Land Use Element affect the circulation system that is identified in the Circulation Element. They also reflect the application of the community's goals for its future form and character. In addition to land uses, the Land Use Element also addresses how and when growth will occur, with special attention given to public services and facilities as well as economic development.

1.2 Purpose of the Land Use Element

State law requires that Selma prepare and adopt a General Plan as a tool to manage growth and development. The Land Use Element is one of the seven mandatory elements of the General Plan. The purpose of the Land Use Element is to describe present and planned land uses and their relationship to the community's long-range goals for the future. The Land Use Element identifies the proposed general distribution, location, and extent of land uses such as residential, commercial, industrial, and public/quasi public. The Element consists of text and a map (reference map pocket) that outlines the future land uses within the City and how these uses are integrated with the other General Plan Elements and policies. The Land Use Map is a particularly important feature of the Element since it shows the location and types of development within the City. The Element also describes the intensity or density of development planned for the community. The Land Use Element of the Selma General Plan represents the City's desire for long-range changes and enhancements of land uses. Finally, the goals, objectives and policies and standards contained in this Element establish the framework for future land use planning and decision making in Selma.

1.3 Scope and Content of the Land Use Element

The Land Use Element complies with the requirements of the General Plan Land Use Element mandated in Government Code §65302(a). The Element is comprised of five sections: the Introduction; Purpose of the Land Use Element; Scope and Content of the Land Use Element; Goals, Objectives, and Policies and Standards; and Land Use Map. In the Goals, Objectives, and Policies and Standards section, major land use issues are identified and related goals and policies are established to address these issues. The goals, which are overall statements of community desires, are comprised of broad statements of purpose and direction. Policies serve as guides for reviewing development proposals, planning facilities to accommodate anticipated growth, and accomplishing community economic development strategies. To achieve the goals, objectives and policies, a logical, organized land use pattern is established with standards for future community development. The Land Use Map graphically identifies the planned land uses within Selma.

1.4 Growth Management

The issue of growth management is central to the general plan process. Growth impacts the community in a variety of ways affecting all of its residents. When growth takes place in a manner consistent with the community's ability to provide necessary services, growth can have positive impacts. Unplanned growth or rapid growth beyond the ability to provide services can create an unpleasant environment and have a devastating affect on the long term economic vitality of the community.

It is in the context of managed growth that the impact of the General Plan can best be understood. A general plan can be broadly defined as an adopted statement of policy for the physical development of a community. As such, it not only represents the official policy regarding the nature and quality of development within the community, but also represents an assessment of the type, quantity, and timing of future development. A major purpose of this General plan is to provide a clear statement of the City's desire for future development. The Plan will be used in the decision making process and is designed to be the framework for policy decisions on both private development projects and City capital expenditures.

The General Plan reflects a serious interest in the effects of urban development on the City's operation and capital budgets. All land use decisions have an effect on future City tax revenues and on the cost of delivering services. As long as the City continues to grow in population, the operating and capital budgets have to address increased service demands. The purpose of a growth management strategy is to reach a balance between the need to house new population and the need to balance the City's budget while providing acceptable levels of service.

The City's strategy for growth management can best be described as the prudent location and timing of new development to maximize the efficient use of urban facilities and services. The General Plan gives direction to the growth the City will experience in the future. Where and when growth is accommodated has major implications for service levels and on the costs of City operations.

1.5 Zoning Consistency

To meet requirements of State Law and simplify the planning process, all land within the Sphere of Influence identified on the General Plan map is provided with a land use designation. The classifications of land are adopted as General Plan policy and are intentionally broad to allow flexibility in project planning. Typically, this flexibility may allow more than one zoning district to be consistent with a single general plan land use designation.

By law, the Land Use Element must establish standards of population density and building intensity for each land use designation. Residential land use density and intensity is expressed in terms of units per gross acre. A gross acre is the raw land before any dedication of streets, setbacks or other restrictions are applied. Units per gross acre is used because it is easier to understand and convey to the general public. Each residential category includes minimum and maximum densities specified in a range of units per gross acre. This allows for a variety of development proposals and zoning requests to be consistent with the General Plan land use designation. The figures are estimates based on average housing units per gross acre. The ultimate population density may be obtained by multiplying the number of units by the average household size to determine the number of persons per acre.

Commercial and industrial land uses include a maximum lot coverage which should not be exceeded. It would not include parking areas (except garages and carports), sidewalks and similar features.

While the Land Use Element specifies a range of unit densities per acre, the Zoning Ordinance of the Selma Municipal Code regulates lot size, parking requirements and other development standards. Under a given land use designation, different zone districts may be appropriate. Consideration of different development requirements within a land use designation is accomplished under the Planned Development provisions of the Zoning Ordinance.

Table 1-1 provides a summary of the density ranges allowed in residential designations and the maximum lot coverage area ratio allowed in non-residential designations and also lists the zoning districts appropriate for each land use.

1.6 Agricultural Management

GOAL 1

Protect adjacent and nearby agricultural lands within the City's Planning Area, while providing for logical growth of the City.

Policies and Standards

1.1 The following agricultural land use category identifies land throughout the Planning Area that is intended primarily for agricultural uses.

Agriculture (AG) 0 to 0.05 Units Per Gross Acre.

This designation provides for agriculture and agriculturally–related uses with a 20-acre minimum lot size, and is generally applied to lands outside of urbanized areas or areas planned for future urbanization. Although lands designated Agriculture are not always under the direct control of the City of Selma, the agricultural designation of these lands is intended to express the City's preference that these areas remain in agricultural use and production.

Table 1-1
Land Use and Zoning Consistency

	Units Per Acre		Lot Size (sq. ft.)	
General Plan Designation	**Min**	**Max**	**Min**	**Consistent Zoning**
Residential Land Uses				
Extremely Low Density	*0.0*	*0.5*	*20,000*	*AE, OS, RA*
Very Low Density (VLD)	0.0	2.0	12,000	R-1-12
Low Density (LD)	1.0	4.0	9,000	R-1-9, R-1-12
Medium Low Density (MLD)	3.0	5.5	7,000	R-1-7, R-1-9
Medium Density (MD)	4.5	9.0	6,000	R-2
Medium High Density (MHD)	8.0	14.0	20,000	R-3, R-2
High Density (HD)	13.0	19.0	30,000	R-4, R-3
Commercial Land Uses	**Max Lot Coverage**		**Min Lot Size**	**Consistent Zoning**
Neighborhood Commercial (NC)	40%		1 Acre	C-1
Community Commercial (CC)	60%		20,000	C-2
Commercial Office (CO)	40%		5 Acres	C-O
Service Commercial (SC)	75%		20,000	CS
Highway Commercial (HC)	70%		20,000	CH
Regional Commercial (RC)	60%		5 Acres	C-3
Planned Medical Devel. (PMD)	50%		20,000	PMD
Central Business District (CBD)	100%		None	CBD
Industrial Land Uses	**Max Lot Coverage**		**Min Lot Size**	**Consistent Zoning**
Light Industrial (LI)	80%		10,000	M1
Heavy Industrial (HI)	90%		10,000	M2
Business Park (BP)	75%		10,000	BP
Miscellaneous Land Uses	**Max Lot Coverage**		**Min Lot Size**	**Consistent Zoning**
Public Facilities (PF)	N/A		None	Any
Park (PA)	N/A		1 Acre	OS
Reserve (RE)	N/A		N/A	RA, OS

1.2 In order to preserve them as a natural resource and provide a buffer between existing and future development in the City and neighboring cities, prime agricultural lands should not be designated for urban development to the extent feasible.

1.3 The premature conversion of productive agricultural lands to urban uses is discouraged. Steps to curb conversion of these lands include the use of Williamson Act contracts, Farmland Security Zone contracts, agricultural zoning, purchase/transfer of development rights and “right to farm” covenants.

1.4 Request that Fresno County amend the County’s Selma Community Plan to be consistent with the City’s General Plan.

1.5 Support Fresno County General Plan objectives and policies which protect agricultural lands by maintaining large agricultural parcel sizes and preventing the development of these parcels until it is appropriate to be annexed into the City for development.

1.6 Support agricultural industries within the City, but not in the unincorporated areas of the Selma Sphere of Influence. The City shall discourage agricultural industries in unincorporated lands as it would blur the City edge and create demand for annexation and City services.

1.7 Require a “right to farm” covenant to be recorded for all development adjacent to productive agricultural lands, in order to provide notice to future owners and protect the farming activities.

1.8 New development in the community should be sequential and contiguous to existing development, to ensure the orderly extension of municipal services and preservation of an adequate circulation system.

1.9 While the City prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development greater than ¼ mile from existing urban uses should be discouraged. Such development should be required to submit an analysis of the fiscal and service impacts the development would have upon the City.

1.10 The in-fill of existing vacant lands within the City limits should be encouraged over development on the periphery of the community.

1.11 Development of peninsulas of urban development into agricultural lands shall be discouraged.

1.12 In cooperation with Fresno County and the Fresno Local Agency Formation Commission, the City shall adopt and maintain a Sphere of Influence consistent with this General Plan. The Sphere of Influence shall serve the mutual interests of the County and City by preserving agricultural uses in areas vulnerable to development while protecting the ultimate growth area of the City from potential incompatible or unplanned urban uses.

1.13 The City shall discourage extension of urban services for land which will not be annexed into the City for greater than one year, except when required to eliminate health and safety problems in existing developments.

1.14 The City shall oppose untimely urban development in the unincorporated areas of the Sphere of Influence.

1.7 Residential Land Use

GOAL 2

Provide adequate land and services to facilitate the development of a wide range of housing types within the City of Selma.

Policies and Standards

1.15 The following residential land use categories identify land throughout the Planning Area that is acceptable for housing; clarifies the overall type of housing to be developed within each category; and allows for a mixture of housing types, lot sizes and affordability within the community.

Extremely Low Density (ELD): 0.0 to 0.5 Units Per Gross Acre
This designation allows for large lot sizes typically 20 acres and larger. Typical zoning would be RA (Residential Agricultural), and OS (Open space). Other permitted uses include crop and tree farming, horticulture, temporary stands for the sale of agricultural products grown on the same property, small farming, and publicly owned parks and playgrounds. Estate sized lots and areas where horses could be kept may also be compatible in some areas.

Very Low Density (VLD): 0 to 2.0 Units Per Gross Acre
This category is characterized by larger lot sizes ranging from a minimum of 12,000 square feet to a more typical 20,000 square feet. Typical zoning would be R-1-12. A planned unit development may be appropriate if accompanied by a recreational amenity such as a golf course, lake or similar amenity. Estate sized lots and areas where horses could be kept may also be compatible in some areas.

Low Density (LD): 1.0 to 4.0 Units Per Gross Acre
The intent of this classification is to provide locations for the construction of single family homes. Zoning classifications under this designation include R-1-9 and R-1-12 with 9,000 and 12,000 square foot lot minimums respectively.

Medium Low Density (MLD): 3.0 to 5.5 Units Per Gross Acre
This Designation allows for a transition of housing types between higher density development and conventional single family developments. Typical zoning would be R-1-7 or R-1-9. This land use designation is representative of most existing single family developments within the City. Minimum lot size is 7,000 square feet.

Medium Density (MD): 4.5 to 9.0 Units Per Gross Acre
Small-lot, clustered development and low density multiple family development would be acceptable in this designation. To accommodate these types of development, typical zoning would be R-2, having a minimum lot size of 6,000 square feet with an additional 4,000 square feet for each additional unit on the same lot. In addition, specific development standards would be necessary on a project by project basis to insure that there would be sufficient open space, parking, etc. The majority of multiple family development in this district would be in the form of duplexes.

Medium High Density (MHD): 8.0 to 14.0 Units Per Gross Acre
This classification provides for lower intensity multiple family developments. Typical zoning would be R-3 with a minimum lot size of 20,000 square feet. A lot with the minimum lot size would typically have up to 4 residential units. Typical development would be tri- and four-plexes and single story apartment complexes.

High Density (HD): 13.0 to 19.0 Units Per Gross Acre
Notable apartment developments are provided within this designation. A new zone district, R-4, will be required to be developed in the zoning ordinance. R-4 zoning will have a minimum lot size of 30,000 square feet. A lot with the minimum lot size could potentially have up to 13 residential units. This designation would likely result in multiple story apartment complexes.

Mixed Use (MU) 5.0 to 19.0 Units Per Gross Acre
This classification accommodates a variety of retail, government, and commercial services, including but not limited to, restaurants, offices, inns/hotels, and entertainment uses. Residential uses can be provided above commercial or in free-standing buildings. Innovative housing options, integration with commercial and office uses, and pedestrian-oriented design are particularly encouraged within the Mixed Use land use designation.

1.16 For fostering competition and choice of housing, the City shall identify approximately 150 percent of the estimated land needed for development to accommodate the projected growth of the community during the plan period on the general plan land use map.

1.17 Within one year of adoption of the General Plan, the City shall review its Capital Improvements Program to ensure that planned improvements are consistent with the Plan.

1.18 The City shall work closely with the school district in monitoring housing, population, school enrollment trends and in planning for future school facility needs, and shall assist the school district in locating appropriate sites for new schools.

a. The City will involve the school district as early as possible in the planning process to ensure that the analysis of and provision for adequate school facilities are an integral part of any project review.

b. New schools should be located as close as possible to housing developments so children can walk/bike to school, and to minimize district transportation costs.

c. New school sites should be located adjacent to public parks and/or open space to allow joint use of public land.

d. New school sites should be located to minimize the need for young children to cross major roadways, railroads or other physically challenging barriers.

e. The City shall assist the school district in finding sites for the elementary schools, middle schools and high schools which the school district indicated would be necessary to serve the population growth projected in this General Plan update.

1.19 The City will work closely with the school district to ensure that school facilities will keep pace with new development. The City may assist the school district in securing funding for new school facilities and, where legally feasible, the City may provide a mechanism which, along with state and local sources, requires development projects to satisfy the school district's financing program based upon evidence of their impact.

a. The school district will impose fees as legally allowed by the state on residential development projects for the construction and/or reconstruction of school facilities. The fees on residential development projects may be adjusted every two years for inflation.

b. The City will encourage the school district to take actions necessary to qualify for state school funds.

GOAL 3

Provide a high quality living environment in residential neighborhoods.

Policies and Standards

1.20 Support smart growth principles that advance mixed use, higher density, walkable, bikeable and accessible neighborhoods which coordinate land use and transportation with open space areas for recreation. Promote green/sustainable building standards for private residential, multifamily, and commercial projects.

1.21 The City will encourage Leadership in Energy and Environmental Design (LEED) features for new construction including commercial, residential, industrial and public facilities. LEED was established to provide the building industry with design tools and standards which create high performing, environmentally friendly, sustainable buildings.

1.22 Residential neighborhoods should be protected from encroachment of incompatible activities or land uses which may have a negative impact on the residential living environment.

1.23 New residential developments shall incorporate specific and unique design features into their projects to help promote a sense of ownership and place in a neighborhood. Proposed elevations and materials shall be compatible with adjacent or nearby neighborhoods. Design features shall include the physical appearance and materials used on a structure as well as the placement of structures within a development. Elevations and floor plans shall be reviewed and evaluated prior to approval of new residential developments.

1.24 In order to encourage the integration of neighborhood and community commercial uses into neighborhoods, designs should de-emphasize the usage of walls as buffers where they create barriers to pedestrian access. Continuous block walls shall be discouraged, and offsets and openings shall be encouraged, other types of uses, such as open space, may be utilized as buffers.

1.25 If walls are used, they shall be designed in a manner that incorporates a variety of materials and textures as well as landscaping. Wall design and materials shall be reviewed and evaluated at the time of approval of new residential developments.

1.26 The City shall plan new residential areas to be within the recommended distance of ½ mile of school playgrounds and/or recreational open space. Park facilities shall be provided in each quadrant of the City within a recommended ¼ mile walking distance of most residents.

1.27 Required front yard setbacks shall be landscaped and provided with permanent irrigation systems prior to issuance of occupancy permits for single family residential developments. A minimum of one street tree for every 30 feet of street frontage shall be provided. Such trees shall not be less than two inches in diameter, measured four and one half feet from the root ball, and shall be a variety from the City's list of approved trees.

1.28 To provide additional security, privacy and noise reduction, all new residential development shall require minimum setbacks of 20 feet for structures abutting arterial streets and 10 feet for structures abutting collector streets.

1.29 The following access restrictions shall apply to new single family subdivisions:

a. New single family residential lots shall not be permitted to have vehicle access to arterial streets.
b. New single family residential lots shall not be permitted to have vehicle access to collector streets where it can be avoided.

c. The use of frontage roads, corner lots, open end cul-de-sacs or other street design solutions for access is encouraged.

1.30 The east side of McCall Avenue between Floral Avenue and Gaither Street shall be designated as a Special Policy Area. The purpose of the Special Policy Area is to define the area of existing single family residential uses that are subject to changing urban environments that may reduce the suitability of the area for new residential development. The anticipated impacts of street widening that would affect the single family residential use of property, include: reduction in front yard building setbacks for existing homes, increased awareness of the arterial street classification due to nearness of the street improvements and increased traffic volumes. The McCall Avenue Special Policy Area shall be subject to the following:

1. In order to protect the existing residential nature of the area, all properties shall continue to be designated for medium density residential use.

2. In consideration of the potential effects of the future widening of McCall Avenue, the properties within the McCall Special Policy Area shall be permitted to develop with office commercial uses in a manner that considers and protects the residential environment of the existing uses.

3. Any proposal to develop commercial office uses shall be subject to a precise plan overlay district, which may be enacted subject to making the following findings:

    a. The size and shape of the property is adequate to provide for the proposed development.

    b. The development gives consideration to the potential effect of development on other immediately adjacent properties by providing compatible architectural building designs, setbacks, significant landscape treatment, shared driveway access and on site circulation and parking facilities.

    c. The commercial office development does not generate vehicular traffic that significantly affects the adjacent residential uses.

    d. The conversion of existing residential buildings for commercial office use provides for structurally safe, as well as aesthetically pleasing buildings as a result of the change of occupancy.

4. Precise plans for commercial office development within the special policy area shall incorporate the following general development guidelines.

    a. The placement of buildings on the property shall conform to the average building line of the existing development along the east side of McCall Avenue.

    b. The architectural design of new office buildings shall reflect the residential character of the single family residential buildings in the area. Detailed architectural elevations and renderings shall be submitted for review during the precise plan approval process.

5. The conversion of existing residential buildings to commercial office use shall be subject to the same architectural review as new office buildings. The detailed architectural elevations submitted for review shall provide assurance that architectural building enhancements are incorporated into the change of occupancy consistent with other improvements to the property.

   a. The use of existing residential buildings for commercial office use shall be subject to code compliance inspection performed by a licensed architect or engineer. The Code compliance inspection shall be performed to assure that any existing building used for office commercial use is safe for commercial occupancy.

   b. All parking areas shall be located to the rear of buildings and or shall be setback a minimum of 20 feet and screened from Mccall Avenue by buildings, low brick walls and extensive landscaping. Shared parking facilities shall be encouraged.

   c. Drive approaches and driveways serving development from McCall Avenue shall be to the one way residential standard 12 to 15 feet in width and shall be spaced to retain the residential character of the area. Shared driveway access shall be encouraged.

   d. The landscaping plan shall include the planting of large trees, at least 24 inch nursery box size, along the front or street side of the property. Trees shall be spaced in a manner that provides a 100 percent shade canopy, upon tree maturity, along street frontages.

   e. Adjacent properties are encouraged to consolidate and join together in order to provide adequate property size for commercial office development.

GOAL 4

Ensure that higher density residential developments provide amenities and maintenance of facilities that assures an adequate standard of living to the residents of the development.

Policies and Standards

1.31 In order to meet a portion of the open space and recreational needs generated by higher density residential developments, private recreational facilities should be provided in all residential planned unit developments and multiple family residential projects over five units.

GOAL 5

Ensure that higher residential densities do not negatively affect existing neighborhoods.

Policies and Standards

1.32 "Medium High" and "High" residential land use districts should be distributed throughout the community. However, such residential districts shall be located at or near intersections of arterial and/or collector streets and should be close to shopping, transit and schools. Access to developments within these districts through single family residential neighborhoods is discouraged.

1.33 Higher density residential developments should be designed in a manner that minimizes the impacts upon adjacent properties. To that end, the following development standards should be incorporated into higher density residential projects:

a. Outdoor recreation areas, game courts, pools and solid waste collection areas on multifamily properties shall be oriented away from adjacent properties planned for single family residential.

b. Parking areas, garages, other non-residential structures and access drives shall be separated from adjacent properties planned for single family residential with a 10-foot landscaped setback containing deciduous and evergreen trees.

c. Exterior area lighting for multiple family residential parking, carports, garages, access drives and outdoor recreation areas shall be shielded to minimize line-of-sight visibility from abutting property planned for single family residential.

d. Multiple family residential buildings greater than 20 feet in height shall be prohibited within 25 feet of property planned for single family residential.

e. Permanent fences or walls shall be provided adjacent to non-street project boundaries.

1.34 Driveway access within 175 feet of the intersection of two arterials for multiple family residential should not be permitted.

1.35 Multiple family residential development projects should be no larger than 120 units. Developments larger than this should be designed, approved and managed as separate projects.

1.36 Multiple family residential development projects in the "Medium High" and "High" land use designations should be of sufficient size to provide on-site management.

GOAL 6

Provide for a mix of densities which will ensure adequate and affordable housing for all economic segments of the community.

Policies and Standards

1.37 The minimum lot area for a single family dwelling unit shall be 7,000 square feet, with exceptions to this minimum allowed subject to the approval of a Conditional Use Permit or Specific Plan as set forth in the City of Selma Zoning Ordinance.

1.38 Prior to development of less than the minimum range specified for a given residential General Plan Designation or amendment of the General Plan to allow a lower density designation for a parcel of land, the findings listed below shall be made. The intent of this policy is to make efficient use of land and ensure the viability of long-range financing mechanisms used to finance public improvements.

a. A determination that the density will not cause a shortfall in any assessment district, reimbursement agreement or other fee program implemented by the City.

b. That the design of the project addresses noise, traffic, and access within the confines of the project.

c. That adjacent land uses, existing or planned, are not significantly impaired, or prohibited, as a result of the lower density.

d. That the lower density is consistent with the requirements of State Government Code Section 65863.

1.39 The maximum densities provided for in this general plan land use element may be exceeded for reconstruction of existing multiple dwelling units in accordance with the following:

Demolition and reconstruction of existing multiple dwelling units on a single legal parcel in areas designated or zoned for single family development may be permitted subject to review and approval by the Planning Commission at a public hearing and in accordance with the following:

a. The multiple dwelling units were legally constructed. For the purposes of this policy, legally constructed shall include all multiple dwellings which have approved entitlements, approved building permits for construction or conversion, or can be shown by City records to have existed prior to 1970.

b. The lot can be shown to accommodate reasonable facilities for the scale of the development, such as open space, parking and common areas. A minimum of one hundred fifty (150) square feet of private open space per unit should be provided.

c. A minimum of one (1) on-site parking space per unit shall be provided. Where parking in excess of one space per unit exists, parking spaces numbering not less than the existing number shall be provided upon completion of the reconstruction.

d. There shall be no increase in the intensity of the land use over that which previously existed. No increase in the number of units shall occur. The average size of all units on the property shall not be increased, except as required to meet any minimum size required by the Selma Municipal Code.

e. The proposed height and bulk of the dwellings shall be compatible with the surrounding neighborhood.

f. The exterior materials and architecture shall be compatible with the surrounding neighborhood.

1.8 Commercial Land Uses

GOAL 7

Promote a full range of commercial activity appropriate to the community.

Policies and Standards

1.40 The Land Use Element and plan map include eight commercial categories intended to provide a complete range of neighborhood, community, service, regional and highway commercial needs. In addition, there are districts identified for commercial office, planned medical development and the central business district. Below is a summary of the commercial land uses provided for in this General Plan:

Neighborhood Commercial (NC): 40% Lot Coverage
This designation includes convenience commercial and neighborhood shopping centers providing a range of necessary day-to-day retail goods and services serving a market area generally less than ½ mile around the site. Neighborhood commercial areas should be on a 1-5 acre site.

Commercial Office (CO): 40% Lot Coverage
This designation is intended for the exclusive development of non-retail business and professional offices. New sites should be a minimum of one acre or larger in size.

Community Commercial (CC): 60% Lot Coverage
This designation includes a variety of uses that serve the community and occasionally nearby rural areas and small cities. New Community Commercial development usually includes multiple anchor tenants such as grocery-drugstore combinations as well as smaller retail and service businesses. New Community Commercial designations should occupy sites ranging in size from 5-25 acres and be located at arterial intersections. Existing Community Commercial sites in the downtown or surrounding area could be as

small as 6,000 square feet. However, new sites should require a minimum of five acres and a depth of 500 feet.

Central Business District (CBD): 100% Lot Coverage
The Central Business District represents the historical business center of Selma. It is currently developed with a variety of retail stores, offices and parking lots. The Central Business District designation is designed to provide flexibility in the development of new uses within the downtown area, while maintaining the ambience of the area.

Planned Medical Development (PMD): 40% Lot Coverage
The Planned Medical Development designation is designed to provide development opportunities for medical oriented offices and businesses in close proximity to the existing hospital. The clustering of medical related professional services will provide convenient access to the public and to the professionals who provide the services.

Regional Commercial (RC): 60% Lot Coverage
This designation is designed to provide development opportunities for those uses that attract customers from well outside the City of Selma. To fulfill the role as a regional commercial provider, such development must be close to major transportation links and contain sufficient area to provide adequate facilities and parking. Regional uses have anchor tenants with market areas generally covering at least a fifteen mile radius such as larger durable good retail stores and vehicle sales.

Highway Commercial (HC): 70% Lot Coverage
This designation includes several types of uses distinguishable because of their service orientation to the highway traveller. Uses include hotels and motels, restaurants, service stations, truck stops, and associated uses. Highway Commercial designations are limited to the areas surrounding the interchanges with Highway 99.

Service Commercial (SC): 75% Lot Coverage
This designation includes a broad range of commercial activities that can include businesses with both retail and service components. Among these uses are: auto repair, service stations, building materials, warehousing, contractors, equipment yards and similar uses. Uses within this designation would usually be conducted entirely within a building, with outside storage screened from public view.

1.41 The City shall monitor the availability of vacant lands for each commercial land use designation. When the amount of available land is less than required for three years of average growth, the City shall initiate applications, such as zoning and general plan amendments, excluding annexation, to ensure that at least a three-year supply of commercial lands are available for development.

1.42 The City shall provide pre-application services for commercial activities if requested.

1.43 The City shall monitor and update plans for public streets and utilities, particularly as they pertain to new commercial areas.

1.44 The City shall assist in the planning of privately owned public utilities.

GOAL 8

Provide an appropriate interface between commercial and residential land uses.

Policies and Standards

1.45 A minimum six-foot high, grout reinforced, solid masonry wall shall be constructed between all new commercial developments and land designated for residential use. A wall taller than six feet may be allowed when required for sound reduction as identified in a noise study or as determined to be necessary for security of commercial property. Openings in the wall may be provided at appropriate locations to allow for pedestrian connectivity.

1.46 A 20 foot-minimum setback shall be provided between all new developments in the Regional Commercial and Highway Commercial land use designations, and properties designated for residential uses. Half the width of streets and alleys may be counted towards this setback. The setback area shall be landscaped and not include any parking, trash, loading, storage, or similar facilities.

1.47 A 10-foot minimum setback shall be provided between all new developments in all commercial land use designations and properties designated for residential uses, except the Central Business District, Regional Commercial and Highway Commercial land use designations. Half the width of streets and alleys may be counted towards this setback. The setback area shall be landscaped and not include any parking, trash, loading, storage, or similar facilities.

1.48 Commercial building height shall not exceed twice the distance to the nearest property line which is shared with property designated for residential uses.

GOAL 9

Developers shall provide pleasant interfaces between commercial uses and adjacent public areas.

Policies and Standards

1.49 A minimum of 20 feet of landscaping shall be required for all new commercial development adjacent to arterial streets, except in the CBD land use designation.

1.50 A minimum of 10 feet of landscaping shall be required for all new commercial development adjacent to collector and local streets, except in the CBD land use designation.

1.51 Parking areas shall be screened from adjacent streets in all new commercial developments by either landscaped berming, dense landscaping or low height walls.

1.52 All commercial outdoor storage areas shall be screened from adjacent public right-of-ways.

1.53 All new commercial developments or substantially rehabilitated commercial buildings shall include trash enclosures. Within the Central Business District and in cases of substantially rehabilitated commercial buildings, the size and configuration of the enclosure may be adjusted to the scale and size of the property.

GOAL 10

Commercial areas adjacent to Highway 99 shall present a visually pleasing image to the traveler and potential customer to Selma businesses.

Policies and Standards

1.54 All commercial areas adjacent to Highway 99 shall be designed so that truck bays, trash areas, loading docks and other similar areas are visibly screened from the freeway.

1.55 If the rear or sides of new buildings or substantially remodeled buildings will be visible from Highway 99, then those building faces shall have architectural features similar to the main entrance to the building. Buildings adjacent to Highway 99 shall contain features such that flat, non-descript walls are eliminated.

1.56 Visible metal exteriors on commercial buildings shall be prohibited on parcels adjacent to Highway 99, except in the Highway Commercial land use designation.

GOAL 11

Adequate parking should be provided for commercial uses.

Policies and Standards

1.57 The City shall require adequate off-street parking for all new commercial developments.

1.58 The City shall review all substantial changes of use for adequate parking. If the new use will result in a substantial increase in required off-street parking, then additional parking shall be provided on-site or within 300 feet of the new use prior to commencement of the use, except in the CBD land use designation.

1.59 The City shall allow shared parking when it can be clearly demonstrated that two or more uses will not require use of the same parking spaces at the same time. No greater than 75 percent of required parking may be shared parking.

GOAL 12

Promote new interest in the Central Business District through policies which recognize the unique attributes of the CBD and facilitate the establishment of new uses.

Policies and Standards

1.60 The City shall promote and encourage retail and restaurant uses on the street level floor of Second Street and High Street between Second and North Streets. The use of public sidewalks for outside sales and food service is encouraged, provided a minimum of five feet of sidewalk remains clear for pedestrian traffic.

1.61 To encourage new development that is consistent with the existing CBD building pattern and character, the following shall apply to new construction within the CBD:

a. Setbacks and landscape areas shall not be required. However, small window planters and similar features are encouraged to add color and interest to individual store fronts.

b. Parking shall not be required as a condition of construction due to the existence of municipal parking facilities. The City will seek to provide additional municipal parking areas in the CBD.

c. All new or substantially remodeled buildings should include architectural features consistent with the Selma Redevelopment Design Standards. Architectual features include covered walkways, canopies, and building facades which include variations in textures, materials and surface.

d. Building facade materials shall be consistent with existing and historic materials in the CBD.

1.62 New or remodeled buildings shall not have a building face adjacent to a public street or sidewalk greater than 15 feet without a door or window.

1.63 The City shall identify appropriate sites for new civic facilities in the CBD and cooperate with other governmental and quasi-governmental agencies in locating facilities in the CBD.

GOAL 13

Improve the appearance of the Whitson Street corridor (both sides of Whitson Street between Highland and Todd) and promote reintroduction of commercial businesses.

Policies and Standards

The following policies and standards apply only to lands located within the Whitson Street corridor.

1.64 All new permitted and conditional proposed uses within the Whitson Street corridor shall be subject to site plan review requirements as set forth in the City of Selma Zoning Code, in addition to any other permitting requirements. Site plan application materials, including exterior elevations, shall be prepared by a licensed architect or similarly qualified professional.

1.65 Brick, stucco, wood and similar materials should be used to minimize the amount of visible metal surfaces on store fronts.

1.66 Bay doors, loading areas and trash enclosure openings should be screened from Whitson Street.

1.67 Parking areas along Whitson Street are encouraged to be placed to the rear of buildings, so that buildings become the predominate feature and create a more pedestrian-oriented environment.

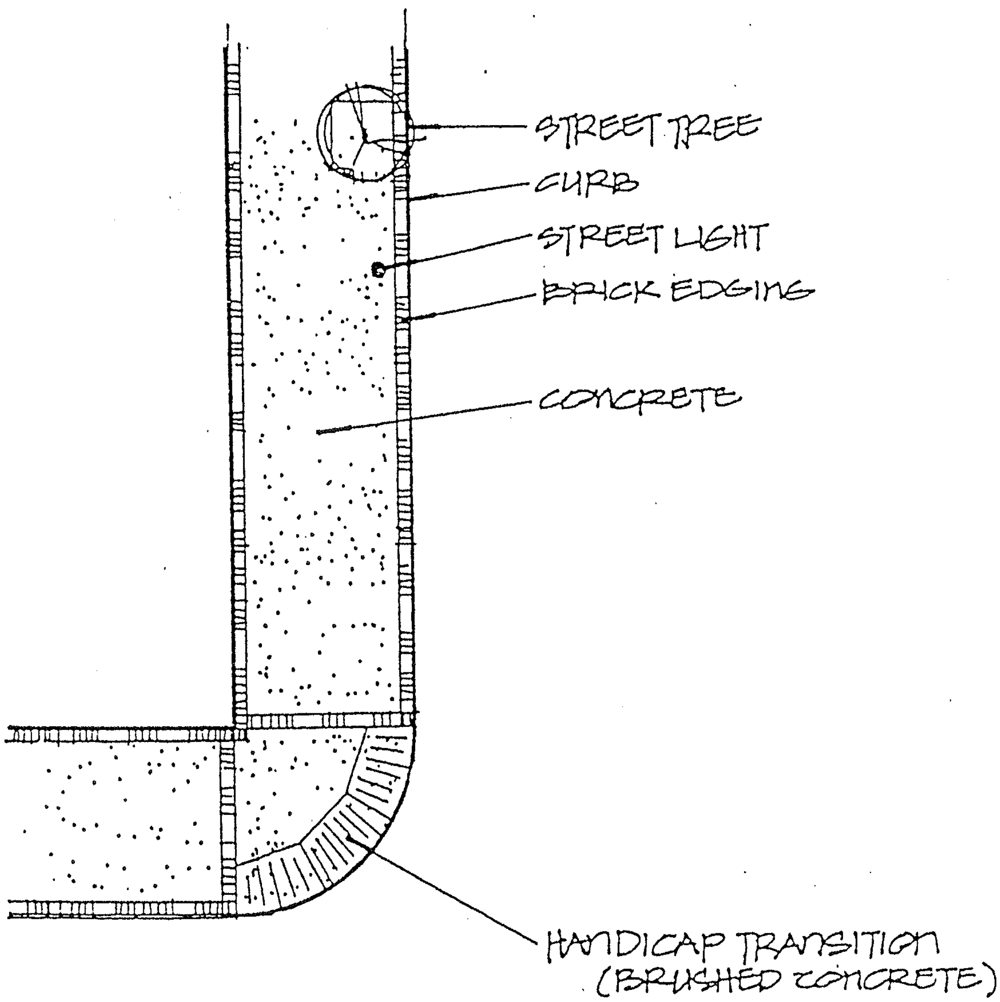
1.68 Whitson Street shall have a sidewalk of not less than seven feet in width where feasible and shall include tree wells a minimum of 25 feet on-center. The sidewalk shall be constructed using a combination of brick and cement similar to the design used in the Selma Redevelopment Plan Area (see Figure 1-1).

1.69 Patio areas with outdoor seating are encouraged for restaurants in areas adjacent to Whitson Street.

1.70 Second story dwelling units over commercial businesses may be permitted, subject to approval by the Selma Planning Commission.

1.71 The use of common or shared parking areas, and common driveways between adjoining uses on the Whitson Street corridor is encouraged.

SIDEWALK DETAIL



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SIDEWALK DETAIL

Figure 1 - 1

1.9 Industrial Land Use Districts

GOAL 14

Provide sufficient industrially designated land to accommodate industrial users.

Policies and Standards

1.72 To foster potential for a broad range of industrial development with the City, the General Plan provides for three industrial land use districts. Each of these districts is designed to accommodate a different intensity of industrial use and serves to improve the marketability of the City for new job creation.

Business Park (BP): 75% Lot Coverage.
The Business Park designation is intended to provide for the development of campus type office developments that would utilize substantial landscaping and innovative architectural designs. Parking areas would typically be screened from the street and the sites would provide amenities for employees. Some commercial uses, such as restaurants and daycare, should be permitted to serve the employees.

Light Industrial (LI): 80% Lot Coverage.
The Light Industrial designation provides development opportunities for those industrial uses that would not typically utilize major manufacturing processes. Lower intensity assembly, fabrication and food processing may be consistent with the land use designation.

Heavy Industrial (HI): 90% Lot Coverage.
The heavy industrial designation is intended to allow for the development of facilities and businesses engaged in intense manufacturing and fabrication. Heavy industrial uses typically require large properties and may require access to rail and highway transportation for the receipt and shipment of materials.

1.73 The City shall monitor the availability of vacant lands for each industrial land use designation. When the amount of available land is less than required for five years of average growth, the City shall initiate applications, such as zoning and general plan amendments, but excluding annexation, to ensure that at least a five-year supply of industrial lands are available for development.

1.74 The City shall monitor and update plans for public streets and utilities, particularly as they pertain to new industrial areas. The City shall also assist in the planning of privately owned public utilities. Provision of planning services and infrastructure is essential to providing adequate land for industrial development.

1.75 The City shall assist private developers in locating and developing appropriate land for industrial development through economic development assistance and planning consultations from the initial contact through project completion.

GOAL 15

Provide an appropriate interface between industrial land uses and non-industrial uses.

Policies and Standards

1.76 A minimum of a six-foot high, grout reinforced, solid masonry wall shall be constructed between all new industrial developments and land designated for non-industrial use. Walls higher than six feet may be permitted when required for sound reduction as identified in a noise study or as determined by the Planning Commission as necessary for site security.

1.77 A –20 foot minimum setback shall be provided between all new industrial developments and properties designated for residential uses. Half the width of streets and alleys may be counted towards this setback. The setback area shall be landscaped. Parking, trash, loading, storage, or similar facilities shall not be permitted within the setback area and shall be kept from view from residential uses.

1.78 A 10 foot minimum setback shall be provided between all new industrial developments and properties designated for non-industrial uses, except residential uses where policy 1.72 shall apply. Half the width of streets and alleys may be counted towards this setback. The setback area shall be landscaped. Parking, trash, loading, storage, or similar facilities may be permitted if it is determined that a conflict with the adjacent land use will not occur.

1.79 Industrial building height shall not exceed twice the distance to the nearest property line which is shared with property designated for residential uses.

1.80 New industrial developments shall be served by streets which do not require access through residential neighborhoods.

GOAL 16

Developers shall provide pleasant interfaces between industrial uses and adjacent public areas.

Policies and Standards

1.81 A minimum of 20 feet of landscaping shall be required for all new industrial development adjacent to arterial streets.

1.82 A minimum 10 foot landscaped setback shall be required for all new industrial development adjacent to collector and local streets.

1.83 All outdoor storage areas shall be screened from adjacent public right-of-ways which are classified as arterial streets or larger by the Selma General Plan Circulation Element.

1.84 All new industrial developments or substantially rehabilitated industrial buildings shall provide adequate trash enclosures.

1.85 All new proposed uses on lands zoned for industrial uses shall be subject to site plan review requirements as set forth in the City of Selma Zoning Code, in addition to any other permitting requirements. Site plan application materials, including exterior elevations, shall be prepared by a licensed architect or similarly qualified professional.

GOAL 17

Industrial areas adjacent to Highway 99 shall present a visually pleasing image to the highway traveller and potential customer to Selma businesses.

Policies and Standards

1.86 All industrial areas adjacent to Highway 99 shall be designed so that truck bays, trash areas, loading docks and other similar areas are screened from view from the highway.

GOAL 18

Adequate parking should be provided for industrial uses.

Policies and Standards

1.87 The City shall require adequate off-street parking for all new industrial developments.

1.88 The City may allow shared parking when it can be clearly demonstrated that two or more uses will not require use of the same parking spaces at the same time. No greater than 75 percent of required parking may be shared parking.

1.10 Miscellaneous Land Use Districts

GOAL 19

Provide flexibility in providing public facilities where needed.

Policies and Standards

1.89 The following land use districts are intended to accommodate a variety of public facility and recreational uses.

Public Facility (PF).
This designation is intended for public and quasi-public facilities, including, but not limited, to, government services and facilities, fire stations, wastewater treatment facilities, electrical substations, airports, domestic water treatment and storage, recreational facilities, and similar uses. It is also appropriate for institutional uses, such as schools and accredited secondary educational facilities, hospitals, and cemeteries, as well

as appropriate lands controlled by philanthropic and nonprofit organizers for existing or future public uses. Facilities such as those described above are not restricted to being located on lands designated Public Facility.

Open Space/Park (OS).
This designation is for a variety of active and passive public recreational facilities and for city-owned open space facilities. This includes natural open spaces and areas which have been designated as environmentally and ecologically significant. Facilities such as those described above are not restricted to being located on lands designated Open Space/Park.

1.90 The zoning of land less than one acre and designated as Public Facility shall be consistent with adjacent parcels. Where more than one zoning exists adjacent to a Public Facility designation, the Selma Planning Commission shall recommend to the Selma City Council the appropriate zone district. The Selma City Council shall make the final determination.

1.91 Because of the wide variety of uses and area requirements, public facilities shall not be subject to the minimum lot size of the underlying zone district.

1.11 Planned Growth

GOAL 20

Maintain a viable population growth rate in Selma over the plan period that provides for orderly growth with minimal adverse impacts upon City services within the community and consistent with the character of Selma, and with a planned average annual growth rate of 4.0 percent.

Policies and Standards

1.92 Residential development at urban densities shall be located only where services and facilities can be provided.

1.93 In any given three-year period where the average annual growth rate exceeds 4.0 percent, the City shall enact measures which control the number of building permits issued for new residential construction. At the time the average annual population growth rate exceeds 4.0 percent, the City shall determine the number of residential permits which will be needed to be issued over the next two years to establish a 4.0 percent growth rate for that 5-year period. The number of annual permits may be prorated on a monthly basis and adjusted for traditional seasonal construction. Residential units constructed or reconstructed by funds provided in full or part by the Selma Redevelopment agency shall be exempt from this policy.

1.94 Development shall be allowed only in areas that already have urban services or are within a master plan to provide those services. Development of lands outside of current service or master plan areas (such as the SKF Sewer District, City of Selma Master Plan for Storm Drainage Area, etc.) may be considered if the following findings can be made:

a. The development will not cause a shortfall, either short- or long-term in the financing of any public facility.

b. The development will not significantly delay the provision of a public improvement.

c. The development will not accelerate the need for a public improvement beyond the ability of the improvement fund to adjust for the improvement.

d. Expansion of the master plan area and/or public facility will not result in the City being unable to maintain existing facilities at their current service levels.

e. Notwithstanding the improvements proposed by any development, all developments will be required to contribute their pro rata share towards the completion of established Master Plan improvements.

GOAL 21

The City shall establish Urban Development Boundaries to direct growth into areas with adequate infrastructure.

Policies and Standards

1.95 The City shall maintain a 40,000 population and 70,000 population Urban Development Boundary (UDB) that limits development to within those boundaries until the City's population exceeds the corresponding UDB population. The City shall not develop or annex areas designated as "Reserve" within the Planning Area until such time as additional land is needed.

1.96 Establish Urban Development Boundaries as urbanizable areas within which a full-range of urban services will need to be extended to accommodate urban development. These boundaries shall be established based on the following factors:

a. Adequate residential, commercial and industrial capacity for the planning period.

b. Inclusion of at least a 50 percent vacancy factor ("flexibility factor") for residential and commercial development.

c. Provision of adequate industrial land.

d. Adequacy of infrastructure including existing and planned capacity of water and sewer facilities, school, roadways, and other urban services and facilities.

e. Community growth priorities.

1.97 The City shall consider the appropriateness of opening up lands designated as Reserve for development based upon the following factors:

- Availability of land for development within the UDB has become limited. This is defined as when the City's population, as measured by the California Department of Finance, exceeds 40,000 individuals.

- Proximity of reserve lands to existing developed land (to minimize leapfrog development).

- Implications for overall community form and relationship to the existing community.

- Market feasibility of development in this area, including the expected rate of absorption.

- Infrastructure availability and impact to existing infrastructure and other public services.

- Consideration of circulation patterns and improvements.

- Implications of providing public services, including law enforcement and fire protection services.

1.98 The City shall evaluate the UDB annually to ensure there is enough capacity to accommodate anticipated growth.

1.99 Encourage Fresno County to strictly limit the establishment of new or expanded developments in the City's Urban Development Boundary.

1.100 The City shall discourage leapfrog development (defined as urban development more than ½ mile from existing urban development) and development of peninsulas extending into agricultural lands to avoid adverse effects on agricultural lands, and to avoid adverse effects on agricultural operations that contribute to premature conversion.

1.101 The City shall support non-renewal processes for Williamson Act designated lands within the 40,000 population Urban Development Boundary.

GOAL 22

The City shall maintain reserve areas in an undeveloped state until their development becomes required for further growth of the City.

Policies and Standards

1.102 The City shall establish Reserve land use designations for Business Park, Commercial, Light Industrial, and Residential uses. Reserve designations are intended to prevent incompatible development on land within the area covered by the City's General Plan, but outside its current city limits, that is not intended for development in the immediate future.

1.103 The City shall work with neighboring jurisdictions to prevent development on lands designated Reserve that would create potential inconsistencies with their future annexation into the City of Selma. When the development of lands designated Reserve becomes necessary for further growth of the City, the City will pursue their annexation and place them under a land use designation and zoning district appropriate to their intended use.

1.104 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas for a period of at least five years from the adoption of this general plan update.

1.105 The City shall not approve a general plan amendment, pre-zoning or any development entitlement application for reserve areas until a minimum of 80 percent of all non-reserve property with the same general designation within the general plan boundaries have been developed or have approved development entitlements.

1.12 Airports and Heliport

GOAL 23

Protect future operations at the Selma Aerodome and the Quinn airstrip.

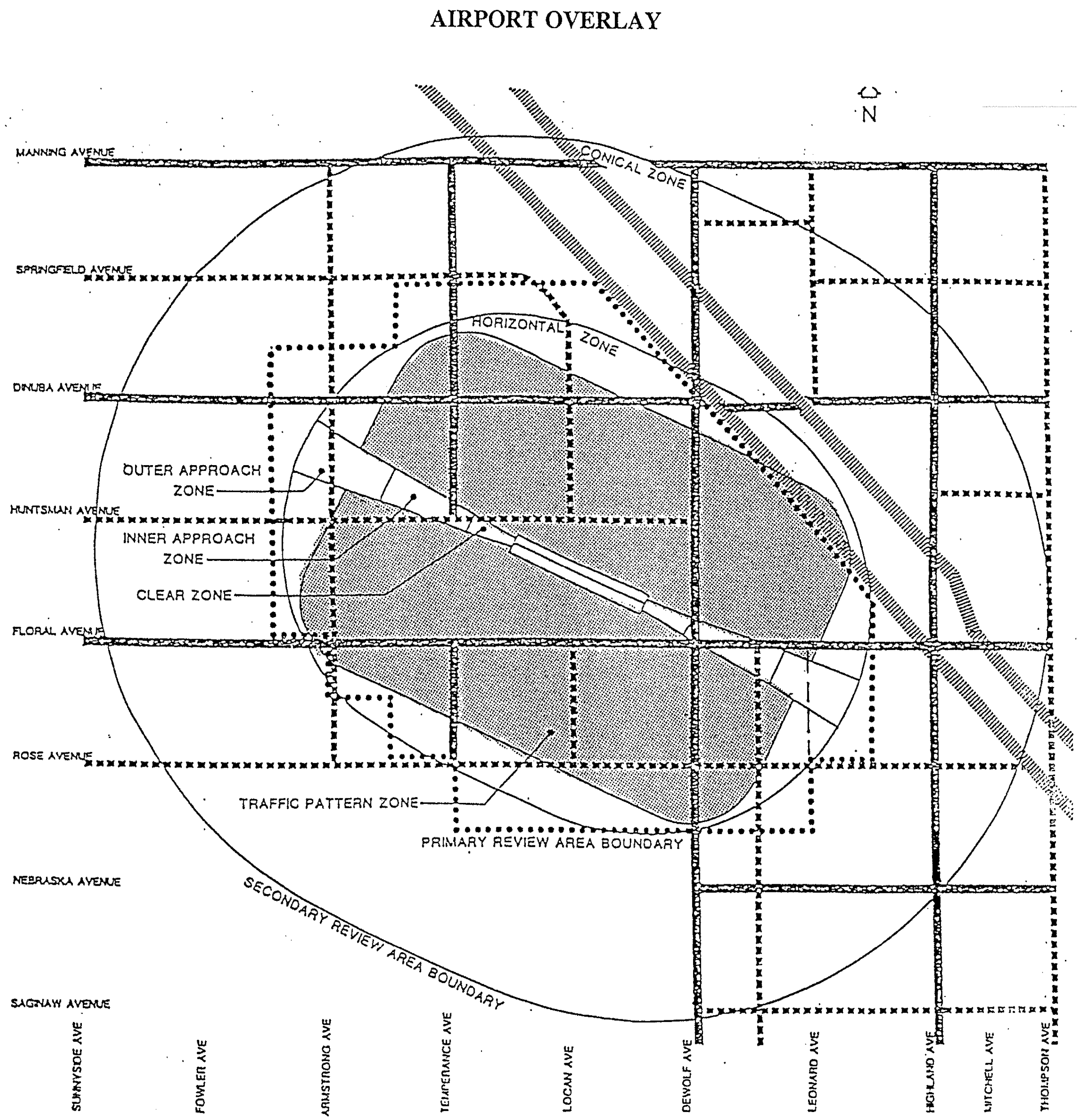
Policies and Standards

1.106 Development occurring within the primary and secondary review radii of the Fresno County Airports Land Use Policy Plan shall be reviewed for consistency with the Airport/Land Use Safety Compatibility Criteria (Table 1-2 and Figure 1-2) as adopted by the Fresno County Airport Land Use Commission.

Table 1-2
Airport/Land Use Safety Compatibility Criteria

Land Use Characteristics	Safety Zones: Clear of Runway	Inner Approach	Outer Approach & Traffic Pattern	Horizontal & Conical
Residential	-	A,F	B,F	+
Other Uses in Structures	-	C,E,F	E,F	+
Other Uses Not in Structures	C,G	D	+	+
Light or Glare	-	-	-	G
Smoke or Electronic Interference	-	-	-	G
Attractor of Birds	-	-	-	+

+ Acceptable
- Unacceptable
A - Density no greater than 1 du/3 acres.
B - Density no greater than 4 du/acre.
C - No uses attracting more than 10 persons/acre.
D - No uses attracting more than 25 persons/acre.
E - No schools, hospitals, nursing homes or similar uses.
F - At least 20% of area open (having a size and shape such that a small aircraft could conceivably make an emergency landing without damage to buildings or serious injury to aircraft occupants.
G - Characteristic cannot reasonably be avoided or located.



Quad Knopf	AIRPORT OVERLAY	Figure 1 - 2

CHAPTER TWO

CIRCULATION ELEMENT

Circulation Element

2.0 CIRCULATION ELEMENT

2.1 Introduction

In the City of Selma, regional vehicular transportation is provided primarily by State Route (SR) 99 and SR 43. SR 99 runs in a northwest-southeast direction and SR 43 runs in a north-south direction. Regional rail is available through the Union Pacific railroad. Selma is served by a City fixed-route transit system and Dial-a-Ride system.

2.2 Purpose of the Circulation Element

The Circulation Element guides the continued development and improvement of the circulation system to support existing and planned development, while the Land Use Element identifies the City's planned development pattern. The development of additional land in the future will increase the demand for local and regional roadway improvements and construction. The Circulation Element establishes acceptable roadway service levels and identifies improvements required to maintain the service levels. The use of other modes of transportation such as transit, walking, and bicycling is promoted to reduce the demand for transportation system improvements and to improve air quality. The pedestrian and bicycling systems will also be used to connect the various activity centers identified in the Land Use Element.

The purpose of the Circulation Element is to provide a safe, efficient, and adequate circulation system for the City. State planning law requires: "…a circulation element consisting of the general location for proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element plan." To meet this purpose, the Circulation Element addresses the circulation improvements needed to provide adequate capacity for future land uses. The Element establishes a hierarchy of transportation routes with typical development standards described for each roadway category. Reference the map pocket for the General Plan Circulation Map.

2.3 Scope and Content of the Circulation Element

The State General Plan Guidelines recommend that the circulation policies and plans should:

- Coordinate the transportation and circulation system with planned land uses;

- Promote the safe and efficient transport of goods and the safe and effective movement of all segments of the population;

- Make efficient use of existing transportation facilities; and

- Protect environmental quality and promote the wise and equitable use of economic and natural resources

The Guidelines indicate that the Circulation Element should address all facets of circulation including streets and highways, transportation corridors, public transit, railroads, bicycle and pedestrian facilities, and commercial, general, and military airports. The Selma Circulation Element fulfills state requirements with a plan to provide effective circulation facilities supporting desired community development. Along with circulation, public utilities must be addressed in the General Plan. Instead of addressing utilities within the Circulation Element, the Selma General Plan contains a Public Services and Facilities Element that discusses the provision of utilities and public services/facilities. This element contains goals, objectives, and policies and standards to improve overall circulation in Selma. For vehicular transportation, a hierarchical roadway network is established with designated roadway types and design standards. The roadway type is linked to anticipated traffic levels, and acceptable levels of service are established to determine when capacity improvements are necessary. Because local circulation is linked with the regional system, the element also focuses on participation in regional programs to alleviate traffic congestion and construct capacity improvements. Alternative transportation modes are also emphasized in this element to reduce dependency on the automobile and thereby improve environmental quality.

2.4 Goal, Objectives and Policies

GOAL 1

To design and maintain a fully integrated local network that provides for safe and convenient circulation using a variety of transportation modes.

*A **goal** is a general direction-setter. An **objective** is a specified end, condition, or state that is an intermediate step toward attaining a goal. A **policy** is a specific statement that guides decision-making.*

Objectives

A. Maintain a roadway level of service (LOS) of D or better for intersections and road segments for Minor Collectors, Collectors, Arterials, Major Arterials, and Highways; where other jurisdictions control and manage roadways, their respective level of service standards shall prevail on applicable segments. In order to avoid using Local streets for excessive through traffic, an LOS of B is established for Local streets.

B. Develop a circulation network of local roads, collectors and arterials that will meet projected traffic needs.

C. Enhance the availability and accessibility of alternative modes of transportation, such as walking, bicycling, carpools, buses and rail.

D. Design streets that promote safe and pleasant conditions for residents, pedestrians, bicyclists, and motorists on neighborhood streets, while preserving access for emergency vehicles, buses, and other users. In order to promote safe streets, traffic calming measures described in Table 2-1 herein shall be used.

Table 2-1
Permitted Traffic Calming Measures

	Functional Classifications					Subdivision Streets			
	Interstates Freeways Expressways	Arterials	Collectors	Minor Collectors	Local Roads	Collector Streets	Minor Collector Streets	Local Streets	Other Restrictions
Volume Control Measures									
Full Closure Half Closure	Not Recommended				Only on an exception basis	Not Recommended		>500 vpd >25% non-local traffic	
Diagonal Diverter Median Barriers Forced Turn Islands	Not Recommended				<5,000 vpd >25% non-local traffic	Not Recommended		>500 vpd >25% non-local traffic	
Vertical Speed Control Measures									
Single Speed Humps	Not Recommended				Only on an exception basis	Daily volumes <3,000 vpd Posted speed <30 mph			Not on primary emergency routes or bus routes
Speed Tables Raised Crosswalks Raised Intersections	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			Not on primary emergency routes
Horizontal Speed Control Measures									
Mini-traffic Circles	Not Recommended				Only on an exception basis	Daily volumes <5,000 vpd Posted speed <35 mph			Not on primary emergency routes or bus routes
Roundabouts	Not Recommended					Combined approaches daily volumes <5,000 vpd Posted speed <35 mph			
Lateral Shifts	Not Recommended					Daily volumes <10,000 vpd Posted speed <35 mph			
Chicanes	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			
Realigned Intersections	Not Recommended					Daily volumes <5,000 vpd Posted speed <35 mph			
Narrowings									
Bulbouts Two-Lane Chokers Center Islands	Not Recommended					Daily volumes <1,000 vpd Posted speed <35 mph			
Combined Measures	Not Recommended					Subject to limitations of component measures			

Note: Subject to Approval by City Engineer

E. Eliminate truck conflicts with commercial, industrial and residential areas in the community.

2.5 Transit

POLICIES AND STANDARDS

2.1 Coordinate demand-responsive transit service in conjunction with the Council of Fresno County Governments (COFCG) and Fresno County.

2.2 Coordinate convenient and efficient transit service to the elderly, handicapped, and low-income population of the City and its environs.

2.3 Coordinate transit services through the City Manager and in conjunction with surrounding cities, and the County of Fresno, and Council of Fresno County Governments.

2.4 Cooperate with the COFCG in providing transit service and planning to meet the social and economic needs of all segments of the community.

2.5 Encourage benches, telephones and shaded areas at major transit destinations so people can utilize the transit system safely and comfortably. The City shall determine such need based on site plan review procedure and other planning implementation methods.

2.6 Major arterials, arterials, and collectors will be designed to allow transit vehicles to pull out of traffic. This policy may be implemented with either a continuous parking lane with bus stops, or with special bus pull-out lanes.

2.7 Transit centers/stops shall be established to encourage the interface between commercial centers, high density residential uses and the transit system.

2.6 Streets and Highways

POLICIES AND STANDARDS

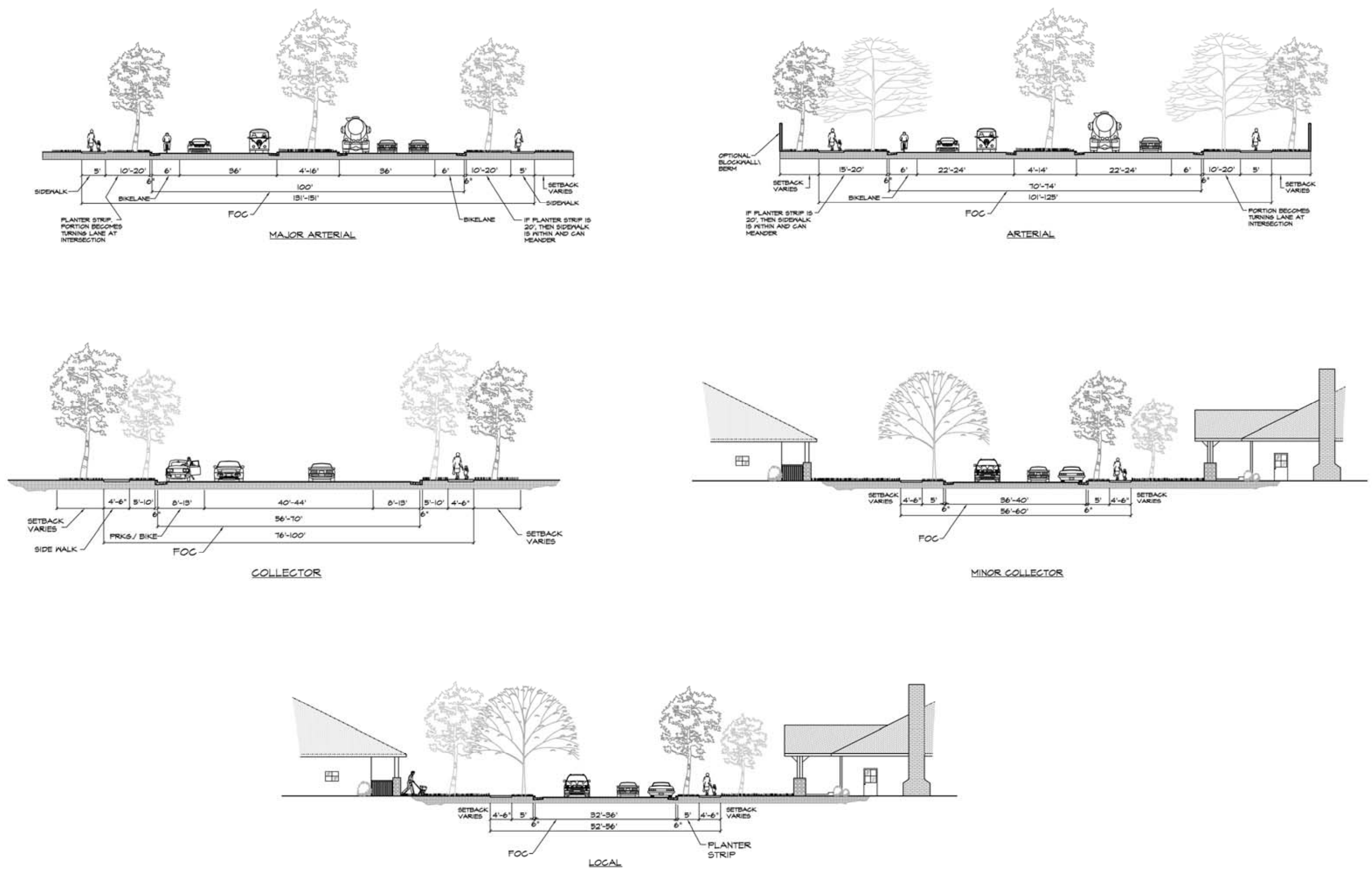
2.8 All street and roadway improvements shall be designed and constructed in accordance with the Circulation Element and Circulation Plan.

2.9 The Circulation Plan shall act as a guide in determining the function of major streets. The City's functional street classification system shall include highways, expressways, major arterials, arterials, collectors, minor collectors, and local streets.

2.10 The City will plan for and seek funding for the construction of on- and off-ramps and a highway overpass at Dinuba Avenue and SR 99.

2.11 The City will plan for and seek funding for the construction of a grade separation with the railroad tracks at the intersection of the railroad tracks and Floral and Dinuba Avenues.

2.12 Expressways should be at least four divided lanes, with limited access at one-half mile points.



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STREET CROSS SECTIONS

Figure 2 - 1

2.13 Arterials shall be improved to four lanes, with appropriate variations in intersection design to alleviate special traffic problems where necessary. Major arterials shall be improved to six lanes, with appropriate variations in intersection design to alleviate special traffic problems where necessary.

2.14 Meandering sidewalks shall be encouraged along collectors and arterials.

2.15 Floral Avenue from SR 99 to Amber shall be widened to four lanes, either by street widening or by elimination of parking as traffic generation warrants.

2.16 City circulation system street alignments shall be coordinated with Fresno County circulation system street alignments.

2.17 Local collectors shall serve residential neighborhoods, but shall not be used to carry through traffic or high traffic volumes. Actual design and improvement to ultimate standards shall be achieved through inclusion of facilities as part of the City-wide Capital Improvements Program, or by new developers as areas adjoining the designated circulation system are developed, with allowance for bicycle lanes, where planned.

2.18 If Heartland High School is ever abandoned (although this is not currently planned), a more direct route shall be developed from Rose Avenue to Whitson Street, and a connection to Arrants Avenue provided, including an improved railroad grade crossing.

2.19 The City of Selma will request that Selma's Circulation Element and Circulation Plan be incorporated into the Fresno County General Plan and Selma Community Plan.

2.20 A one-mile arterial frequency grid system plan shall be used to allow efficient access throughout the community and to support the major commercial areas of the City, including McCall Avenue at Dinuba, the downtown area and commercial uses along SR 99.

2.21 The overall circulation plan for future neighborhoods shall be in conformance with Figure 2-1 and include offset minor collectors, traffic calming features as needed, a neighborhood park within ¼ mile walking distance per neighborhood, and a commercial/office/transit node.

2.22 Extend McCall Avenue as a four lane divided arterial north of Dinuba to serve future development.

2.23 Collector streets shall be at approximately one-mile intervals centered between arterial streets and shall be planned to intersect with other streets so as to maximize traffic safety and discourage fast flowing traffic through residential areas. Where possible, major arterials, arterials, and collectors shall form 4-leg, right-angle intersections; jog, offset and skewed intersections of streets in near proximity shall be avoided where possible.

2.24 Residences shall not be permitted to have direct access onto arterials, particularly where traffic volumes are likely to create excessive noise levels or safety hazards.

2.25 The primary purpose of arterials is for cross-town traffic flow and through-traffic. Parking along arterials should be discouraged and eliminated where it now exists, as deemed appropriate by the Traffic and Streets Commission and as traffic safety conditions warrant.

2.26 McCall Avenue between Arrants and Floral Avenue shall be designated as a seventy foot arterial street with plan lines developed accordingly. This will provide for four lanes with no on street parking.

2.27 It shall be the policy of the City to develop major streets in the community as follows:

Arterials

- Nebraska Avenue from De Wolf to Second and Front to Bethel
- Amber Avenue from Nebraska to future connection with Del Rey
- McCall Avenue from Manning Avenue to Dinuba Avenue
- Floral Avenue from Whitson to De Wolf
- Whitson Avenue in its entirety
- Golden State Boulevard in its entirety
- Highland Avenue from Manning Avenue to Mountain View
- Mountain View Avenue from De Wolf to Bethel
- Dinuba Avenue throughout the Sphere of Influence

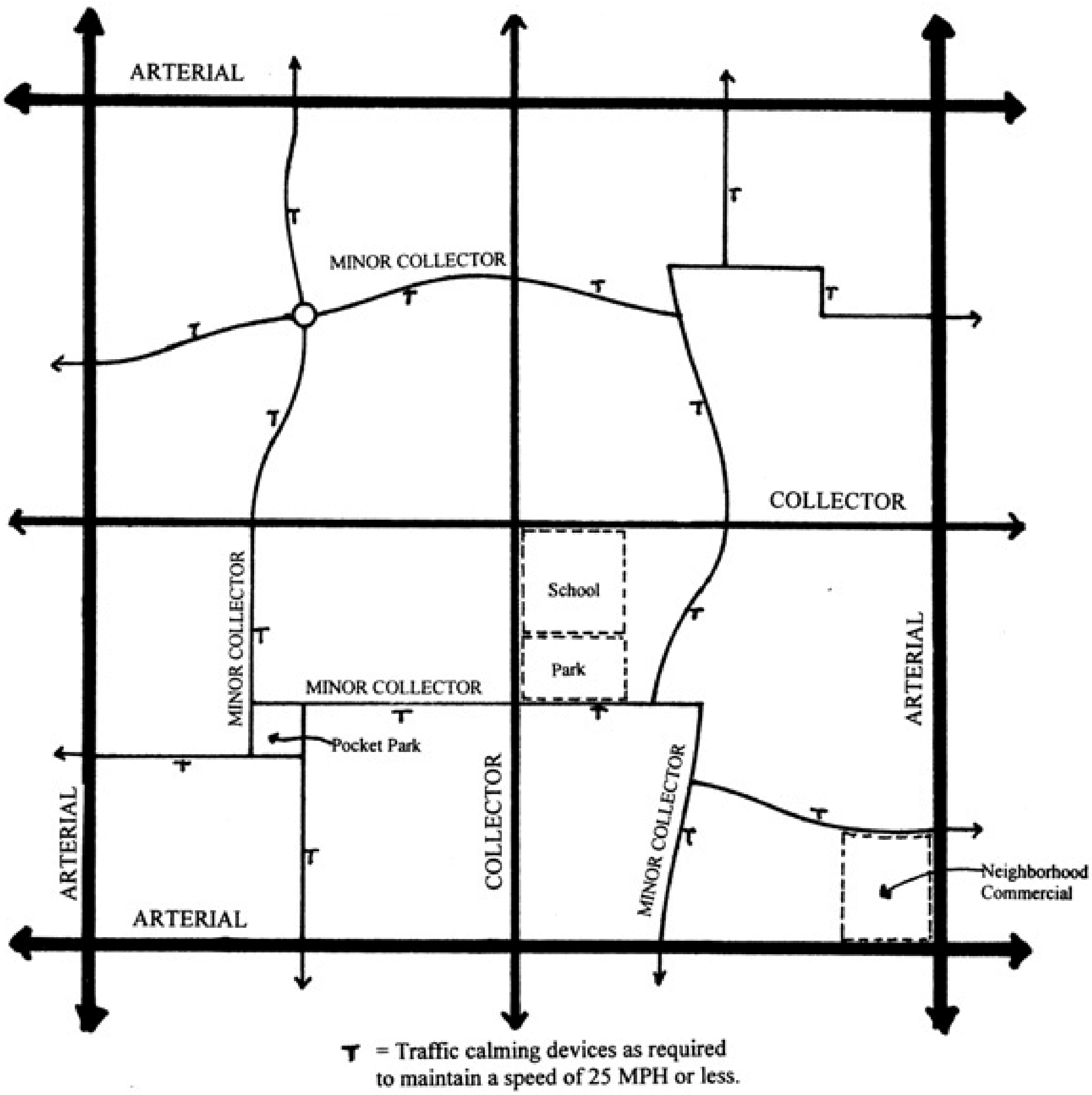
2.28 The street network should provide a quick and efficient route for emergency vehicles, including police, fire and other vehicles, when responding to calls for service. The length of single-entry access routes shall be restricted.

2.29 Major arterials shall be built in areas where traffic demand warrants the development of this facility to meet the adopted level of service standard.

2.30 Major arterial, arterial, collector, minor collector, and local street standards shall be developed to provide an increased quality of life for residential neighborhoods, a more attractive bike and pedestrian environment, conservation of natural resources and adequate capacity for their appropriate function. These new standards shall be incorporated into the City's Standard Specifications for Public Works.

2.31 Median breaks and driveway standards for major arterial, arterial and collector streets directly affect the performance of these roadways, and the following minimum standards have been developed to facilitate the proper operation of these roadways:

Figure 2-2
Overall Conceptual Circulation Plan
(Illustration only, refer to policies for precise requirements)



Major Arterial Street Standards

a. Driveway access to major activity centers (locations that generate more than 5,000 daily trips) should be located no closer than 200 feet to the adjacent intersection of a collector or arterial street (measurement shall be from the curb return to the nearest edge of the driveway). If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located no less than 100 feet from the intersection (measurement shall be from the curb return to the nearest edge of the driveway). If more than one is required to serve a property, the driveways shall be separated by 150 feet (the 150 feet are to be measured edge to edge, not centerline to centerline).

b. The distance between driveways along commercially developed major arterials should not be less than 600 feet (measurement shall be from centerline to centerline). Where this spacing is not practical, the development shall provide acceptable traffic mitigation measures in addition to those already required.

c. Where practical and desirable, driveways should be located on adjacent arterial or collector streets rather than on major arterial streets.

d. Full median breaks, where there is no adopted design, should provide access to collector streets and to major activity centers and should parallel the standards for driveways: not less than 200 feet from an adjacent intersection of an arterial or collector street, and not less than 1,000 feet between full median breaks.

e. Driveway consolidation shall be encouraged through joint access agreements along arterials where standards a. through d. are exceeded.

f. Major arterials shall be developed in conformance with Figure 2-1 and shall be sized in accordance with the projected traffic volumes on road segments and intersections. The preferred minimum distance between intersections along major arterials is ¼ mile.

Arterial Street Standards

a. Driveway access to major activity centers (locations that generate more than 5,000 daily trips) should be located no closer than 200 feet to the adjacent intersection of a collector or arterial street (measurement shall be from the curb return to the nearest edge of the driveway). If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located no less than 100 feet from the intersection (measurement shall be from the curb return to the nearest edge of the driveway). If more than one is required to serve a property, the driveways shall be separated by 150 feet (the 150 feet are to be measured edge to edge, not centerline to centerline).

b. The distance between driveways along commercially developed arterials should not be less than 400 feet (measurement shall be from centerline to centerline). Where this spacing is not practical, the development shall provide acceptable traffic mitigation measures in addition to those already required.

c. Where practical and desirable, driveways should be located on adjacent collector streets rather than on arterial streets.

d. Full median breaks, where there is no adopted design, should provide access to collector streets and to major activity centers and should parallel the standards for driveways: not less than 200 feet from an adjacent intersection of an arterial or collector street, and not less than 1,000 feet between full median breaks.

e. Driveway consolidation shall be encouraged through joint access agreements along arterials where standards a. through d. are exceeded.

f. Major arterial and arterials shall be developed in conformance with Figure 2-1 and shall be sized in accordance with the projected traffic volumes on road segments and intersections.

Collector Street Standards

a. Driveway access to major activity centers should be located no closer than 150 feet to the adjacent intersection of a collector or arterial street (measurement shall be from the curb return to the nearest edge of the driveway). If driveways must be provided near intersections for facilities (such as service stations) these driveways shall not be serviced by median breaks and shall be located no less than 100 feet from the intersection (measurement shall be from the curb return to the edge of the driveway). If more than one is requested to serve a property, the driveways shall be separated by 150 feet (the 150 feet are to be measured edge to edge, not centerline to centerline).

b. The distance between driveways and intersecting local streets should not be less than 300 feet (measurement shall be from the curb return to the nearest edge of the driveway). Where this spacing is not practical, the development shall provide acceptable traffic mitigation measures in addition to those already required.

c. Driveways to residential property along collectors should be consolidated whenever possible.

d. Medians on collectors shall be provided by concrete where left turn control is needed and by painted medians on two-way left turn pockets where appropriate. Where concrete medians are provided, median breaks should be spaced not less than 300 feet apart.

e. Collectors shall be developed in conformance with Figure 2-1 and shall be sized in accordance with the projected traffic volumes on road segments and intersections.

Local Streets and Minor Collectors

a. Local streets shall not carry an unreasonable level of through traffic. Should it be determined that a local street is carrying an unacceptable level of through traffic, the City may use appropriate means to reduce traffic through creation of one-way traffic flow, installation of traffic calming devices, and/or any other means deemed to be acceptable under the Vehicle Code of the State of California. Traffic calming features in conformance with Table 2-1 are encouraged when warranted.

b. Local residential streets shall be kept at a curb-to-curb width of 40 feet, may include a planter strip to provide shade to prevent excessive heat build-up, and include a sidewalk of sufficient width to allow two people walking side-by-side to pass.

c. In new residential subdivisions, local streets should be aligned in an orientation that allows for homes to be located in a manner that provides the best solar orientation.

d. Design the street network with multiple connections and relatively direct routes for pedestrians and bicyclists as well as motorists.

e. Provide pedestrians and bicyclists with shortcuts and alternatives to travel along high volume streets by designing pedestrian and bicycle pass-through pathways at cul-de-sac bulbs adjacent to Arterial roadways.

f. Short streets, trees, on-street parking, tee intersections, use of terminating vistas and traffic calming devices should be used to limit vehicle speed.

g. Streets shall be designed in accordance with projected traffic volumes and City-adopted level of service standards. Oversized streets shall be discouraged.

Deviations to the arterial, collector, and local street standards identified above may be adopted subject to review and approval by the City Council.

2.32 To continue to provide a high level of service to the community, the City designates Service Level "D" as defined in the Highway Capacity Manual as the minimum desirable service level at which freeways, expressways, major arterials, arterials and collector streets should operate. All new facilities in these categories shall be designed to operate at this level or better for a period of at least 20 years following their construction.

2.33 The circulation system shall be designed and developed to minimize excessive noise impacts on sensitive land uses and traffic congestion which would increase the rate of vehicle emissions. New development shall mitigate noise and emission impacts [e.g. by

constructing sound walls (where warranted), designing to minimize emissions (such as roundabout or traffic circle), etc.].

2.34 Right-of-way essential to the circulation system should be dedicated and/or developed to the appropriate extent and width when a division of property or development occurs. The City shall coordinate street improvements with the County of Fresno so that the same requirements apply outside the City limits.

2.35 The right-of-way widths and construction widths of all classes of streets from local to major arterial shall be updated as necessary to reflect the street classifications in this Element.

2.36 Developers shall mitigate traffic impacts associated with their projects to minimize the impacts to highways, major arterials, arterials, and collector streets.

2.37 The City will continue to collect development impact fees for the circulation system (streets, signals and bridges) and shall revise and update the development impact fees as needed.

2.38 The City will implement a transportation impact fee program to help facilitate state highway facility circulation improvements in the Selma Planning Area, in coordination with Caltrans. This program is intended to help mitigate the impacts and additional vehicle trips that will be added to the regional transportation network from new development.

2.39 The City shall promote an active policy of consolidating driveways, access points and curb cuts along existing developed major arterials, or arterials when development or change in intensity of development or land use occurs or when traffic operation or safety warrants.

2.40 Residential subdivisions shall be designed to encourage access from collector streets and to discourage use of local streets as a bypass to congested arterials.

2.41 Where major arterials, arterials, and collector streets are required, residential development shall be oriented away (side-on or rear-on) from such streets, and shall be properly buffered so that the traffic carrying capacity on the street will be preserved and the residential environment protected from the adverse characteristics of the street.

2.42 Due to the traffic congestion which results from numerous points of ingress and egress along commercial streets, future commercial developments or modifications to existing developments shall be master planned with limited points of ingress and egress onto a major street. Ingress and egress to shopping centers should be carefully designed in order to promote traffic safety. Left-hand movements into and out of commercial areas should be minimized and existing points of ingress and egress shall be consolidated whenever possible.

2.43 In order to promote safe and efficient traffic flow throughout the City, traffic signals shall be spaced no closer than 1/4 mile on arterials except in unusual circumstances. The intersections of arterial and collector streets and the access driveways to major traffic generators shall be located so as to maintain this minimum spacing.

2.7 Bicycle and Pedestrian Facilities

2.44 The City will develop, through various funding mechanisms and sources, a city wide bicycle path/lane/route system in conformance with the City's 2003 Bicycle Transportation Plan. The bicycle path/lane/route system will utilize existing or future railroad right-of-way and water courses. The paths (class I), may also include landscaping, lighting, mileage markers, directional signage and benches. The on-road lanes (class II) would include striping and the on-road routes (class III) would not include striping. Reference Figure 2-3 for the proposed city-wide bike plan. The class I bike paths can also be utilized by pedestrians if the proposed paths are wide enough to allow both bicyclists and pedestrians.

2.45 Sidewalks, paths, and appropriate crosswalks should be located to facilitate access to all schools and other areas with significant pedestrian traffic. Whenever feasible, pedestrian paths should be developed to allow for unobstructed pedestrian flow from within a neighborhood.

2.46 The City shall require curb, gutter, and sidewalks in all areas of the community to accommodate pedestrian traffic, especially along routes with high pedestrian traffic such as schools, parks, and the Downtown area. Installation of these improvements shall be encouraged to the extent feasible in existing neighborhoods where they do not currently exist.

2.47 The City shall promote safe, convenient and accessible pedestrian ways within the community.

2.48 Where security walls or fences are proposed for residential developments along major arterials, arterials, or collector streets, pedestrian access should be considered between the major arterial, arterial, or collector, and the development to allow access to transit vehicles, commercial facilities, educational facilities and recreation areas operating on the street.

2.49 Street lighting shall be provided for all public streets and pedestrian signals shall be provided at all traffic signal locations.

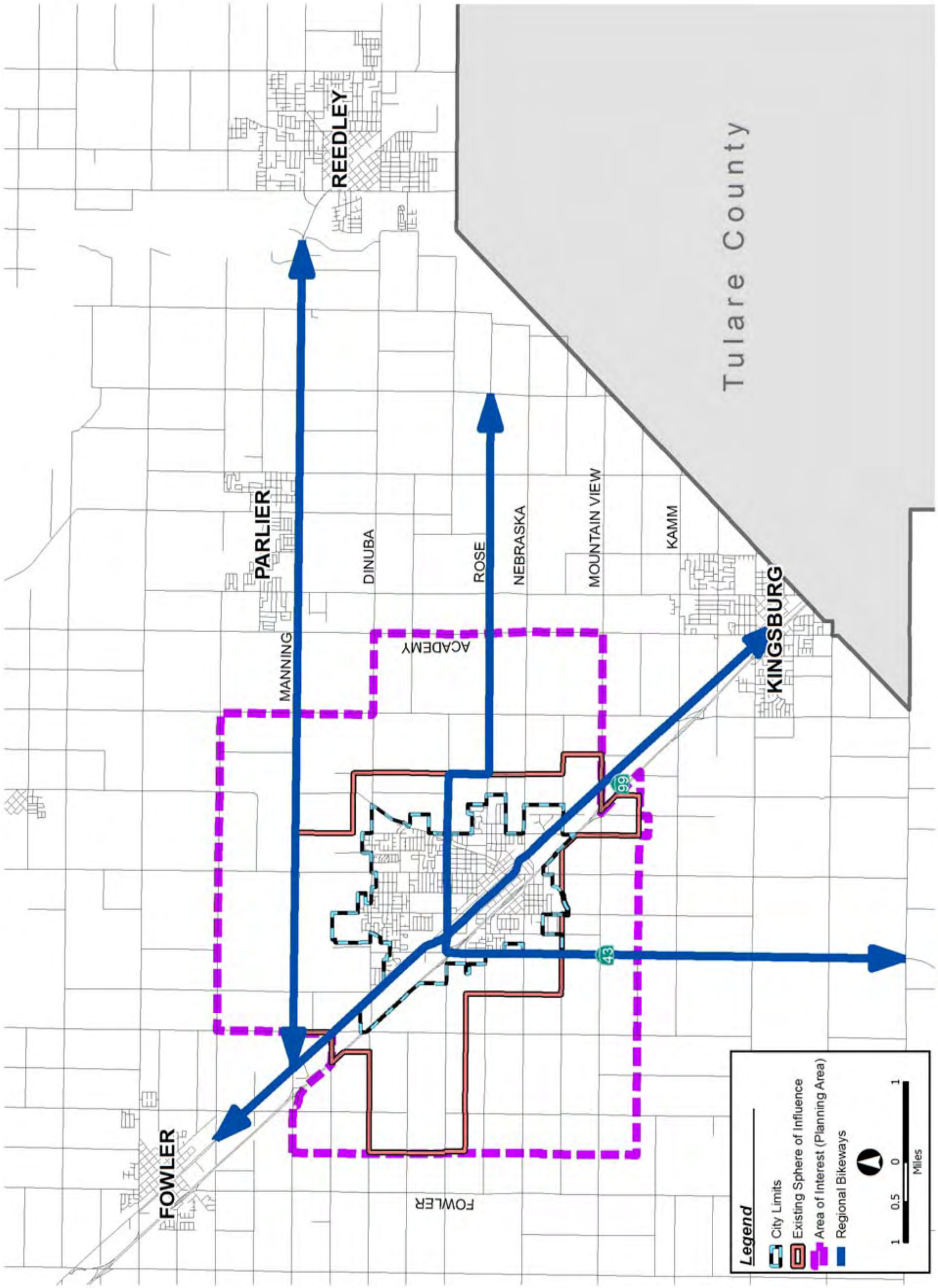


FIGURE 2 – 3a

REGIONAL BIKE PLAN

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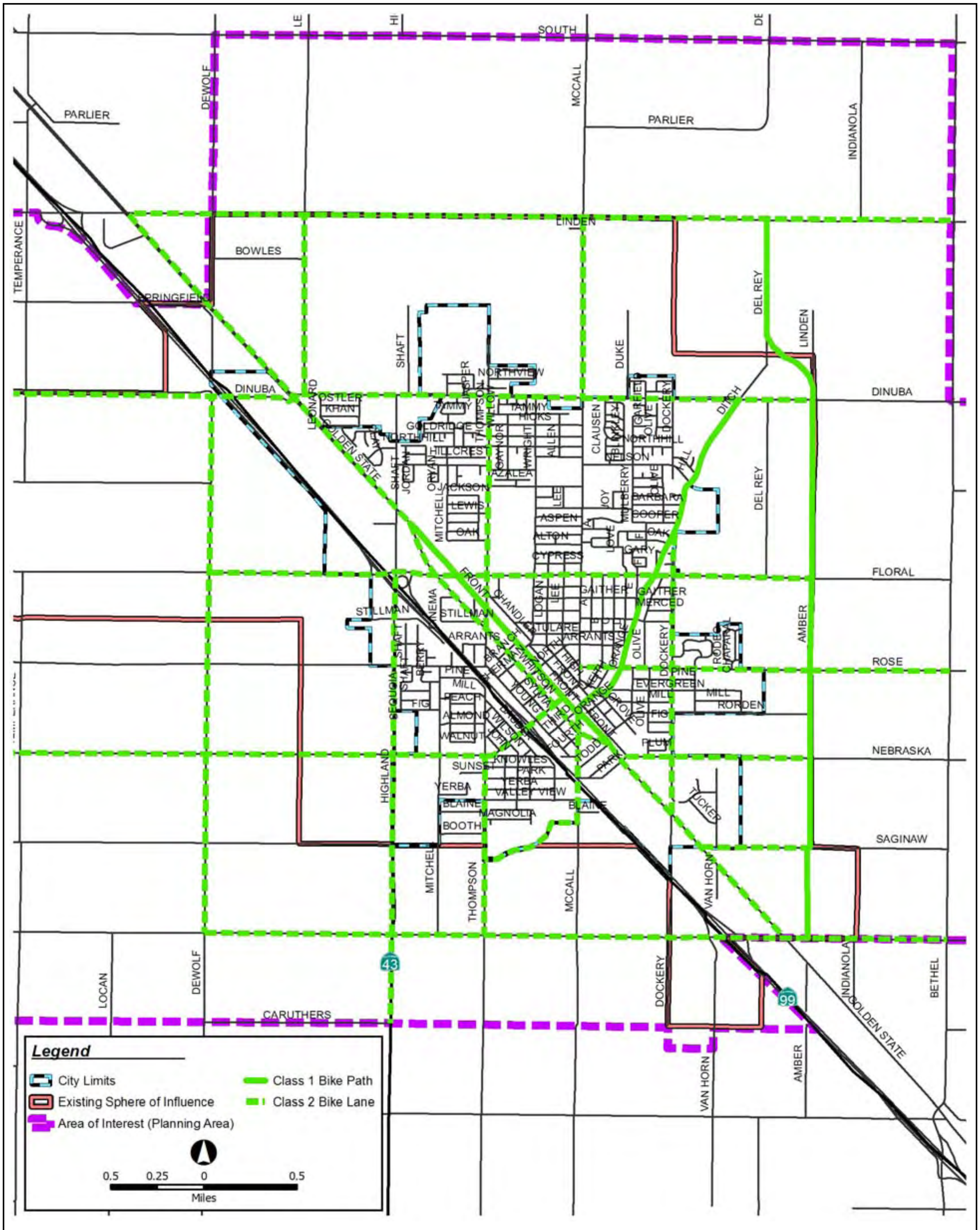

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BIKE PLAN

Figure 2 – 3b

2.8 Parking

2.50 New development shall be required to plant and maintain appropriate trees or other devices in order to achieve shading of at least 50% of all hardscaped parking and pedestrian surfaces.

2.51 Adequate off-street parking shall be required of all commercial and industrial land uses to accommodate parking demand. Off-street parking shall also be required of residential land uses to accommodate tenants.

2.52 Parking standards shall be evaluated for new development to ensure that parking requirements are satisfied within walking distance of development, and to ensure that arterial streets do not separate parking from the parking demand generator.

2.53 Parking standards shall be evaluated to assess the potential for offering reduced parking requirements to development that incorporate measures proven to reduce vehicular trips. Shared parking should be encouraged whenever possible.

2.54 The City shall work with Caltrans and transit service providers to establish a park and ride lot or lots within the community to serve the needs of regional and local commuters.

2.9 Railroad

2.55 To preserve the viability of the Golden State Industrial Corridor, uses or activities shall not be permitted to encroach so as to reduce the efficiency of the rail system.

2.10 Airports and Heliports

2.56 To preserve the viability of the Selma Aerodrome as a regional general aviation facility, the City adopts the policy plan recommendations of the Fresno County Airports Land Use Policy Plan Study, where applicable.

2.57 The City shall discourage land uses surrounding the Selma Aerodrome, which would reduce its ability to function as an element of the transportation system.

2.58 Since the Selma Aerodrome serves as the primary air field in the area, efforts shall be made to continue to upgrade the service capacity of the airport.

2.11 Pipeline and Transmission Facilities

2.59 The City will encourage coordination of major transmission and canal facilities in the community and, where possible, integrate such facilities into the recreation, open space and conservation element plans of the community.

2.12 Transportation System and Congestion Management

2.60 The City shall encourage the use of energy efficient and non-polluting fuels and modes of transportation.

2.61 Transportation System Management and Transportation Demand Management are the applicable strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ridesharing and parking management are to be used to the greatest extent practical to implement transportation management strategies.

2.62 Promote the long term shifting of peak hour commute trips from the single occupant automobile to ridesharing, buses, pedestrians, and bicycles.

2.63 Large development shall be encouraged to incorporate transit passenger facilities, bicycle racks or lockers, shower facilities, as well as on site services (eating, mail, banking, etc.) as ways to encourage alternative modes for commute trips.

2.13 Maintenance and Integration

2.64 Provide for the development and maintenance of the community's transportation infrastructure, including streets, sewer, water, storm drain, pipeline, electrical, and communication facilities.

2.65 The maintenance of the investment in the existing and future infrastructure is a high priority for the community.

2.66 The City shall maintain a high level of inter-governmental coordination and citizen participation in the circulation and transportation planning process and work with other agencies to assure that regional transportation plans are consistent with the City's General Plan.

2.14 Truck Routes and Truck Parking

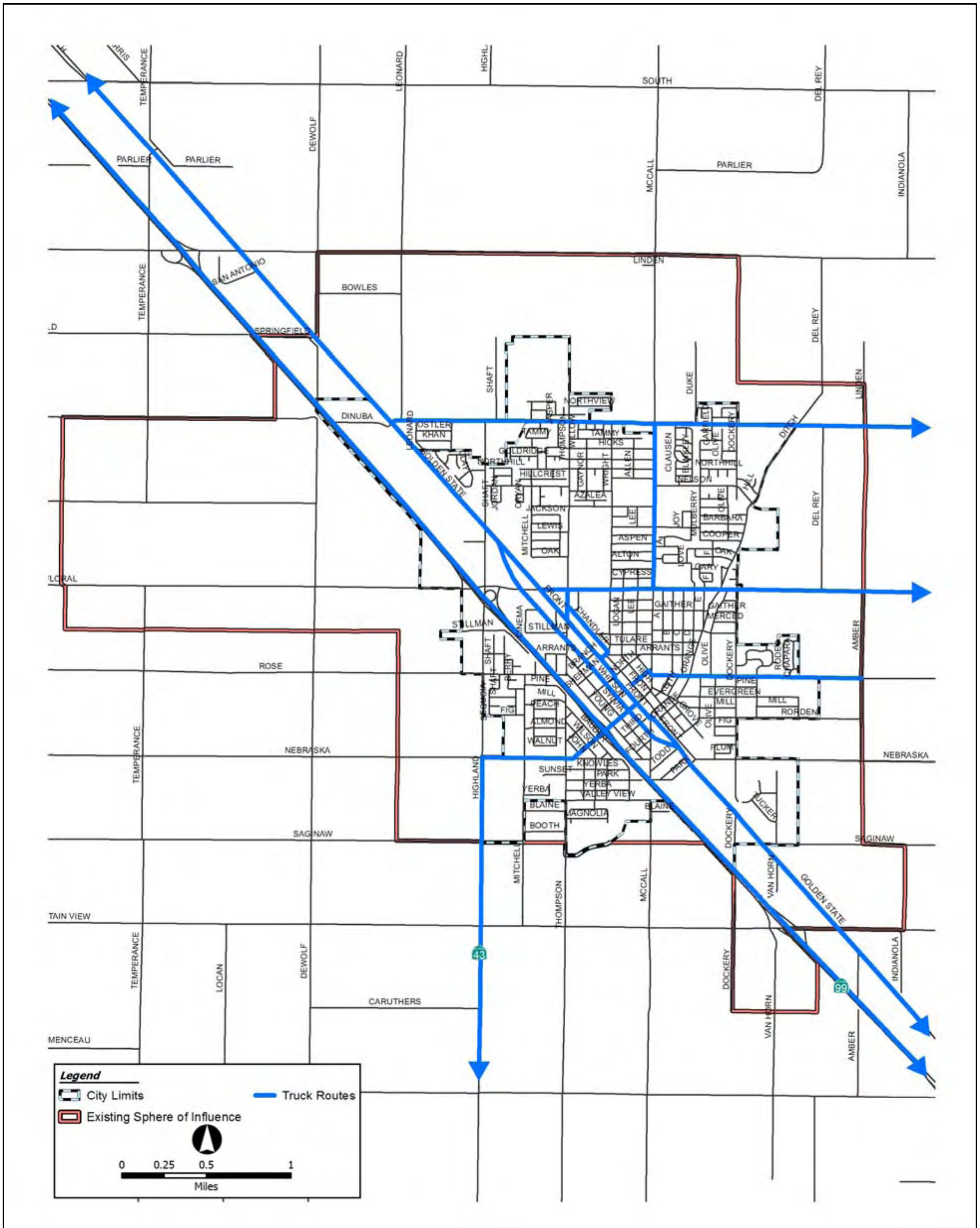
2.67 Truck traffic shall be permitted on designated arterial and collector streets only; as identified in the Circulation Element Truck Route Map (reference Figure 2-4).

2.68 The City shall encourage development of truck and parking facilities appropriately located within the industrial area.

2.69 Truck parking

a. Shall be discouraged on streets outside of industrial areas.

b. Shall be prohibited in residential areas for vehicles in excess of 10,000 gross vehicle weight (GVW), or higher than 8 feet.



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TRUCK ROUTES

Figure 2 - 4

CHAPTER THREE

NOISE ELEMENT

3.0 NOISE ELEMENT

3.1 Introduction

Noise levels within the City of Selma affect the quality of life of people living and working in the City. The most significant noise levels within the community are associated with the roadways and railroad. In addition, the Selma Aerodrome and a small private (Quinn) airport serve as potentially significant noise sources. High noise levels associated with these and other activities can create stress and irritation. The Noise Element addresses the physiological, psychological and economic effects of noise by providing effective strategies to reduce excessive noise and limit community exposure to loud noise sources.

3.2 Purpose of the Noise Element

Government Code § 65302 (f) states that a City's General Plan must include "A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

1. Highways and freeways.
2. Primary arterials and major local streets.
3. Passenger and freight on-line railroad operations and ground rapid transit systems.
4. Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
5. Local industrial plants, including, but not limited to, railroad classification yards.
6. Other ground stationary noise sources identified by local agencies as contributing to the community noise environment."

3.3 Scope and Content of the Noise Element

The State of California recognizes the relationship between noise and noise sensitive uses and has adopted State Guidelines for Noise Elements. This Noise Element satisfies the requirements of State law and is a mandated component of the General Plan. Government Code § 65302 (f) establishes the required components of the Noise Element. The Noise Element also complies with California Health and Safety Code Section 46050.1 (as amended) guidelines for Noise Elements.

Future noise conditions from short- and long-term growth are quantified and identified as noise exposure contours. This noise information serves as the basis for developing guidelines for identifying compatible land uses; identifying the proper distribution of land uses on the General Plan Land Use Map; and establishing proper development standards.

The Noise Element comprises four sections: the Introduction; Purpose of the Noise Element; Scope and Content of the Noise Element; and the Goals, Objectives and Policies. In the Goals, Objectives, and Policies section, major issues pertaining to noise sources are identified and related policies are established. The objectives are statements of the City's desires and comprise broad statements of purpose and direction. The policies and standards serve as guides for reducing or avoiding adverse noise impacts on the population.

For reference, Figure 3-1 shows the decibel levels associated with different common sounds, and illustrates typical sound levels, Figure 3-2 provides noise level criteria for a variety of land uses, and Figure 3-3 illustrates the reduction in sound from a solid barrier.

Sound generally dissipates at a rate of 3 to 6 dBA per doubling of distance from a source within 200 to 300 feet of that source. Its decay rate beyond that is highly variable depending on the atmospheric (mainly temperature variations, wind currents, and humidity) and terrain conditions between the source and listener. Sound levels, however, generally decrease with increasing distance from a source. For additional background information, consult the General Plan Background Report.

Figure 3-1
Typical Sound Levels

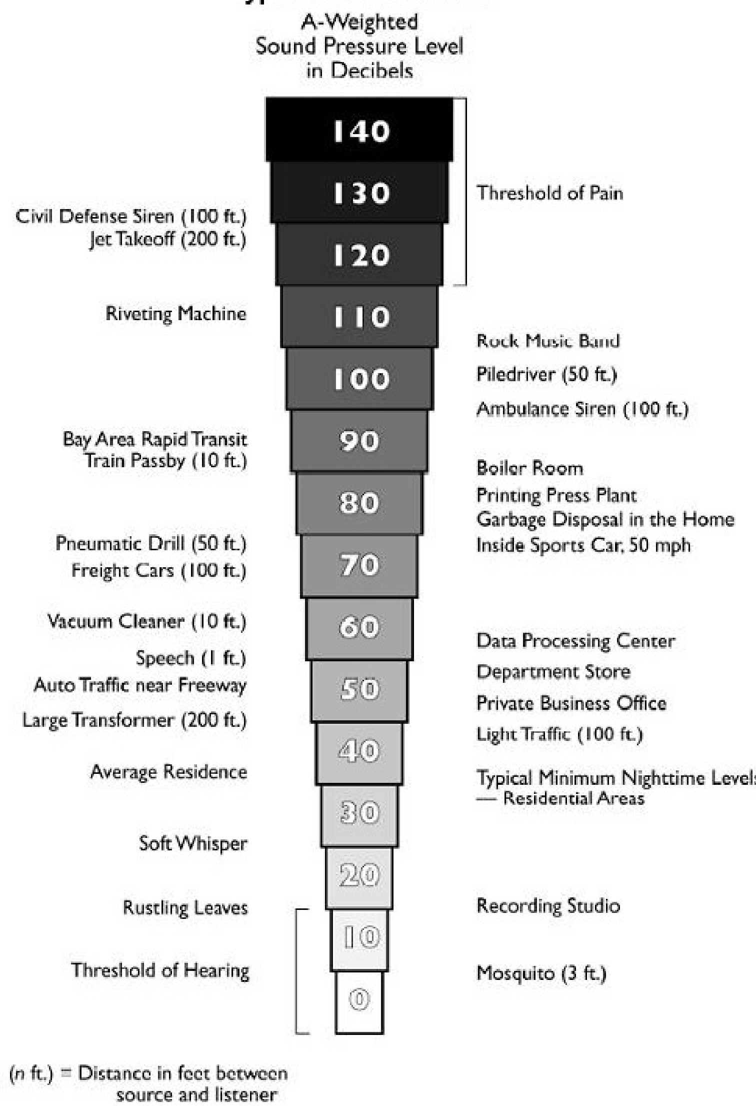
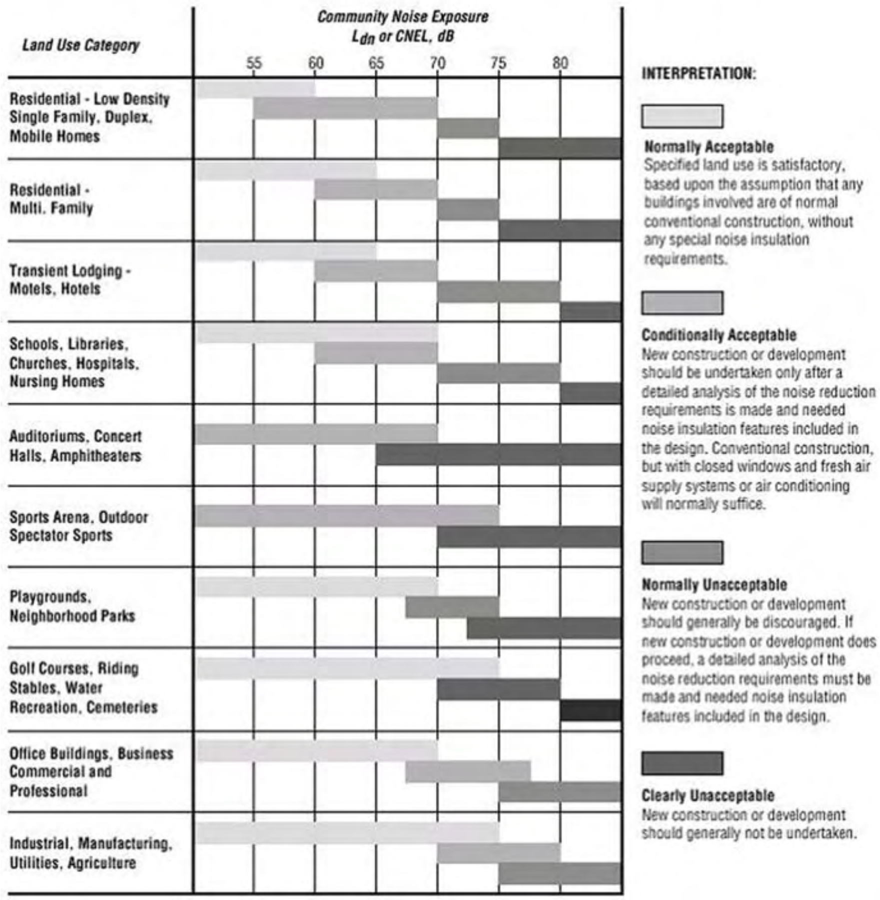
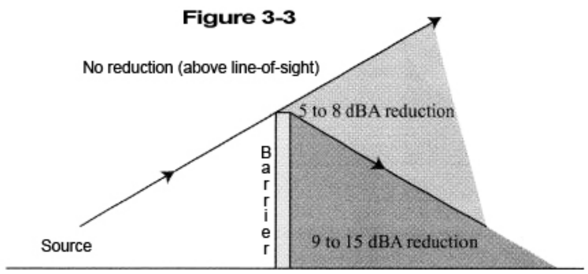


Figure 3-2



Source: State of California, General Plan Guidelines, 2003

Figure 3-3



Source: Timesaver Standards for Urban Design, McGraw-Hill, 2003

3.4 Goals

1. To protect the peace, health, safety, and welfare of Selma residents from adverse effects of any such noise source under any condition.

2. To prohibit unnecessary, excessive and offensive noises from all sources subject to local police power.

3. To improve the living, working, and recreational environment through the reduction and control of noise nuisances.

3.5 Objectives

A. To protect the economic base of the City by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.

B. To preserve the tranquility of residential areas by preventing noise producing uses from encroaching upon existing or planned noise-sensitive uses.

C. To educate the citizens of the City concerning the effects of exposure to excessive noise and the methods available for minimizing such exposure.

D. To emphasize the reduction of noise impacts through careful site planning and project design, giving second preference to the use of noise barriers and/or structural features to buildings containing noise-sensitive land uses.

3.6 Policies and Standards

3.1 It shall be deemed unlawful for any devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses to operate between the weekday hours of 7:00 p.m. and 6:00 a.m. and between the weekend hours of 7:00 p.m. and 9:00 a.m.

3.2 The City of Selma shall update its Noise Regulations (Title VI: Police Regulations, Chapter 17: Noise Regulations) to the following standards with regards to interior and exterior noise standards:

Exterior Noise Standards - Fixed		
Noise Level Standards, dBA		
Cumulative Number of minutes in any one-hour time period	Daytime 6 a.m. to 7 p.m.	Evening and Nightime 7 p.m. to 6 a.m.
30	50	45
15	55	50
5	60	55
1	65	60
0	70	65

Residential Interior Noise Standards		
Noise Level Standards, dBA		
Cumulative Number of minutes in any one-hour time period	Daytime 6 a.m. to 7 p.m.	Evening and Nightime 7 p.m. to 6 a.m.
5	45	35
1	50	40
0	55	45

3.3 The City shall utilize the noise/land use compatibility standards in Figure 3-2 as a guide for future planning and development decisions.

3.4 Areas within Selma shall be recognized as noise impacted if exposed to existing or projected future noise levels at the exterior of buildings in excess of 65 dB Ldn (or CNEL).

3.5 Noise sensitive land uses shall be discouraged in noise impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce exterior noise levels to 65 dB Ldn (or CNEL) or less and 45 dB Ldn (or CNEL) or less within interior living spaces.

3.6 The City shall enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.

3.7 Industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) shall be discouraged if resulting noise levels will exceed 65 dB Ldn (or CNEL) at the boundary areas of planned or zoned noise sensitive land uses.

3.8 The City shall review all relevant development plans, programs and proposals to ensure their conformance with the policy framework outlined in this Noise Element.

3.9 The preferred method of noise control used is thoughtful site design. Secondarily, noise control should be achieved through the use of artificial noise barriers. Site and building design guidelines may include:

a. Noise sensitive land uses should not front onto the primary noise source. Where this is not possible, the narrow portion of the building should face the primary noise source, and the interior layout should locate the most sensitive areas away from the noise source by placing garages, storage facilities, carports or other such areas nearest the noise source.

b. Site design should permit noise to pass around or through a development. This can be achieved by placing the narrow or convex portion of the structure toward the primary noise source.

c. Commercial and industrial structures shall be designed so that any noise in excess of 65dB Ldn (or CNEL) generated from the interior of the building is focused away from noise sensitive land uses.

d. Two story residential construction should be avoided, where possible, immediately adjacent to arterials or collectors unless adequate combinations of noise attenuation procedures are used.

e. When feasible, residential cul-de-sacs should be perpendicular to adjacent arterials or collectors.

f. Loading and unloading activities for commercial uses should be conducted in an enclosed loading dock, preferably with a positive seal between the loading dock and trucks.

3.10 Prior to the approval of a proposed development in a noise impacted area, or the development of an industrial, commercial or other noise generating land use in or near an area containing existing or planned noise sensitive land uses, an acoustical analysis may be required if all of the following findings are made:

a. The existing or projected future noise exposure at the exterior of buildings which will contain noise sensitive uses or within proposed outdoor activity areas (patios, decks, backyards, pool areas, recreation areas, etc.) exceeds 65 dB Ldn (or CNEL).

b. Interior residential noise levels resulting from offsite noise are estimated to exceed 45 dBA.

c. Estimated or projected noise levels cannot be reduced to the noise exposure limitations specified in this Noise Element by the application of Standard Noise Reduction Methods.

When noise studies are necessary they shall:

a. Be the responsibility of the applicant.

b. Be prepared by an individual or firm with demonstrable experience in the fields of environmental noise assessment and architectural acoustics.

c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe and assess local conditions.

d. Include estimated noise levels in terms of dB Ldn (or CNEL) for existing and projected future (10-30 year hence) conditions, with a comparison made to the adopted policies of the Noise Element.

e. Include recommendations for appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.

f. Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted policies and standards of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

g. The acoustical analysis should be prepared as early in the project review or permitting process as possible so that noise mitigation measures may be an integral part of the project design rather than an afterthought.

3.11 The City shall seek to reduce impacts from ground borne vibrations associated with rail operations by requiring that habitable buildings are sited at least 100-feet from the center-line of the tracks, whenever feasible.

3.12 Require new development of habitable buildings within 100-feet from the centerline of the railroad tracks to provide a study demonstrating that ground borne vibration issues associated with rail operations have been adequately addressed (i.e., through building siting or construction techniques).

3.13 New equipment and vehicles purchased by the City should comply with noise level performance standards consistent with the best available noise reduction technology.

3.14 All projects within the impact area of airports and heliports, shall be evaluated for potential noise impacts from aircraft overflights based on the standards in the Fresno County Airports Land Use Policy Plan and this Noise Element.

CHAPTER FOUR

SAFETY ELEMENT

4.0 SAFETY ELEMENT

4.1 Introduction

The quality of life in Selma is directly impacted by the sense of security of its residents and businesses. In order to provide a safe and enjoyable environment for residents, it is important to address the issues of crime, violence, and other human caused hazards, and to prepare a response to uncontrollable natural hazards. The Safety Element establishes goals, objectives and policies and standards to ensure that there is an adequate, coordinated, and expedient response to public safety concerns.

4.2 Purpose of the Safety Element

The purpose of the Safety Element is to identify and address those features or characteristics existing in or near Selma that represent a potential hazard to the community's citizens, sites, structures, public facilities, and infrastructure. The Safety Element establishes policies to minimize the danger to residents, workers, and visitors, while identifying actions needed to manage crisis situations such as earthquakes, fires, and floods. The Element also focuses on preventing criminal activity and violence before they occur. Additionally, the Safety Element contains specific policies to regulate existing and proposed development in hazard-prone areas.

4.3 Scope and Content of the Safety Element

The Safety Element satisfies the requirements of state planning law and is a mandated component of the General Plan. Government Code §65302 (g) sets forth a list of hazards that the Element must cover, if they pertain to conditions in the City. These hazards are:

- Seismically induced conditions including ground shaking, surface rupture, ground failure, tsunami, and seiche;
- Slope instability leading to mudslides and landslides;
- Subsidence and other geologic hazards;
- Flooding;
- Wildland and urban fires; and
- Evacuation routes

The Safety Element contains four sections: the Introduction; Purpose of the Safety Element; Scope and Content of the Safety Element; and Goals, Objectives, Policies and Standards. In the Goals, Objectives, Policies and Standards section, major issues pertaining to hazardous conditions and safety are identified, and related policies established. The policies serve as guideline for reducing the risks associated with humans, including criminal activity and natural hazards. The policies also serve to direct and maximize community emergency preparedness.

4.4 Goals

1. To prevent loss of life and serious injury, resulting from natural or man-induced hazards, to the residents of Selma.

2. To prevent serious structural damage to critical facilities and structures where large numbers of people are expected to congregate at one time.

3. To ensure the continuity of vital services to the Selma area in case of disaster.

4. To provide a leadership role in education on public safety.

4.5 Seismic Hazards

SEISMIC SAFETY OBJECTIVES

A. Identify risks to the City of Selma from seismic hazards.

B. Establish and maintain a plan to minimize identified risks from seismic hazards.

C. Establish and maintain a plan for responding to seismic disaster and for the provision of emergency services.

SEISMIC SAFETY POLICIES

4.1 The safety element shall be reviewed periodically and updated if necessary.

4.2 The City shall develop and adopt an Emergency Operations Plan which shall include action plans in the event of an earthquake or other disaster. Emergency evacuation routes shall be included in the plan.

4.3 The City shall maintain and continue to update, with the County of Fresno and other agencies, an Emergency Services Plan. The plan should include:

   a. Provision for control and direction of emergency operations.

   b. Provision for continuity of governmental services.

   c. Program to coordinate the repair and restoration of essential systems and services.

   d. Coordination of emergency operations with other jurisdictions.

4.4 The City should establish an inspection program to identify and inventory all existing unreinforced masonry structures in the City.

4.5 The City shall work with property owners to remove or rehabilitate all identified substandard structures.

4.6 Emergency communication centers, fire stations and other emergency service or critical facilities should be examined to determine earthquake resistance. A program to mitigate deficient facilities should be established.

4.7 Emergency procedures should be identified for public and private utility districts.

4.8 Primary and secondary hazards from seismic activity should be evaluated in all environmental assessment and reporting processes.

4.9 The list of critical facilities (hospitals, police and fire stations, and similar facilities) for the City of Selma shall be reviewed and updated annually.

4.10 Critical facilities shall be designed to the standards established by the Uniform Building Code for such facilities. Critical facilities mean essential facilities as provided in the Uniform Building Code.

4.11 The City shall continue to adopt current issues of the Uniform Building Code and implement the seismic design standards provided by the Code.

4.12 Seismic safety information should be made available to the general public. School districts and agencies related to aged, handicapped and seismically susceptible industries should be encouraged to develop education programs for seismic awareness.

4.13 The Seismic Impact Transportation Plan designates the following disaster transportation routes.

A. Primary Transportation Routes

1. Freeway 99 through the Selma Planning Area;
2. Manning Avenue through the Selma Planning Area;
3. McCall Avenue between Manning Avenue and Second Street;
4. Second Street between McCall Avenue and Nebraska Avenue;
5. Nebraska Avenue between Second Street and Highland Avenue;
6. Highland Avenue south of Nebraska Avenue.

B. Secondary Transportation Routes

1. Golden State-Whitson through the Selma Planning Area;
2. McCall Avenue south of Golden State-Whitson;
3. Del Rey Avenue between Manning Avenue and Orange Avenue;
4. Orange Avenue (Ditch Road) between Del Rey Avenue and Rose Avenue;
5. Rose Avenue between Orange Avenue and McCall Avenue.

C. Evacuation Routes

All arterial and collector streets of the Circulation Element of the Selma General Plan, shall be designated as evacuation routes in the event of a seismic disaster.

4.6 Geologic Hazards

GEOLOGICAL SAFETY OBJECTIVE

D. To provide a safe environment for building construction through knowledge and understanding of soil and land resources.

GEOLOGIC SAFETY POLICIES

4.14 Detailed mapping and analysis of identified areas of geologic hazard shall be provided through the use of Geographic Information Systems (GIS) technology. Areas identified with a "severe" rating for allowable soil pressures or high corrosivity soil characteristics should be mapped for City staff use in new development project consideration.

4.15 Continue to enforce the Uniform Building Code in all matters related to soil preparation and foundation requirements.

4.7 Flood Hazards

FLOOD SAFETY OBJECTIVES

E. Minimize the hazards of localized sheet flooding resulting from prolonged rainfall and storm water runoff.

F. Develop policies to help protect the lives and property of residents from the hazards of flooding.

FLOOD SAFETY POLICIES

4.16 The City shall evaluate areas within its Planning Area to identify areas of potential localized flood hazards.

4.17 In areas identified as being potentially subject to flooding, where the exact area and depth of flooding is uncertain, the applicant or developer of an annexation or development proposal shall be responsible for the preparation of a civil engineering report evaluating the flooding potential.

4.18 The City shall continue to implement and administer the Master Plan for Storm Drainage as a means of offsetting increased storm water runoff from urbanization.

4.19 The City shall incorporate maps from appropriate state and federal agencies that identify all flood hazard areas within the General Plan Planning Area into its Geographic Information System.

4.20 The City shall encourage new development to avoid floodplains or require developers to mitigate and protect against flood impacts if development is to be located in such areas.

4.21 The City shall seek and petition the County of Fresno, Council of Fresno County Governments and other agencies and cities impacted by potential dam failure, to participate in the completion of a disaster plan dealing with Pine Flat Dam failure.

4.22 The City shall prepare a local emergency evacuation plan responding to the complete failure of Pine Flat Dam at peak capacity. The evacuation plan shall be coordinated with other responsible and impacted jurisdictions.

4.8 Transportation Hazards

TRANSPORTATION SAFETY OBJECTIVES

G. To maintain a safe relationship between major transportation routes and urban land uses.

H. To provide for land use safety in areas influenced by airports and railways.

TRANSPORTATION SAFETY POLICIES

4.23 The City shall consider the impacts of potential transportation hazards upon adjacent land uses when considering proposals for new or changed urban uses.

4.24 New public use buildings, such as schools and hospitals, should be located a minimum of 1,000 feet from mainline rail or highway routes.

4.25 The City shall continue to implement the Airport Land Use Plan for the Selma Aerodome.

4.26 New public use buildings should not be located within the flight path or approach zone of airports.

4.27 Neighborhood and local streets shall be designed for speeds of 25 miles per hour.

4.28 Traffic calming devices such as bulbouts, chokers, mid-block bulbs, traffic circles and textured sidewalks shall be encouraged, to keep speeds below 25 miles per hour.

4.9 Fire Hazards

FIRE SAFETY OBJECTIVES

I. To prevent urban fires through code enforcement and public education.

J. To minimize property damage and public injury through effective fire service delivery.

FIRE SAFETY POLICIES

4.29 The City shall maintain an efficient fire department operation and strive to keep the staffing and equipment levels in line with the growth of the City.

4.30 The City will strive to reduce the demand for fire service by emphasizing fire prevention and public education. The Selma Fire Department will continue to conduct annual fire prevention inspections for commercial uses.

4.31 The City will require installation, maintenance and inspection of automatic fire detection and suppression devices in structures as required by City Code.

4.32 Encourage the installation of a system of heat and/or smoke detection devices and encourage a sprinkler system and other fire suppression equipment including fire hoses and water storage tanks or fire hydrants for all structures that exceed 5,000 square feet in floor area for the following facilities:

a. Critical facilities (public buildings).
b. Permanent industrial facilities employing ten or more people on a year-round basis.
c. Housing for the elderly, children and mentally infirm.
d. Nursing homes and hospitals.
e. Structures where large amounts of chemicals or fuels are known to be stored and are considered to be significantly dangerous by the Fire Chief.
f. As required by the Fire Chief or other legislation.

4.33 New development in the City of Selma shall conform to existing fire codes, including the provision of adequate ingress and egress for fire response vehicles.

4.34 The City shall continue to monitor and coordinate the water supply system with California Water for fire protection purposes to include the water supply for both peak load and emergency use. Areas of substandard water supply should be identified, and system improvements completed prior to and in conjunction with new development in the area.

4.35 The City shall continue to enforce its weed abatement program limiting the amount of combustible vegetation throughout the Planning Area.

4.36 The City should encourage public and private agencies, especially schools and social service groups to become involved in promoting fire protection and prevention education.

4.37 The City's Fire Services response goal shall be five minutes from "tone-out" to arrival on scene.

4.10 Hazardous Materials

HAZARDOUS MATERIALS OBJECTIVE

K. To reduce and control the effects of hazardous wastes so as to promote the public health and welfare of the Selma Community.

L. To maintain a responsive City staff, trained in Hazardous Materials incidents.

HAZARDOUS MATERIALS SAFETY POLICIES

4.38 To coordinate and cooperate with other local, state, and federal agencies with expertise and responsibility for all aspects of hazardous wastes.

4.39 To educate the public on the subject of hazardous wastes.

4.40 To aid in the identification and mapping of abandoned waste disposal sites, as necessary, and in the survey of the kinds, amounts, locations, etc. of hazardous wastes.

4.41 To ensure that disaster planning for the City of Selma includes policies appropriate to problems associated with hazardous wastes.

4.42 To identify the potential hazards from landfills and/or toxic waste sites as a component of environmental review of projects.

4.43 To prohibit the discharge of toxic and hazardous wastes into the municipal sewer system.

4.44 The City shall continue to staff, train and equip an emergency response team to respond and coordinate public safety activities. The Selma Fire Department is designated as the City's emergency response team for hazardous materials incidents.

CHAPTER FIVE

OPEN SPACE, CONSERVATION AND RECREATION ELEMENT

Open Space, Conservation and Recreation Element

5.0 OPEN SPACE, CONSERVATION AND RECREATION ELEMENT

5.1 Introduction

Some of the most valuable assets of Selma include its agricultural land, parks, historical and architectural resources. The Open Space, Conservation and Recreation Element focuses on the protection and enhancement of open space, natural and recreational resources to ensure a high quality living environment in Selma.

5.2 Purpose of the Open Space, Conservation and Recreation Element

The Open Space, Conservation and Recreation Element meets the state requirements for Conservation and Open Space Elements as defined in Sections 65302(d) and 65301(e) of the Government Code. According to these requirements, the Conservation Element must contain goals and policies to protect and maintain natural resources such as water, soils, wildlife, and minerals, and prevent wasteful resource exploitation, degradation, and destruction. The Open Space Element should contain goals and policies to manage open space areas, including undeveloped lands and outdoor recreation areas. Specifically, the Open Space Element must address several open space categories such as those used for the preservation of natural resources and managed production of resources, as well as open space maintained for public health and safety reasons. This last category of open space is addressed in the Safety Element. Because the subjects required to be addressed under the Conservation Element and Open Space Element overlap substantially, the two elements, and the Recreation Element have been combined.

5.3 Scope and Content of the Open Space, Conservation and Recreation Element

The Open Space, Conservation and Recreation Element include community policies to protect environmental, open space and recreational resources. Resources addressed in this element include: water resources; agricultural resources; cultural resources; ecological and biological resources; mineral resources; and parks and recreational facilities. Because everyday activities in Selma affect air quality outside City boundaries and regional activities affect air quality within Selma, regional air quality issues are also addressed in this element. The Open Space, Conservation and Recreation Element is comprised of four sections: the Introduction; Purpose of the Open Space, Conservation and Recreation Element; Scope and Content of the Open Space, Conservation and Recreation Element; and the Goals, Objectives, and Policies and Standards. In the Goals, Objectives, and Policies and Standards section, community open space needs and resource management issues are identified and corresponding policies are established. The objectives, which are overall statements of the City desires, are comprised of broad statements of purpose and direction. The policies and standards serve as guidelines for planning and maintaining recreational facilities, enhancing the natural amenities of Selma and minimizing the environmental effects of planned development.

5.4 Open Space and Conservation

GOALS

Management of Resources

1. Protect the environment.

2. Provide for the usage of natural resources without causing their premature depletion.

3. Conserve prime agricultural land.

4 Preserve groundwater quality and encourage reduction of overdraft conditions.

5. Eliminate potential for soil erosion or degradation of its agricultural productivity.

Unique Resources

6. Protect any rare or endangered plant and animal species, found in the Selma area.

7. Identify and protect unique cultural and historical features of the community.

Environmental Hazards

8. Limit potential threats to human health and property, which may result from natural environmental hazards.

POLICIES AND STANDARDS

General

5.1 The City shall review the Conservation and Open Space Element regularly to ensure its compatibility with State guidelines and related plans developed by the Council of Fresno County Governments and Fresno County.

5.2 Encourage all construction wastes generated from new construction and demolition to be recycled.

5.3 Encourage reduction of the City's peak electrical load by 10% through energy efficiency, shifting the timing of energy demands, and conservation measures.

5.4 Add a weatherization/energy conservation component to City renovation and repair programs where applicable. Coordinate with development and implementation of a homeowner weatherization program to aid seniors and low-income residents in insulating their homes.

5.5 Encourage the public health and environmental benefits of supporting locally grown and organic foods.

5.6 Continue to implement "user-friendly" recycling and composting programs in compliance with State mandates.

5.7 Maintain Rockwell Pond as both a resource management area (water recharge) and community open space.

Agriculture

5.8 Prime and uniquely productive agricultural land should be conserved through orderly expansion of the City.

5.9 To protect human health and safety from potential impacts due to agricultural spraying, dust, and traffic congestion, the City will encourage lower density development adjacent to land planned for long-term agricultural uses.

5.10 Agricultural lands which currently produce, or have the potential to produce, specialty crops for which the area is uniquely suited, should be protected from encroachment by urban uses.

5.11 Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operation and to prevent parcelization into rural residential or ranchette developments.

5.12 Work with regional partners/organizations to develop an agricultural land conservancy program. Encourage the application of new agricultural land preservation and conservancy programs outside of the City's SOI.

Environmental Hazards

5.13 Require correction of local storm water ponding conditions prior to development in such areas, either through off-site improvements provided by land developers, or through community storm drain facility capital improvement projects.

5.14 Require soil studies in localized areas known to have expansive or unstable soils.

Natural Resources

5.15 Use conservation irrigation technology as well as a water efficient plant palette for all City-owned properties.

5.16 Areas with high erosion potential or soil instability which cannot be mitigated shall be designated for open space land uses.

5.17 Channel and slope modification shall be discouraged where they increase the rate of surface runoff and increase the potential for erosion.

5.18 The City shall endeavor to mitigate, to the extent feasible, activities which will exacerbate groundwater overdraft.

5.5 Air Quality

GOAL

To protect the health and welfare of Selma residents by promoting development that is compatible with air quality standards.

OBJECTIVES

A. Participate in the development of consistent and accurate procedures for evaluating the air quality impacts of new projects.

B. As part of the development review process, develop mitigation measures to minimize stationary and area source emissions.

C. Develop transportation systems that minimize vehicle delay and air pollution.

D. Develop consistent and accurate procedures for mitigating transportation emissions from new and existing projects.

E. Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.

F. Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

POLICIES AND STANDARDS

5.19 Coordinate with other local and regional jurisdictions, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Air Resources Board (ARB), in the development of regional and county clean air plans and incorporate the relevant provisions of those plans into City planning and project review procedures. Also coordinate with the SJVAPCD and ARB in:

- Enforcing the provisions of the California and Federal Clean Air Acts, State and regional policies, and established standards for air quality;
- Utilizing clean fuel for city vehicle fleets, when feasible; and
- Developing consistent procedures for evaluating project-specific and cumulative air quality impacts of projects.

5.20 Require area and stationary source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design, including:

- The use of best available and economically feasible control technology for stationary industrial sources;

- Discourage the use of wood burning heaters or pellet stoves in new residential units;
- The use of new and replacement fuel storage tanks at refueling stations that are clean fuel compatible, if technically and economically feasible; and
- The promotion of energy efficient designs, including provisions for solar access, building siting to maximize natural heating and cooling, and landscaping to aid passive cooling and to protect from winter winds.

5.21 Develop strategies to minimize the number and length of vehicle trips, which may include:

- Promoting commercial/industrial project proponent sponsorship of van pools or club buses;
- Encouraging commercial/industrial project day care and employee services at the employment site;
- Encouraging the provision of transit, especially for employment-intensive uses of 200 or more employees; and
- Providing expansion and improvement of public transportation services and facilities.

5.22 Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following where feasible:

- Consider right-of-way requirements for bike usage in the planning of new arterial and collector streets and in street improvement projects;
- Require that new development be designed to promote pedestrian and bicycle access and circulation; and
- Provide safe and secure bicycle parking facilities at major activity centers, such as public facilities, employment sites, and shopping and office centers.

5.23 Encourage land use development to be located and designed to conserve air quality and minimize direct and indirect emissions of air contaminants by doing the following where feasible:

- Locate air pollution point sources, such as manufacturing and extracting facilities in areas designated for industrial development and separated from residential areas and sensitive receptors (e.g., homes, schools, and hospitals); establish buffer zones (e.g., setbacks, landscaping) within residential and other sensitive receptor uses to separate those uses from highways, arterials, hazardous material locations and other sources of air pollution or odor;

- Consider the jobs/housing/balance relationship (i.e., the proximity of industrial and commercial uses to major residential areas) when making land use decisions;

- Provide for mixed-use development through land use and zoning to reduce the length and frequency of vehicle trips;

- Accommodate a portion of the projected population and economic growth of the City in areas having the potential for revitalization;

- Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities;

- Encourage small neighborhood-serving commercial uses within or adjacent to residential neighborhoods when such areas are aesthetically compatible with adjacent areas; do not create conflicts with neighborhoods schools; minimize traffic, noise, and lighting impacts; encourage and accommodate pedestrian and bicycle access; and, are occupied by commercial uses that have a neighborhood-scale market area rather than a community-wide market area; and

- Encourage a development pattern that is contiguous with existing developed areas of the City.

5.6 Recreation

GOALS

9. Preserve and protect unique or natural recreation resources.

10. Provide adequate public and private open space for existing and future residents.

11. Provide adequate and accessible open space and park facilities for active and passive recreation.

12. Private recreational open space, or dedications of equivalent land, or fees in lieu thereof, shall be required in conjunction with all residential developments to the maximum extent permissible by law.

POLICIES AND STANDARDS

5.24 Provide adequate park facilities distributed throughout the City to provide organized and informal recreation opportunities and open space for City residents. Table 5-1, to be used as a reference only, classifies various parks and greenways, provides a general description and includes suggested size and service area criteria.

5.25 The standard park acreage in Selma is 5.0 acres per 1,000 people. This acreage may include park-ponds (to the extent that they are accessible and usable recreational areas), neighborhood parks, pocket parks, community parks and community recreational facilities. Priority should be given to development of property already owned by the City for park programs.

5.26 Location standards for parks and recreational open space specified in the Background Report of the General Plan, the Land Use Map, and Specific Plans, shall guide the location of future park and open space developments.

5.27 Neighborhood parks should be from 3 to 5 acres in size and centrally located within each ½ square mile of land. Such parks may be developed alone, in conjunction with school sites, or with ponding basins.

5.28 Community parks, providing a full range of passive and active recreational areas and facilities, will be from 20 acres and larger in size.

5.29 Developed public recreation land will be within walking distance of potential users. For purposes of this Element, an optimum walking distance for neighborhood parks is within ¼ mile.

5.30 Consider the recreational needs of all socio-economic and age groups within the City in accordance with the availability of financial and other resources for these purposes.

5.31 Seek available state and federal funds, and local grants for park improvements and recreational programs and land acquisition.

Table 5-1
Parks and Greenways Classifications

Classification	General Description	Size and Service Area Criteria
Neighborhood Park	Neighborhood parks are the basic units of the park system and serve a recreational and social purpose. Focus is on informal recreation.	Typically 5 acres or more; 8 to 10 acres preferred with 3 acres the desired minimum size. Service area is one-fourth to one-half mile uninterrupted by major roads and other physical barriers.
Community Park	Serves a broader purpose than neighborhood parks. Focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces.	Varies, depending on function. A minimum of 20 acres is preferred, with 40 or more acres optimal. Service area can be communitywide or several neighborhoods in given area of the community.
Large Urban Park	Large urban parks are generally associated with larger urban centers with large populations. Focus is on meeting wide-ranging community needs and preserving unique and sometimes extensive landscapes and open spaces.	Varies depending on circumstances. A typical minimum size is 50 acres (20.2 hectares), with hundreds of acres not uncommon, such as Central Park in New York City.
Youth Athletic Complex/Facility	Consolidates programmed youth athletic fields and associated facilities to fewer strategically located sites throughout the community. Also can provide some neighborhood use functions.	Varies, with 20 acres or more desirable, but not absolute. Optimal size is 40 to 80 acres (16.3 to 32.4 hectares).
Community Athletic Complex/Facility	Consolidates programmed adult and youth athletic fields and associated facilities to a limited number of sites. Tournament-level facilities are appropriate.	Varies, with 20 acres (8.1 hectares) or more desirable, but not absolute. Optimal size is 40 to 80 acres (16.2 to 32.4 hectares).
Greenway	Lands set aside for preserving natural resources, remnant landscapes, and open space, and providing visual aesthetics/buffering. Also provides passive-use opportunities. Ecological resource stewardship and wildlife protection are high priorities. Suitable for ecologically sensitive trail corridors.	Varies, depending on opportunity and general character of natural systems within the community.

Table 5-1
Parks and Greenways Classifications (continued)

Parkway	Linear park like transportation corridors between public parks, monuments, institutions, and sometimes business centers. Can be maintained green space or natural in character.	Varies.
Special Use	Covers a broad range of parks and recreation facilities oriented toward single-purpose uses, such as a nature center, historic sites, plazas, urban squares, aquatic centers, campgrounds, and golf courses.	Varies, depending on need.
Park-School	School sites that are used in concert with, or in lieu of, other types of parks to meet community park and recreation needs. School sites often provide the majority of indoor recreational facilities within a community.	Varies, depending on specific site opportunities.
Private Park/Recreation Facility	Parks and recreation facilities that are privately owned, yet contribute to the public park and recreation system.	Varies.
Regional Parks and Park Reserves	Larger-scale, regionally based parks and open spaces the focus on natural resource preservation and stewardship.	Typically a minimum of 500 acres (202.3 hectares) and up to several thousand acres or several hundred hectares. Service area is regional, which generally encompasses several cities.

5.32 Require the dedication of recreational open space land or the payment of fees in lieu thereof as a condition for approval of subdivisions of land. Funds collected shall be expended for the purposes of purchasing and/or developing land for recreational facilities or serve the subdivision. The amount of land or fee shall be commensurate with demand for recreational land and facilities generated by the subdivision.

5.33 Cooperate with the school district in developing recreational open space land and programs.

5.34 Develop new parks or recreational facilities at locations which complement existing and planned population centers and, where possible, complement existing school recreational facilities.

CHAPTER SIX

PUBLIC SERVICES AND FACILITIES ELEMENT

Public Services and Facilities Element

6.0 PUBLIC SERVICES AND FACILITIES ELEMENT

6.1 Introduction

The Public Services and Facilities Element addresses the community need for public services and facilities. The City is currently well served with infrastructure, and with master plans in place to guide capital spending to make improvements as necessary. Future development of the remaining vacant land within the City will require expansion of public services and facilities to meet the increase in demand for service. Planning for this future increase in demand will ensure that the needs of future residents for public services and infrastructure are met, while avoiding adverse impacts to existing areas of the community.

6.2 Purpose of the Public Services and Facilities Element

The purpose of the Public Services & Facilities Element is to ensure that sufficient levels of public services are provided as Selma develops. Working in conjunction with the Land Use Element, the Public Services & Facilities Element plans for the needed expansion and funding of public services and infrastructure to coincide with new development.

6.3 Scope and Content of the Public Services and Facilities Element

The Public Services & Facilities Element is not a state-mandated element, however, the issues addressed within this Element closely relate to the Land Use Element. The Element is comprised of four sections: the Introduction; Purpose of the Public Services & Facilities Element; Scope and Content of the Public Services & Facilities Element; and the Goals and Policies and Standards. In the Goals and Policies and Standards section, major issues related to the provision of public services and facilities are identified and related policies and standards are established to address these issues. The policies and standards serve as guides for infrastructure and facility improvements to provide sufficient levels of service.

GOALS

1. **Encourage the provision of adequate and convenient school facilities in order to provide an appropriate education for all pupils.**

2. **Reduce the threat to persons and property resulting from natural and man-made hazards including fire, crime and flooding.**

3. **Provide a safe and sanitary physical environment.**

4. Coordinate required improvements of the sewer and storm drainage systems.

POLICIES AND STANDARDS

6.1 Coordinate City-wide sewer, water, and storm drainage master plans which implement adopted land use goals, objectives and policies and Federal and State regulations. These master plans shall be updated as needed and implemented through various funding mechanisms including assessment district, property owner's association's user fees, development impact fees, mitigation payments, reimbursement agreements and/or other mechanisms which provide for equitable distribution of development and maintenance costs.

6.2 Require the development and extension of infrastructure to proposed developments according to adopted elements and master plans. Projects that are not contiguous to existing urban development shall be required to assess the cumulative impact of all non-contiguous development.

6.3 Temporary drainage facilities may be constructed by the developer if the major facilities are not available, subject to City determination and approval. The developer will also be required to pay all applicable drainage fees in addition to constructing temporary facilities at his/her own cost.

6.4 In order to address sewer constraints, new developments shall demonstrate that adequate sewer capacity exists prior to development or that mitigation measures will ensure that sewer capacity will be created as part of the project. Mitigation measures may include installation of necessary facilities or other methods acceptable to the City.

6.5 Potential school sites shall be designated on the land use plan in locations convenient to their service populations. Future school site locations on the adopted Land Use Diagram are approximate and subject to change.

6.6 Adequate space and facilities shall be provided for City services and administrative functions including senior citizen centers, community centers, and a civic center complex.

6.7 The City shall continue to review fire call response time and other factors relating to ISO ratings and strive to maintain the current ISO rating.

6.8 Adequate facilities shall be provided for law enforcement and fire suppression and prevention programs.

6.9 Police and fire staffing levels shall be reviewed on an annual basis to determine appropriate and feasible staffing ratios.

6.10 Capital improvements shall be undertaken to eliminate existing flooding problems.

6.11 All new developments shall be required to have community sewer, water and storm water systems.

APPENDIX B

PERSONS WHO PREPARED THIS INITIAL STUDY

APPENDIX B – PERSONS WHO PREPARED THIS INITIAL STUDY

James Alcorn, AICP, Senior Associate Planner
Patrick Keenan, GIS
Jan Chubbuck, Project Coordinator
Josh McDonnell, AICP, Project Manager
Harry Tow, Principal Planner

NOP COMMENT LETTERS

AMBERWOOD

MAR 10 2008 COPY

March 5, 2008

Michael Gaston, Planning Director
City of Selma
1710 Tucker Street
Selma, CA 93662

Subject: Comments on Draft General Plan Elements

Dear Mike,

Amberwood Properties, LLC has reviewed the Draft General Plan Elements. In general, the General Plan Elements appear well drafted and internally consistent. However, we have identified a few issues that we would like to bring to the City Council's attention. We have met with the General Plan consultants and you to discuss these matters. As you are aware, we are looking at these General Plan Elements with the purpose of implementing them in the Amberwood Specific Plan. Suggested revisions to the wording of the elements are identified below in a strikeout and underline format.

City Growth and Agricultural Conservation (Land Use Element/Open Space and Conservation Element)

Land Use Element Policy 1.2

Suggested Revision: In order to ~~preserve them~~ <u>conserve prime agricultural lands</u> as a natural resource, and provide a buffer between existing and future development in the City and neighboring cities, ~~prime agricultural lands should not be designated for urban development to the extent feasible~~ <u>buffer zones should be planned outside the proposed sphere of influence of the City</u>.

Rationale: The proposed wording of the policy could be interpreted to be contrary to allowing orderly expansion of the City, which is central to the proposed General Plan. Orderly expansion of Selma will result in some prime agricultural lands being converted to urban uses. However, setting up buffer areas will help conserve agricultural lands outside the planned growth of the City.

Land Use Element Policy 1.10

Suggested Revision: The in-fill of existing vacant lands within the City limits shall be encouraged ~~over development on the periphery of the community~~.

Rationale: The proposed wording of the policy could be interpreted as being contrary to allowing orderly development on the periphery of the City, which is a major part of the General Plan proposal for expansion of the urban area of Selma. In-fill is an important policy, but will occur simultaneously with expansion of the City's boundaries to meet housing demand from population and employment growth.

Open Space and Conservation Element Goal 3
Suggested Revision: ~~Preserve~~ Conserve prime agricultural land.
Rationale: See Land Use Policy 1.2 above.

Open Space and Conservation Element Policy 5.8:
Suggested Revision ~~To the fullest degree possible, prime agricultural land shall be preserved for agricultural uses only~~ Prime and uniquely productive agricultural land should be conserved through orderly expansion of the city.
Rationale: See Land Use Policy 1.2 above.

Open Space and Conservation Element Policy 5.10
Suggested Revision: ~~Agricultural lands which currently produce, or have the potential to produce, specialty crops for which the area is uniquely suited, shall be protected from encroachment by urban uses.~~
Rationale: Delete this policy, see suggested revision to Policy 5.8 above which addresses uniquely productive agricultural land.

Schools (Land Use Element)

Land Use Element Policy 1.19b

- *Suggested Revision*: ~~The City shall consider adequate mitigation measures, at the City's sole discretion, to reduce the impacts of development on the school district. The Selma Planning Commission and/or the Selma City Council shall, in their sole judgment, make the final determination of what constitutes adequate mitigation of new residential construction impacts on school facilities under this Plan.~~
- *Rationale*: Delete this policy from the prior General Plan as the wording of the policy could be interpreted to be contrary to more recent State statutes which set forth sufficient school fees and mitigation measures under CEQA.

Land Use Element Policy 1.19c

- *Suggested Revision*:~~If the school district is unable to receive adequate funding as demonstrated by evidence submitted by the school district to the City, for the district's ongoing construction needs, the City may consider special school financing mechanisms, but does not and cannot assure approval by the City or the ability to implement such financing. Such mechanisms could include, but is not limited to, additional development fees, assessment and/or community facility districts and/or bond issues~~.
- *Rationale*: Delete this policy from the prior General Plan as the wording of the policy could be interpreted to be contrary to more recent State statutes which set forth school fees and funding measures.

Density and Lot Size (Land Use Element)

Land Use Element Policy 1.40

- *Suggested Revision*: The minimum lot area for a single family dwelling unit shall be 7,000 square feet, with exceptions to this minimum allowed subject to the approval of a Conditional Use Permit <u>or Specific Plan</u> as set forth in the City of Selma Zoning Ordinance.
- *Rationale*: The wording of the policy should allow flexibility as part of an approved Specific Plan where a range of lot sizes would be evaluated as part of a comprehensive planning program with architectural design controls, landscaping standards, and maintenance requirements.

Thank you for the opportunity to comment on this document.

Sincerely,

Glenn Pace
Manager

cc: City Council

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9/...

CITY OF
DINUBA
Together, A Better Community
CALIFORNIA • 1906

City Manager
559/591-5904

City Attorney
559/437-1770

Administrative Services
559/591-5900

Development Services
559/591-5906

Dinuba Vocational Center
559/596-2170

Fire/Ambulance Services
559/591-5931

Parks & Community Services
559/591-5940

Police Services
559/591-5914

Public Works Services
559/591-5924

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September 12, 2008

Mr. Michael Gaston
Community Development Director
1710 tucker Street
Selma, CA 93662

Re: Comments for Notice of Preparation of a Draft Environmental Impact Report for the City of Selma 2035 General Plan Update

Dear Mr. Gaston,

Thank you for providing the City of Dinuba the opportunity to review and comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Selma 2035 General Plan Update prepared by your consultant QuadKnopf. We look forward to reviewing and commenting when the DEIR is circulated for public review. Our comments will generally be broad based, however, we are also providing a few specific environmental factors comments.

First and foremost, the proposed General Plan Map and some figures (Figure 2-1, 3-2, figure at 3.2 of 3.6 Policies and Standards) are difficult to read. We suggest you include an 11" X 17" General Plan land use map, separate pages for the street cross sections, and generally, a larger font size. We found a minor typographic error on page 3-2 of the Environmental Checklist when reference is made to Selma-Kingsburg-"Follower" instead of Fowler.

Your documents did not include the Background Document discussed in the NOP or draft General Plan Policies Statements. Without this document, we do not have an opportunity to read about the assumptions, projections, or estimates used to develop the General Plan Policies to accommodate Selma's anticipated growth.

Our primary comments are in regards to Traffic/Circulation, Land Uses, and Energy Resources. We believe a thorough environmental analysis needs to be provided in the DEIR for these resources. Below are our comments for these resources

Traffic/Circulation: Primarily along Mountain View, Golden State Boulevard, and Highway 99. The proposed land uses within the Mt. View, Golden State Boulevard, and Highway 99 corridors will create a tremendous amount of traffic in addition to the traffic currently using those three facilities.

405 E. El Monte Way, Dinuba, CA 93618
Fax 559/591-3815
www.dinuba.ca.gov

The addition of residential, mixed use, and regional commercial uses west of Highway 99 and industrial uses between Bethel Avenue and Highway 99 will certainly overtax the existing travel lanes, the bridge over Highway 99, and on-/off-ramps at Highway 99. Mountain View Avenue will see a significant increase in traffic volumes, therefore we believe an extensive traffic analysis should be conducted for Mountain View Avenue between Bethel and DeWolf Avenues. We would not be surprised if analyses of these facilities shows a need to increase the width of the bridge over Highway 99 to accommodate additional through and turning lanes, require expansion of the on- and off-ramps from a single lane to two lanes, and warrant signalization. Another concern is the railroad crossing east of Golden State Boulevard at Mountain View Avenue. An analysis of the impacts caused by trains impeding traffic crossing Golden State Boulevard should be conducted of traffic impacts when full build-out occurs. The NOP mentions an objective of the General Plan is to realize a new over-crossing of Highway 99 at Dinuba Avenue; we believe an analysis should be conducted regarding the feasibility of an additional over-crossing or under-crossing of Hwy 99 between Nebraska and Mountain View Avenues. Lastly, a comprehensive analysis of possible relocation of Highway 43 should be included in the DEIR.

Land Uses: We recognize Selma's desire to develop toward the south and southwest. As contained in the NOP, it is obvious that areas west of Highway 99 are intended for residential, mixed, and regional commercial uses, while areas east of Highway 99 are intended for industrial uses. We anticipate a comprehensive analysis of traffic/circulation, as noted above, and air quality impacts based on the planned uses in these areas. We also anticipate a thoughtful and comprehensive analysis of alternative land use patterns and the impacts associated with those alternatives.

Impacts on Energy Resources: As noted earlier, substantive growth will have occurred if the south and southeast areas are developed as contained in the draft General Plan land use map. We believe it is appropriate that the DEIR include a comprehensive analysis of electricity and natural gas impacts on nearby cities such as Fowler, Kingsburg, Parlier, and Dinuba. For years now, we have been hearing from the energy suppliers and the State of California on possible energy shortages during peak demand hours; the proposed land uses will clearly impose the need for additional energy when fully built out.

Lastly, on page 3-2 of the NOP/Initial Study, Other Responsible Agencies are the San Joaquin Valley Air Pollution Control District and any irrigation or other special district within the planning area.

Thank you for the opportunity to comment. We look forward to reviewing the DEIR when it is circulated for review. If you have any questions please contact Hector Guerra, Principal Planner, at (559) 591-5906.

Sincerely,

Daniel Meinert, Deputy City Manager

c: file

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September 23, 2008

Mr. Michael Gaston, AICP
Community Development Director
City of Selma
1710 Tucker Street
Selma, CA 93662

SUBJECT: NOP Comments – Selma General Plan Update EIR

Dear Mr. Gaston:

Thank you for requesting comments from the City of Fowler on the Notice of Preparation for the Draft EIR on the proposed Selma General Plan Update. The package submitted as part of the NOP, including the land use map, summary, policies, and initial study, were very helpful in understanding the scope of the proposed general plan and potential environmental impacts.

The City is in general agreement with the analysis contained in the initial study. However, the following comments on potential environmental impacts should be considered for discussion in the DEIR:

1. **Agricultural Land**. This section should document current efforts by Fresno County, the COG, LAFCO, and the Blueprint process to conserve agricultural resources and provide buffers between communities. To the maximum extent feasible, Fowler supports such efforts, including establishing buffers between the communities of Selma and Fowler. Direct mitigation for the loss of ag land should also be considered in light of the efforts described above.
2. **Air Quality**. This or a separate section should also include analysis of greenhouse gases and global climate issues and describe the City's efforts to reduce such emissions.
3. **Hydrology and Water Quality**. Analysis in the initial study does not acknowledge the role that the Consolidated Irrigation District plays in groundwater recharge and drainage, nor current issues with CID.
4. **Land Use and Planning**. The Selma General Plan map should contain a recommended Sphere of Influence to be analyzed in the EIR. The concept of "urban development boundaries" is not used in Fresno County and is not consistent with LAFCO SOI policies. Fowler requests that an SOI expansion be addressed in the DEIR, including consistency with LAFCO policies, with alternatives considered.

There are potential land use conflicts with the Fowler General Plan and proposed Selma General Plan at the southeast quadrant of Manning and Highway 99. These conflicts should be identified and resolved, if possible, in the DEIR.

The DEIR should discuss major new planning proposals in development, including the COG Blueprint process and SB 375 and how they may affect the City of Selma.

5. **Transportation/Traffic**. Significant new residential and commercial development is proposed in the northern portion of Selma that will use Manning Avenue for access to Highway 99. The portion of Manning generally between Locan and the highway is within the City of Fowler, including the interchange. The traffic impact analysis should identify future traffic volumes on Manning and mitigation required, including fair share mitigation fees and/or construction of improvements within the City of Fowler and to Caltrans facilities.
6. **Utility and Service Systems**. The EIR should discuss the remaining capacity of the SKF treatment facility and any plans for expansion. Because Selma's expected growth rate is much higher than either Kingsburg or Fowler, the EIR should discuss potential impacts to those jurisdictions if adequate capacity if not allocated for their anticipated growth over the planning period. The EIR should also discuss any anticipated alternatives to wastewater disposal in Selma, including stand-alone satellite treatment facilities.

   The EIR should also analyze the projects impacts on energy, including overall supply and distribution.

Thank you for the opportunity to comment on the NOP. We look forward to review of the Draft EIR and will provide additional comments as part of the overall EIR and general plan review process.

Sincerely,
City of Fowler

Bruce O'Neal, AICP
Planner

Cc David Elias
Randy Deaver

City of Kingsburg

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1401 Draper Street, Kingsburg, California 93631-1908 (559) 897-5821 Fax (559) 897-5568

Leland E. Bergstrom
Mayor

Dr. Paul Kruper
Mayor Pro-Tem

COUNCIL
MEMBERS
Bruce Blayney
David Karstetter
Dr. Milo Smith

Donald F. Pauley
City Manager

September 24, 2008

SEP 26 2008

Mike Gaston, AICP
Community Development Director
City of Selma
1710 Tucker Street
Selma CA 93661

Dear Mike,

Thank you for the opportunity to comment on the Initial Study/Notice of Preparation prepared for the Selma General Plan Update 2035 project. I am sorry that I was unable to attend the scoping meeting that took place on September 3 – I was in back surgery that afternoon.

Officials of the City of Kingsburg have concerns about the regional effects of such an ambitious land use plan, with a steady 4 percent rate of residential growth and some very intense commercial and mixed-use development at the edge of Kingsburg's sphere of influence. The comments in the Environmental Checklist indicate that your Environmental Impact Report will address in greater detail the environmental issues that figure to have the greatest impact on the citizens of Kingsburg, such as air quality, water consumption, water quality, and traffic.

Kingsburg officials are particularly interested in learning how the following impacts are going to be mitigated:

- Overdrafting and recharge of the groundwater aquifer.

- Handling of storm drainage and the pollutants it contains.

- Expansion of capacity of shared regional infrastructure systems such as those operated by the Selma-Kingsburg-Fowler County Sanitation District and Consolidated Irrigation District.

- Increased traffic volumes on CalTrans, County and City of Kingsburg routes that would be served by motorists going to and from Selma's planning area, particularly facilities like Bethel and Academy Avenues, Mountain View Avenue and the State Route 99 freeway interchanges at Mountain View and Kamm/Bethel Avenues.

We look forward to receiving and reviewing the Draft Environmental Impact Report and appreciate your cooperation.

Sincerely,

Terry Schmal

Terry Schmal
Planning and Development Director

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COPY

CITY OF SELMA
FIRE DEPARTMENT

TO: Michael Gaston, Community Development Director

FROM: Jeffrey S. Kestly, Fire Chief

DATE: September 5, 2008

RE: General Plan Update – EIR

Existing System

The Selma Fire Department covers the entire city limits of Selma for fire protection, hazardous materials response, emergency medical services, including first response and transportation, and technical rescue. The department, as part of the Fresno County Emergency Medical Services System, also covers over 150 square miles of Fresno County for paramedic ambulance service. The department is projected to respond to over 4,700 calls for service in 2008 a 12% increase over 2007

The department responds out of two fire stations, which due to growth, are no longer in the most suitable locations.

Station 53 is 3,410 square feet and is located at 1927 West Front Street. This station is staffed with a minimum of three personnel every day. Two personnel are assigned to one of the department's ambulances and the third person is assigned to either a fire pumper or the department's 75' ladder truck. It is not uncommon for one person to respond in a fire apparatus from this station. This station has three apparatus assigned to it; one emergency ambulance, one 1250 gpm pumper and one 75' ladder truck.

Station 54, located at 2857 A Street, is 3,327 square feet. Also located at this station is the 1,360 square foot administrative building. Three personnel are also assigned to this fire station. Two of the personnel are assigned to an ambulance and the other person is assigned to a fire engine. Again, it is not uncommon for this engine to respond with one firefighter. The on-duty supervisor works out of this fire station. Assigned to this fire station are one 1,500 gpm fire engine, one front-line ambulance and two backup ambulances. This fire station is in a location that is not suitable for future grown and could be moved once growth moves to the north and east.

Neither fire station is large enough to appropriately house the current staff, equipment or apparatus.

The Selma Fire Department currently is allocated 24 full-time firefighter positions (10 cross-trained as paramedics), one fire chief/fire marshal, one division fire chief/training officer, one fire inspector, one department secretary and 15 reserve firefighters.

The budget for the fire department is paid from general fund revenues and through the ambulance enterprise fund, which is revenue from billing ambulance patients. The ambulance enterprise fund pays for half of the current staff.

The department's response time goal within the city limits is to respond to all emergencies within 5 minutes, 90% of the time, from time of dispatch to arrival.

The industry standard for a normal fire response (weight of attack) to a residential structure fire is 12-15 firefighters, within eight minutes, with the first unit with four personnel arriving on scene within five minutes. Our current full on-duty strength is eight personnel if everyone is working and nobody is off. We normally average about 8-10 firefighters per structure fire, including our reserve firefighters. Due to our ambulance call volume it is highly likely that one or both ambulances could be on an ambulance call at the time of a structure fire.

This year the city entered into an automatic-aid agreement with Fresno County Fire Protection District. This agreement will send the closest fire engine from either Selma or Fresno County Fire Protection District to medical and fire calls in the county and in return Fresno County Fire Protection District will send two fire engines and one Battalion Chief to all structure fires in Selma.

The department's current ISO rating is a 5.

<u>General Plan Build Out</u>

The projected build out of the City of Selma through 2035 will have a significant impact on fire and emergency services of the city. The projected call volume, using a very conservative increase per year of 4%, could increase to over 14,000 calls per year.

The current industry standard for fire department staffing is anywhere between 1.00 to 1.5 firefighters per 1,000 population. We are currently at 1.02 firefighters per 1000.

The increase in population and land use will extend the capabilities of the fire department to its maximum and will probably lower the department's ISO rating which will effect home and business owners insurance. In order to keep up with the growth the fire department will have to maintain the staffing level at 1.00 firefighter per 1,000 population. That would put the fire department staffing level around 70 firefighters at build-out.

New fire stations or major remodels of current fire stations and their corresponding apparatus will have to be built in the following locations to maintain response times and weight of attack (NFPA 1710) at build-out.

- New fire station located in the north or northeast part of the city, north of Dinuba and east of McCall. This fire station should be able to staff a minimum of one fire engine with three personnel and two ambulances with two personnel each. This station should also be able to house utility apparatus such as the department's two trailers. The fire station should be a minimum of 7,000 square feet and on a minimum of two acres. The apparatus and staffing from the current station at 2857 A Street should be relocated to this station.

- New fire station in the west, near the current airport. This fire station should be able to staff a minimum of one ladder truck with three personnel and one ambulance with two personnel. Should also be big enough to house a reserve ladder truck and fire engine and up to eight personnel. This station should be a minimum of 7,000 square feet and on a minimum of two acres. If the airport grows and becomes a commercial airport, a crash/fire/rescue apparatus would also have to be located at this fire station. That could increase the staffing required at this station.

- New fire station in the south, near Fwy 99 and Mt View. This fire station should be able to staff a minimum of one fire engine with three personnel and one ambulance with two personnel. This station should be a minimum of 7,000 square feet and on a minimum of two acres.

- Remodel or relocate the current fire station at 1927 West Front Street. This station should be be able to staff a minimum of one ladder truck with three personnel, one fire engine with three personnel, two ambulances with two personnel each and one battalion chief.

Overhead and supervisory staff would also have to be increased to manage the additional personnel and fire stations. It is recommended that one battalion chief is on duty 24/7 for chief officer supervision. There should also be at least two more division chiefs added to the current one division chief. The divisions should be broken up into the following areas: Emergency Medical Services, Training/Operations and Fire Prevention.

It is also recommended that the automatic-aid agreement with Fresno County Fire Protection District is maintained through the build-out period.

CONSOLIDATED IRRIGATION DISTRICT

OFFICERS
ROBERT NIELSEN JR., President
PHIL DESATOFF, Manager/Treasurer
MARGARET MACIAS, Secretary
ZOELLEN S. TAYLOR, Assessor Collector
SUMMERS ENGINEERING, Engineer

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DIRECTORS
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BOB PETERSEN, KINGSBURG
ROBERT NIELSEN JR., CARUTHERS

COPY

September 4, 2008

Thomas Salzano
Water Resources Planning Supervisor
1720 North First Street
San Jose, CA 95112

COPY

SUBJECT: Selma District Urban Water Management Plan (UWMP)

Dear Mr. Salzano:

Thank you for giving Consolidated Irrigation District (CID) the opportunity to comment on your draft for the above subject. Cal Water's Selma District is located within the overall boundary of CID. As is indicated in the draft UWMP, CID voluntarily manages its groundwater through conjunctive use by its growers and intentional recharge in dedicated ponding basins. Our primary interest in this undertaking is to provide our growers with a reliable supply of good quality groundwater. An important secondary objective of the District is to work cooperatively with the incorporated cities and unincorporated communities within CID's overall boundary regarding groundwater issues. We are therefore very interested in the groundwater related policies and management practices of the urban water agencies within our overall boundary and we believe our input can greatly benefit urban planning.

In general we noted that the subject UWMP does not include any development of new water supplies. The plan documents significant growth scenarios that are anticipated for Selma in the next 25 years and then uses puzzling logic that groundwater supplies will simply equal future demands because groundwater is the only source of supply. We do not believe this is sound water management planning and it does not comply with the State legislature's intent for future urban areas to secure sustainable water supplies. The Kings groundwater basin has been identified by State and local agencies as being subject to critical conditions of overdraft, and the data in the UWMP indicates a downward trend of groundwater levels. Therefore, drilling additional wells to extract more water from the overdrafted aquifer cannot be considered a sustainable new water supply. Yet this is the only source of new water supplies identified in the UWMP. I would point out that there are opportunities to import new water supplies through cooperative efforts with CID and we have indicated our willingness to work with the City of Selma in that regard. The draft UWMP ignores the impact on the overdrafted groundwater basin from new and existing growth and is therefore incomplete.

Following are more specific comments about the UWMP which are indexed by page number.

pp. 16 & 21
The population is projected to quadruple by 2030 (23,500 to 96,030), but the water supply is only projected to double (2,386 ac-ft to 4,529 ac-ft). There is no explanation how this will be possible.

The water supply figures in Table 3.1-1 do not coincide with the data in Appendix C.

Water supply options available to Selma such as transfers, exchanges, recycling, and desalination are noted in Table 3-1-1, but no options other than groundwater pumping are proposed for the next 25 years. This is not a sustainable water supply for the new areas of growth.

The final paragraph of p. 21 states that groundwater levels have remained relatively constant, but then goes on to specify that levels dropped 45 feet during the drought and only recovered 35 feet in subsequent wet years. This is a downward trend, not stability.

p. 22
It is noted that CID manages the groundwater overdraft and Cal Water pays a fee to the District for this. Although this statement is correct, it does not provide the context of the current relationship between CID and Selma. The fee that Cal Water currently pays CID is roughly equivalent to $4.50 per acre-foot. This amount is insufficient to cover District expenses to address Selma's groundwater overdraft and it is significantly below market rates for municipal water supplies in California. For more than two years CID has raised this issue through correspondence with the City, CEQA review of new projects, and presentations to the Selma City Council, but thus far Selma has not acknowledged the inequity. We would recommend that the UWMP identify the need for Selma to work cooperatively with CID to resolve the issue so that Selma's groundwater supplies are sustainable.

p. 23
The plan indicates that wastewater is conveyed to the "Selma Wastewater and Disposal Facilities". The only facility we are aware of, which serves the Selma area, is the Selma-Kingsburg-Fowler County Sanitation District's (SKF's) waste water treatment plant located west of Kingsburg.

Wastewater from Selma is exported to this plant several miles down gradient from Selma's service area and therefore cannot be counted as a benefit to groundwater in the Selma District.

p. 25
It is stated that there are no water transfer or exchange opportunities available for Selma. CID has strongly urged Selma to participate in expanding groundwater supplies by increasing the recharge capacity up gradient of Selma to capture additional flood water from the Kings River, or purchasing additional surface supplies that could be conveyed through CID's system, but Selma has declined to participate in these programs.

p. 26
The plan discusses how contaminated groundwater has required closure of some production wells and could threaten future closure of wells still in service. Yet there is no discussion of a contingency plan for this other than to drill more wells and promote conservation.

p. 27
Selma's future well production is estimated to be as high as 33,827 acre-feet per year, but Table 3.1-1 (p. 21) only projects a water supply of 4,529 acre-feet per year for 2030. There is no explanation of the deficit between supplies and well production.

Drilling of additional wells is the only project identified for meeting future water supply needs when it is really not a supply project at all. New wells are essentially just additional conduits from the existing overdrafted water supply to the end users. New water mains and service connections will also increase the City's capacity to deliver water, but they are not considered water supply projects.

p. 29
It is stated that a safe yield for the groundwater basin has not been identified and therefore Selma can pump whatever they need. However, on page 22 it is stated that the basin is overdrafted, so the safe yield is obviously less than what is being extracted. Assuming that the lack of an exact safe yield value is justification to continue and actually increase the overdraft defies logic.

p. 32
The plan incorrectly assumes that Selma is not experiencing a supply shortage because CID is managing the groundwater basin. CID is providing the maximum recharge that is possible with its current facilities and financial resources, but there is still overdraft. Therefore, Selma *is* experiencing a water supply shortage and its water management plan should address it.

The plan assumes the baseline for determining a shortage is the average pumping over the past 10 years. If there was net overdraft over the past 10 years, then the pumping that occurred cannot be considered the baseline.

p. 34
It is stated that service growth in Selma is occurring at a constant rapid rate of 2.49% (5 year average), but p. 16 says service growth has diminished in recent years to a 0.85% average.

p. 48
The plan proposes that 10 new wells at a total pumping capacity of 10,000 gpm be installed by 2010. At maximum duty, this would give the City the ability to pump 16,000 additional acre-feet per year and a total of 30,000 acre-feet per year. We acknowledge the unlikelihood that the wells will operate at maximum duty, but the plan should include sustainable new supplies in proportion to the increased pumping capacity.

p. 55
The plan states that since the single source of water supply is groundwater, supply will simply equal demand. This statement again defies logic by incorrectly assuming that there is an endless supply of groundwater available to Selma, or that CID's recharge program will magically provide whatever demand Selma places on the groundwater aquifer.

In summary, the draft UWMP provides no real planning for future water supplies other than to drill more wells. The plan mentions that groundwater overdraft is occurring, but does not provide a single provision for reversing the overdraft or even mitigating the additional groundwater impacts from planned growth. We do not recommend that the plan be adopted by Selma until these issues have been adequately addressed.

COPY

Very truly yours,

Phillip D. Desatoff

Phillip Desatoff
General Manager

PD: mm

CONSOLIDATED IRRIGATION DISTRICT

COPY

OFFICERS
ROBERT NIELSEN JR., President
MARK A. GILKEY, Manager/Treasurer
MARGARET MACIAS, Secretary
ZOELLEN S. TAYLOR, Assessor Collector
SUMMERS ENGINEERING, Engineer

2255 Chandler Street- PO Box 209 - Selma, California 93662
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ROBERT NIELSEN JR., CARUTHERS

September 24, 2008

Michael Gaston, Director
City of Selma
Community Development Department
1710 Tucker Street
Selma, CA 93662

SUBJECT: Notice of Preparation for City of Selma General Plan Update 2035

Dear Mr. Gaston:

Thank you for notifying the District with respect to the above project so that we may have input into the development process at an early stage. Consolidated Irrigation District (CID) has reviewed the Notice of Preparation of an Environmental Impact Report (EIR) for the 2035 General Plan Update and anticipates that the project will have substantial impacts on the District, its facilities, and the water resources that the District is entrusted to manage. As an affected agency, Consolidated Irrigation District (CID) offers the following comments:

The City of Selma's Plan Update proposes an expansion of the original SOI boundaries while seeking to revise policies, standards and zoning both within the existing boundaries and proposed expanded planning boundaries. In updating the plan an additional 3,182 acres in development above the existing community planning area is being proposed; to include the expansion of additional mix of residential, commercial and industrial uses, parks, open space and public facilities.

Impacts to Agriculture

The NOP identifies 6,478 acres surrounding the City of Selma as being proposed for conversion as either Prime Farmland Unique Farmland or Farmland of Statewide Importance. Those properties should be identified by significance and mitigation for impacts to those lands clearly outlined in the Draft Environmental Report (DEIR).

Likewise, the same should be outlined for Williamson Act lands and impacts to those lands. Also, an "Agricultural Reserve" land use identity should be considered when agriculture mitigation properties are established.

The residential land use section of the NOP identifies residential densities between 0.5 to 4.0 units per gross acre. These densities neglect the objectives of CEQA and do not serve to preserve agricultural lands and resources. In permitting these types of development, resources are stretched and increased pollution and traffic are encouraged on the periphery of urban areas where farming is expected to take place. A More conservative land use with higher density is more in line with CEQA guidelines.

Impacts to Agriculture Land Conversion

CID has determined through the preparation of an Urban Impacts Study and a Groundwater Impacts Analysis that conversion of the land from agriculture irrigated with imported surface water to commercial and residential urban use has an impact on CID.

As indicated in the District's Urban Impacts Study and Groundwater Analysis (White Paper), the change in water service increases the average annual net consumption of groundwater by approximately 1.65 acre-feet per acre. This increase in net consumption compounds the existing groundwater overdraft in the District. Mitigation for those impacts must include a sustainable new water supply for future growth to 2035.

SB610 Report:
Conservation measures and drilling additional wells is no longer adequate in securing a sustainable water supply. California Water code requires the land use lead agencies to identify the public water system that may supply water for a proposed project and provide a Water Supply Assessment (WSA) for the project. Senate Bill (SB) 610 amended state law, to further correlate the need for information on water supply availability and land use decisions made by cities and counties. The District recommends a thorough WSA be part of the Environmental review for this General Plan Update.

The District also recommends coordination between those producing the WSA and the water provider for Selma in generating this report. The District recently provided comments for the Selma District (UWMP) 2006, as requested by CalWater. Since the UWMP was prepared, several new and compelling reports have been produced that outline current conditions of the Kings Basin and specific conditions of the regional area surrounding Selma. These documents should be considered when providing an adequate view of the existing water conditions and Selma's mitigation plan to address impacts for future growth while securing a new and sustainable water supply.

Further, The Draft EIR analysis of water supplies and groundwater consumption should not be limited to existing Selma City limits but should include impacts relative to the total overdraft in the region. It should also consider the cumulative impacts of those developments that have recently been approved, not yet built, as well as those future projects in Selma's SOI and planning area and the levels of mitigation at build out.

The SB610 report and the DEIR should consider incorporating the findings of the WRIMES Groundwater Impact Analysis, a copy of which is attached.

CID would also request the opportunity to review and comment on the SB610 Report.

Stormwater

Storm water is of great concern to CID. The change in land use results in an increase of impervious surfaces and subsequent storm water drainage. All discharge of urban storm water into CID's system of canals and recharge ponds impacts District operations and maintenance. As a result, District policy now dictates no new or additional urban runoff is to be discharged into District facilities.

Selma's comprehensive Storm Water Management Plan outlines ponding and facilities for the City's storm runoff which either currently depends upon or proposes use of District facilities. Rockwell Pond, Walnut Pond, Benight Pond and the Selma Branch Ditch are all owned and operated by Consolidated Irrigation District. A large majority of Selma's existing community development is reliant upon District facilities for storage of stormwater run-off. With more stringent Federal and State regulations for NPDES programs and permits controlling stormwater discharge, Selma's discharge puts the District in a volatile position when spilling its stormwater into District open earthed facilities. Waste water management and water quality concerns are raised as oils and chemicals are spilled through storm run-off without filter or catch basins. There are on going impacts to the District currently. It is not enough to require new development to follow regulations addressing stormwater. Policies need to be included to address current inadequacies and mitigation to address those impacts as a result.

Facilities and Safety

Throughout the city area and expanded plan area there are numerous CID facilities; among them Class "A" Canals, "B" lateral lines, and farmer lines. Some of these facilities are open and obvious and others are not. There are operating underground pipelines that exist in neighborhoods, elementary school yards and through the City of Selma. Not all of these facilities are owned by CID but as the water provider, the District is obligated to bring them to the attention of land use agency. Should a facility line be removed or eliminated before it is identified this could potentially deny water rights to a user down stream. These comments are intended to merely raise the awareness of the many facilities that exist throughout the plan area, identifying them will need to be addressed on a project level.

The change from rural agricultural land use to an urban environment restricts CID's access to its facilities, increases vandalism and trash in CID's facilities, and reduces the efficiency of the District's operation and maintenance activities and ability to recharge the groundwater table. In this light, the District is in opposition to the policy which would identify a CID owned facility as "community open space." Further, it should be noted that the District owns and maintains Rockwell Pond and all groundwater recharge and or management of resources is as a result of District operations. As a water purveyor, the District would like to review the measures of mitigation the City would endeavor to offset activities of groundwater overdraft as noted in the Natural Resources section of Chapter five, Open Space, Conservation and Recreation Element.

Lastly, as the urbanization of farmland brings a greater population in closer proximity to existing District facilities which raises concerns of public safety and the ability for the District to operate efficiently. Policies addressing public safety and irrigation facilities should be considered and included as part of the General Plan.

Hydrology and Water Quality

For the past several years the CID has worked to bring the condition of the Kings Basin's overdraft to the forefront. The District has monitored the increasing declines to the groundwater table using a CID maintained system of approximately 85 groundwater monitoring wells located through out the District's boundaries.

The water levels in these wells have been measured and recorded by District staff multiple times per year since 1923. When the average depth to groundwater in the monitoring wells is plotted over the period of record, there is a definite downward trend, indicating that groundwater overdraft is occurring. The District is located within the Kings sub-basin, and the California Department of Water Resources has published bulletins which list the Kings sub-basin as being subject to critical conditions of overdraft. Also, a Groundwater Impacts Analysis prepared by WRIME for CID and the Integrated Regional Water Management Plan prepared by WRIME for the Upper Kings River Water Forum each indicate there is groundwater overdraft in CID and that the rate of overdraft will continue to increase with future urban growth and development. All of the above mentioned documents are included in these comments as support to these comments and the conditions concerning the Kings Basin overdraft.

Local cities within the District have detected higher levels of contaminants in their drinking water. In some cases, these levels have been cause for wells to be shut down. Cities experiencing these conditions have sought District assistance by use of our facilities to flush their systems hoping to dispose of these contaminants. These instances have increased in frequency over time. The District recommends the correlation between the regional overdraft condition and water quality concerns be closely evaluated and mitigated, as indicated in the NOP.

For the past year With LAFCo's lead, CID has been in negotiations with the cities in its boundaries to address these concerns. The focuses of these negotiations are to deal with the overdraft and impacts to the groundwater, address impacts to District facilities and any safety concerns as a result of urbanization near those facilities. The DEIR should reflect these proceedings when addressing impacts to groundwater. The results of these negotiations are forthcoming and will provide a resolution to the challenges Selma faces in demonstrating a sustainable water source for future growth. Further, these results will produce an agreement to replace all expired cooperative agreements between the City of Selma and CID.

It is the District's position that all of the enclosed information be considered when preparing the Water Assessment and Environmental Report for the General Plan Update. The District would further recommend that all comments and provided information be considered when determining whether mitigations are necessary and available.

Please continue to notify CID regarding the development of this DEIR. The District appreciates the opportunity to provide input. Should you have any questions concerning CID's comments please contact our offices.

Very truly yours,

Phillip G. Desatoff

Phillip Desatoff
General Manager

Enclosures: Consolidated Irrigation District Urban Impacts White Paper – Nov. 07
WRIME – Groundwater Impact Analysis
Upper Kings Basin Integrated Regional Water Management Plan

PD/ss

Scanned 9/29/08

County of Fresno
Department of Public Health
Edward L. Moreno, M.D., M.P.H., Director-Health Officer

COPY

September 18, 2008

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PE 2600

Michael Gatson, Community Development Director
City of Selma Community Development Department
1700 Tucker Street
Selma, CA 93662

Dear Mr. Gatson:

SUBJECT: City of Selma General Plan Update, Initial Study and Notice of Preparation of an EIR.

LOCATION: 31 Square Miles Comprising the City of Selma

Thank you for the opportunity to review the above noted documents. The Fresno County Department of Public Health, Environmental Health Division has no comments at this time but requests that a copy of the final Environmental Impact Report be provided to this department upon circulation.

If I can be of further assistance, please contact me at (559) 445-3357.

Sincerely,

Glenn Allen, R.E.H.S.
Environmental Health Specialist III
Environmental Health Division

ga

cc: Briza Sholars, Development Services Division

Selma NOP-EIR General Plan Update

County of Fresno

Department of Public Works and Planning
Alan Weaver
Director

COPY

September 26, 2008

Michael Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

SUBJECT: City of Selma General Plan Update, Initial Study and Notice of Preparation of an Environmental Impact Report

The County of Fresno appreciates the opportunity to review and comment on the City of Selma's Initial Study (IS) and Notice of Preparation of an Environmental Impact Report (EIR). Based on the County's review of the project, the following comments are offered for your consideration:

County-wide Services:

The City's General Plan will have a direct fiscal impact on the County. The growth to be accommodated in the Plan will result in an additional population of approximately 46,000 persons by the year 2035. This population will result in an increased service population for health services, social services, the justice system, and other county-wide services provided by Fresno County.

The increased population will also impact and necessitate expansion of the County transportation system, recreational facilities, library system, and other County facilities to accommodate the increased growth. While the County has recently adopted a county-wide impact fee addressing the need for new county-wide facilities and infrastructure, these fees combined with other revenues shared by the City will not offset all service delivery costs.

As a result, any request for expansion of the City's Sphere of Influence will require the existing Master Tax Sharing Agreement to be renegotiated in order to address the need for increased services as a result of City growth.

Notice of Preparation (NOP):

The NOP identifies 6,478 acres of agricultural land that will be converted to non-agricultural uses. The EIR needs to address and mitigate any conversion of agricultural lands to urban uses as well as impacts associated with cancellation of the Williamson Act Contracts. The County suggests that rather than identifying significant unavoidable impacts related to the conversion of agricultural lands leading to the adoption of a Statement of Overriding

Consideration, as often is the case, its is recommended that the City consider feasible Mitigation Measures to compensate for the loss of agriculture land including the Mitigation Measures that require development to either acquire and dedicate land at a one-to-one ratio for long-term agricultural preservation or pay in-lieu fees to accomplish the same.

Chapter Three - Environmental Checklist:

2. Agricultural Resources

Response 2b: This response needs to be corrected to clarify that the filing of a Notice of Non-Renewal on a parcel that is restricted under a Williamson Act Contract does not constitute availability of the parcel for development. When a Non-Renewal Notice is filed and the Notice is recorded prior to October 1st, effective January 1st, the property would still be subject to the same restrictions for an additional nine years until the Contract expires.

7. Hazards and Hazardous Materials

Response 7e: The two airports identified in the IS are privately owned, but are used by the public. Therefore, documents related to the General Plan Update including the EIR will need to be referred to the Airport Land Use Commission (ALUC) for review and a determination of consistency with the Fresno County Airport Land Use Policy Plan.

Response 11e: This response states that there are no public airports in the City of Selma. As noted above, these airports are privately owned but are used by the public. Therefore, potential impacts associated with operation of the airport and its impact on surrounding land uses should be discussed in the EIR.

Appendix A – Draft General Plan Policies and Statement:

Policies 1.9 and 1.100, conflict with each other. Policy 1.9 states that leapfrog development within a distance of a ¼-mile away from existing urban uses will be discouraged while Policy 1.100 states that the distance will be ½-mile from existing urban development.

Goal 10 in the Land Use Element addresses commercial development adjacent to Highway 99 and that the commercial developments will be visually pleasing to travelers on Highway 99. County staff would like to suggest that Goal 10 reference the provisions included in the Highway 99 Beautification Ordinance adopted by the City of Selma.
In addition, County staff is concerned and does support many of the proposed land use designations identified on the 31 square miles of land to be included in the City of Selma's Sphere of Influence. While staff is sensitive to the future needs for housing, the City is encouraged to accommodate anticipated housing demands through higher densities and infill development. As an example, the proposed 7,738 acres of Extremely Low Residential land use designation would provide for only 0.0 to 5.0 units per acre. This is an extremely inefficient use of land, most of which is designated Prime Farmland on the Farmland Mapping and Monitoring Program of the State Department of Conservation, and is counter to the on-going regional Model Farmland Conservation Program efforts currently being coordinated through the Council of Fresno County Governments (COG).

Miscellaneous:

Appendix A – General Plan Policies and Statement – The chapter headings listed in the table of context do not correlate to the discussion in each chapter.

We appreciate the opportunity to comment on the project. If you have any questions you may email me at bsholars@co.fresno.ca.us or call me at (559) 262-4454.

Sincerely,

Briza Sholars, Planner
Development Services Division

c: Theresa Acosta-Mena, Senior Planner, Environmental Analysis Unit
Mohammad Khorsand, Senior Planner, Policy Planning
Bernard Jimenez, Division Manager, Development Services

LAND RESOURCE PROTECTION

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEBSITE conservation.ca.gov

COPY

September 19, 2008

4

Mr. Michael Gaston, Director
City of Selma Community Development
1710 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

Subject: Notice of Preparation City of Selma General Plan Update 2035 Environmental Impact Report

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation (NOP) and Draft General Plan Policies Statement for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs.

The project proposes to update the City of Selma General Plan to 2035 and planned land use changes on 11,118 acres. Surrounding land uses are largely agricultural and rural residential. The project planning area encompasses lands south of South Avenue, north of Caruthers and one half mile west of Temperance and east of Academy in Fresno County.

The NOP states that the proposed project could result in potentially significant impacts to agricultural land. The project could result in the conversion of approximately 6,478 acres of prime agricultural land and 3,036 acres of Williamson Act contracted land. We offer the following comments and recommendations with respect to the project's impacts on agricultural land and resources.

Agricultural Setting of the Project

The Draft Environmental Impact Report (DEIR) should describe the project setting in terms of the actual and potential agricultural productivity of the land. The Division's Important Farmland Map for Fresno County should be utilized to identify land within the project site and surrounding land that may be impacted. Acreages for each land use designation should be identified. Likewise, the County's Williamson Act Map should be utilized to identify potentially impacted contracted land, Farmland Security Zone (FSZ) and agricultural preserve land by acreage and whether it is prime or nonprime agricultural land according to definition in Government Code (GC) §51201(c). Maps of the Important Farmland and Williamson Act land should be included in the DEIR.

Project Impacts on Agricultural Land

The Department recommends that the following be included in the DEIR in the analysis of project impacts:

- A description of type, amount, and location of farmland lost to project implementation.
- A discussion of conflicts with Williamson Act contracts, including terminations in order to accommodate the project. The DEIR should also discuss the impacts that conflicts or termination would have on nearby properties under contract; i.e., growth-inducing impacts from the perspective that the removal of contract protection removes a barrier to development and results in an incentive to shift to a more intensive land use such as urban development.
- Indirect impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, population, traffic, water availability, etc.
- Growth-inducing impacts.

Williamson Act Lands

The Department recommends that the following information be included in the DEIR regarding Williamson Act land impacted by the project.

- If cancellation is proposed, notification must be submitted to the Department when the City accepts the application as complete (GC §51284.1). The council must consider the Department's comments prior to approving a tentative cancellation. Required findings must be made by the council in order to approve tentative cancellation. Cancellation involving FSZ contracts include additional requirements. We recommend that the environmental document include discussion of how cancellations involved in this project would meet required findings. However, notification must be submitted separately from the California Environmental Quality Act (CEQA) process and CEQA documentation. (The notice should be mailed to Bridget Luther, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.)

- Pursuant to GC §51243, if a city annexes land under Williamson Act contract, the city must succeed to all rights, duties and powers of the county under the contract unless conditions in GC §51243.5 apply to give the city the option to not succeed to the contract. A Local Agency Formation Commission (LAFCO) must notify the Department within 10 days of a city's proposal to annex land under contract (GC §56753.5). A LAFCO must not approve annexation of contracted land to a city unless specified conditions apply (GC §§51296.3, 56749 and 56856.5).

- Termination of a Williamson Act/FSZ contract by acquisition can only be accomplished by a public agency, having the power of eminent domain, for a public improvement. The Department must be notified in advance of any proposed public acquisition (GC §51290 - 51292), and specific findings must be made. The property must be acquired in accordance with eminent domain law by eminent domain or in lieu of eminent domain in order to void the contract (GC §51295). The public agency must consider the Department's comments prior to taking action on the acquisition. School districts are precluded from acquiring land under FSZ contract. We recommend discussion in the DEIR of whether such action is envisioned by this project and how the acquisition will meet the required findings. However, notification must be submitted separately from the CEQA process and CEQA documentation to the address noted above.

- If any part of the site is to continue under contract, or remain within an agricultural preserve, after project completion, the DEIR should discuss the proposed uses for those lands. Uses of contracted and preserve land must meet compatibility standards identified in GC §51238 - 51238.3, 51296.7. Otherwise, contract termination (see above) must occur prior to the initiation of the land use, or the preserve must be disestablished.

- An agricultural preserve is a zone authorized by the Williamson Act, and established by the local government, to designate land qualified to be placed under contact. Preserves are also intended to create a setting for contract-protected lands that is conducive to continuing agricultural use. Therefore, the uses of agricultural preserve land must be restricted by zoning or other means so as not to be incompatible with the agricultural use of contracted land within the preserve (GC §51230). The DEIR should also discuss any proposed general plan designation or zoning within agricultural preserves affected by the project.

Mitigation Measures

The Department commends the City's Draft Goal 1 to protect agricultural lands within the Planning area and the City's Draft Policy 5.12 to work with regional partners/organizations to develop an agricultural land conservancy program. An option the City may want to consider is implementation of a farmland mitigation ordinance similar to the City of Davis. The ordinance requires developers to protect an amount of farmland comparable to that which is converted to non-agricultural use, either by purchasing an agricultural conservation easement or paying an in-lieu fee used by the Yolo Land Trust to purchase the easement.

The Department encourages the use of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, we recommend that this ratio be increased. We highlight this measure because of its acceptance and use by lead agencies as mitigation under CEQA. It follows a rationale similar to that of wildlife habitat mitigation. The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. Agricultural conservation easements will protect a portion of those remaining resources and lessen project impacts in accordance with CEQA Guideline §15370.

Mitigation using agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance, and the search for replacement lands conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

Another form of mitigation could involve directing a mitigation fee to invest in supporting the commercial viability of the remaining agricultural land in the project area, County or region through a mitigation bank that invests in agricultural infrastructure, water supplies, marketing, etc.

Information about agricultural conservation easements, the Williamson Act and provisions noted above is available on the Department's website or by contacting the Division at the address and phone number listed below. The Department's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Thank you for the opportunity to comment on the NOP. If you have questions on our comments, or require technical assistance or information on agricultural land conservation, please contact Adele Lagomarsino at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 445-9411.

Sincerely,

Scott K Fright for

Brian Leahy
Assistant Director

DEPARTMENT OF TRANSPORTATION
1352 WEST OLIVE AVENUE
P.O. BOX 12616
FRESNO, CA 93778-2616
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September 24, 2008

2131-IGR/CEQA
6-FRE-GEN
NOP/IS
CITY OF SELMA GPU 2035
SCH 2008081082

Mr. Michael Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

We have completed our review of the Notice of Preparation (NOP) for the City of Selma's General Plan Update 2035 draft Environmental Impact Report (EIR). Caltrans has the following comments:

Policy 2.14 indicates that meandering sidewalks shall be encouraged along collectors and arterials. However, please note that Caltrans prefers straight sidewalks along State Route (SR) 43.

Standard "a" under *Major Arterial Street Standards* provides guidance regarding the placement and spacing of driveways along arterials. Proposed driveways along SR 43 require an encroachment permit from Caltrans. Therefore, the location and spacing of driveways along SR 43 will be based on the prevailing speed and the size and nature of the proposed development.

Caltrans concurs with Standard "c" under *Major Arterial Street Standards* with regard to SR 43 in that...*driveways should be located on adjacent arterial or collector streets rather than on major arterial streets.*

Caltrans concurs with Standard "e" under *Major Arterial Street Standards* with regard to SR 43 in that...*driveway consolidation shall be encouraged through joint access agreements along arterials where standards "a" through "d" are exceeded.*

Caltrans concurs with Standard "f" under *Major Arterial Street Standards* with regard to SR 43. Additionally, major intersections that could be subject to future signalization should be set at ½ mile spacing.

Policy 2.32 should be modified to be more consistent with Section 2.4 Objective A. It is indicated under Section 2.4 Objective A that where other jurisdictions control and manage roadways, their respective level of service standards shall prevail on applicable segments.

Caltrans concurs with Policy 2.34 with regard to SR 43 in that....*right-of-way essential to the circulation system should be dedicated and/or developed to the appropriate extent and width when a division of property or development occurs.*

Caltrans concurs with Policy 2.36 with regards to SR 43 and SR 99 in that...*developers shall mitigate traffic impacts associated with their projects to minimize the impacts to highways, major arterials, arterials, and collector streets.* Furthermore, it should be noted that the City of Selma has worked cooperatively with Caltrans in efforts to determine appropriate mitigation toward State facilities from local development. Caltrans looks forward to continuing this working relationship with the City.

Caltrans concurs with Policy 2.39 with regard to SR 43 in that...*the City shall promote an active policy of consolidating driveways, access points and curb cuts along existing developed major arterials, or arterials when development or change in intensity of development or land use occurs or when traffic operation or safety warrants.*

Caltrans concurs with Policy 2.42 with regard to SR 43 on master planning points of ingress and egress with limited points onto major streets.

Policy 2.43 does not apply to SR 43. As previously indicated for *Major Arterial Street Standard* "f" Caltrans desires that signalized intersections along SR 43 should be spaced at ½ mile intervals.

Policy 2.50 provides guidance regarding landscaping. The Caltrans Office of Landscape Architecture will be responsible for reviewing landscaping along SR 43. A landscape agreement may be required for the maintenance of landscaping along SR 43.

On Figure 2-4, it should be noted that the entire segment of SR 43 southward from SR 99 is designated as an STAA truck route.

The document indicates that a future conditions traffic analysis will be conducted for the General Plan and draft EIR. Caltrans requests to be involved in that process as early as possible. Once a traffic consultant has been selected, it would be beneficial to all parties to have the consultant provide Caltrans with a scope of work prior to conducting the analysis.

Please send a response to our comments prior to staff's recommendations to the Planning Commission and the City Council. If you have any questions, please call me at (559) 445-5868.

Sincerely,

MICHAEL NAVARRO
Office of Transportation Planning
District 06

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9/5/2008

DIRK POESCHEL
Land Development Services, Inc.

923 Van Ness Avenue, Suite 200 • Fresno, California 93721
559/445-0374 • FAX: 559/445-0551 • email: dpoeschel@dplds.com

COPY

September 3, 2008
Via e-mail: michaelg@cityofselma.com

Mr. Michael Gaston,
Director of Community Development
City of Selma
1710 Tucker Street
Selma, CA 93662

SUBJECT: City of Selma Proposed General Plan Update and Sphere Of Influence (SOI) Expansion

Dear Mr. Gaston:

As you may know, my client, Vie-Del Company, has operated its Plant No. 2, located 13363 S. Indianola Ave. for over 30 years. Since that time we have seen the City of Selma grow from a small city to the vibrant community it is today. This property is located on the south side of E. Mt. View Ave. immediately south of the proposed City of Selma growth area.

We now understand that the City of Selma is beginning work on its 2035 General Plan, SOI expansion and EIR. All of these documents will be used to plan the future growth of Selma. I applaud Selma's efforts to prepare a comprehensive plan but request that consideration be given to those established uses which outside City of Selma's SOI area that may be impacted by the activities that take place within the city.

With that in mind, we would request that the City of Selma General Plan Update, SOI Expansion and related EIR address the following issues:

1. Potential conflicts between existing industrial type uses and future retail and residential uses.

2. Maintaining adequate circulation and access to all properties.

3. Protection of existing agricultural and agricultural processing facilities both inside and outside the City of Selma's control.

I feel Vie Del Company has a been good neighbor for 30 years and look forward to a continued long and positive relationship with the City of Selma. Hopefully, the General Plan Update will provide a framework for our mutual success.

Sincerely,

Dirk Poeschel /JS

Dirk Poeschel, AICP

c: Mrs. Diane Nury
Honorable Dennis Lujan, Mayor Pro Tem
Mr. D-B Heusser, City Manager

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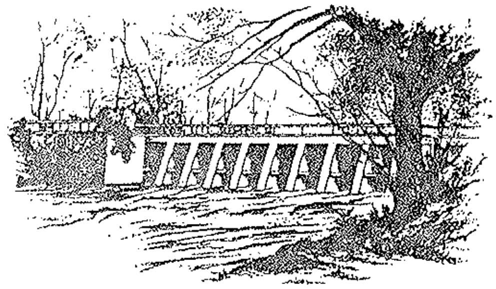

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OFFICE OF

FRESNO IRRIGATION DISTRICT

TELEPHONE (559) 233-7161
FAX (559) 233-8227
2907 S. MAPLE AVENUE
FRESNO, CALIFORNIA 93725-2218

August 26, 2008

Mr. Michael Gaston
Community Development Director
1710 Tucker Street
Selma, CA 93662

RE: Selma General Plan Update 2035 Environmental Impact Report

Dear Mr. Gaston:

The Fresno Irrigation District (FID) has reviewed the Updated EIR located with in the City of Selma which has no impact on any of FID's facilities. FID does not object to the proposed General Plan with the following comments:

1. FID does not own, operate or maintain any facilities located on the applicant's property.
2. FID expects no adverse impacts from the approval of the subject proposal.

Thank you for submitting this for our review. Please feel free to contact me with any questions or concerns at 233-7161 extension 321 or sbloem@fresnoirrigation.com.

Sincerely,

Steve Bloem

Steve Bloem
Engineering Technician

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STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, Governor

GOVERNOR'S OFFICE OF EMERGENCY SERVICES
DISASTER ASSISTANCE PROGRAMS BRANCH
3650 SCHRIEVER AVENUE
MATHER, CALIFORNIA 95655
PHONE: (916) 845-8101 FAX: (916) 845-8381

OES CALIFORNIA
Governor's Office of Emergency Services

COPY

September 3, 2008

Michael Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

RE: Notice of Preparation for a Draft Environmental Impact Report for the City of Selma General Plan Update, SCH# 2008081082

Dear Mr. Gaston:

Thank you for the opportunity to comment on your Notice of Preparation for a Draft Environmental Impact Report (DEIR) for the city's general plan update. In preparing the general plan and accompanying DEIR, the city should examine the sections of state planning law that involve potential hazards the city may face. For your information, I have underlined specific sections of state planning law where identification and analysis of hazards are discussed (see Attachment A).

Prior to the release of the draft general plan or within the DEIR, city staff or your consultants should examine each of the requirements in state planning law and determine if there are hazard issues within the community which the general plan should address. A table in the DEIR (or general plan) which identifies these specific issues and where they are addressed in the general plan would be helpful in demonstrating the city has complied with these requirements. If the DEIR determines that state planning law requirements have not been met, it should recommend that these issues be addressed in the general plan as a mitigation measure.

We note that state planning law includes a requirement for consultations with state agencies in regard to information related to hazards. OES would be happy to share all available information at our disposal to facilitate the city's ability to comply with state planning and environmental laws.

If you have any questions about these comments, please contact Andrew Rush at (916) 845-8269 or andrew.rush@OES.ca.gov.

Sincerely,

Dennis Castrillo

Dennis Castrillo
Environmental Officer

Attachment A
Hazards and State Planning Law Requirements

General Plan Consistency

65300.5. In construing the provisions of this article, the Legislature intends that the general plan and elements and parts thereof comprise an integrated, internally consistent and compatible statement of policies for the adopting agency.

Seven Mandated Elements

65302. <u>The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals.</u> The plan shall include the following elements:

(a) A land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private uses shall consider the identification of land and natural resources pursuant to paragraph (3) of subdivision (d). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. <u>The land use element shall identify and annually review those areas covered by the plan that are subject to flooding identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources.</u> The land use element shall also do both of the following:

(1) Designate in a land use category that provides for timber production those parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982, Chapter 6.7 (commencing with Section 51100) of Part 1 of Division 1 of Title 5.

(2) Consider the impact of new growth on military readiness activities carried out on military bases, installations, and operating and training areas, when proposing zoning ordinances or designating land uses covered by the general plan for land, or other territory adjacent to military facilities, or underlying designated military aviation routes and airspace.

(A) In determining the impact of new growth on military readiness activities, information provided by military facilities shall be considered. Cities and counties shall address military impacts based on information from the military and other sources.

(B) The following definitions govern this paragraph:

(i) "Military readiness activities" mean all of the following:

(I) Training, support, and operations that prepare the men and women of the military for combat.

(II) Operation, maintenance, and security of any military installation.

(III) Testing of military equipment, vehicles, weapons, and sensors for proper operation or suitability for combat use.

(ii) "Military installation" means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense as defined in paragraph (1) of subsection (e) of Section 2687 of Title 10 of the United States Code.

(b) A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

(c) A housing element as provided in Article 10.6 (commencing with Section 65580).

(d) (1) A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The conservation element shall consider the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or county.

(2) The conservation element may also cover all of the following:

(A) The reclamation of land and waters.

(B) Prevention and control of the pollution of streams and other waters.

(C) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.

(D) Prevention, control, and correction of the erosion of soils, beaches, and shores.

(E) Protection of watersheds.

(F) The location, quantity and quality of the rock, sand and gravel resources.

(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

(e) An open-space element as provided in Article 10.5 (commencing with Section 65560).

(f) (1) A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Care Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(A) Highways and freeways.

(B) Primary arterials and major local streets.

(C) Passenger and freight on-line railroad operations and ground rapid transit systems.

(D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(E) Local industrial plants, including, but not limited to, railroad classification yards.

(F) Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

(2) Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

(3) The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

(4) The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

(g) (1) A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction, and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:

(A) Identify information regarding flood hazards, including, but not limited to, the following:

(i) Flood hazard zones. As used in this subdivision, "flood hazard zone" means an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency. The identification of a flood hazard zone does not imply that areas outside the flood hazard zones or uses permitted within flood hazard zones will be free from flooding or flood damage.

(ii) National Flood Insurance Program maps published by FEMA.

(iii) Information about flood hazards that is available from the United States Army Corps of Engineers.

(iv) Designated floodway maps that are available from the Central Valley Flood Protection Board.

(v) Dam failure inundation maps prepared pursuant to Section 8589.5 that are available from the Office of Emergency Services.

(vi) Awareness Floodplain Mapping Program maps and 200-year flood plain maps that are or may be available from, or accepted by, the Department of Water Resources.

(vii) Maps of levee protection zones.

(viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.

(ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.

(x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

(xi) Local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services.

(B) Establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

(i) Avoiding or minimizing the risks of flooding to new development.

(ii) Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.
(iii) Maintaining the structural and operational integrity of essential public facilities during flooding.
(iv) Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.
(v) Establishing cooperative working relationships among public agencies with responsibility for flood protection.
(C) Establish a set of feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to subparagraph (B).
(3) After the initial revision of the safety element pursuant to paragraph (2), upon each revision of the housing element, the planning agency shall review and, if necessary, revise the safety element to identify new information that was not available during the previous revision of the safety element.
(4) Cities and counties that have flood plain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met.
(5) Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the office, and the board required by this subdivision.
(6) To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision.

Consistency with Airport Land Use Plans

65302.3. (a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the plan adopted or amended pursuant to Section 21675 of the Public Utilities Code.

Review of Safety Element

65302.5. (a) At least 45 days prior to adoption or amendment of the safety element, each county and city shall submit to the Division of Mines and Geology of the Department of Conservation one copy of a draft of the safety element or amendment and any technical studies used for developing the safety element. The division may review drafts submitted to it to determine whether they incorporate known seismic and other geologic hazard information, and report its findings to the planning agency within 30 days of receipt of the draft of the safety element or amendment pursuant to this subdivision. The legislative body shall consider the division's findings prior to final adoption of the safety element or amendment unless the division's findings are not available within the above prescribed time limits or unless the division has indicated to the city or county that the division will not review the safety element. If the division's findings are not available within those prescribed time limits, the legislative body may take the division's findings into consideration at the time it considers future amendments to the safety element. Each county and city shall provide the division with a copy of its adopted safety element or amendments. The division may review adopted safety elements or amendments and report its findings. All findings made by the division shall be advisory to the planning agency and legislative body.

(1) The draft element of or draft amendment to the safety element of a county or a city's general plan shall be submitted to the State Board of Forestry and Fire Protection and to every local agency that provides fire protection to territory in the city or county at least 90 days prior to either of the following:

(A) The adoption or amendment to the safety element of its general plan for each county that contains state responsibility areas.

(B) The adoption or amendment to the safety element of its general plan for each city or county that contains a very high fire hazard severity zone as defined pursuant to subdivision (b) of Section 51177.

(2) A county that contains state responsibility areas and a city or county that contains a very high fire hazard severity zone as defined pursuant to subdivision (b) of Section 51177, shall submit for review the safety element of its general plan to the State Board of Forestry and Fire Protection and to every local agency that provides fire protection to territory in the city or county in accordance with the following dates as specified, unless the local government submitted the element within five years prior to that date:

(A) Local governments within the regional jurisdiction of the San Diego Association of Governments: December 31, 2010.

(B) Local governments within the regional jurisdiction of the Southern California Association of Governments: December 31, 2011.

(C) Local governments within the regional jurisdiction of the Association of Bay Area Governments: December 31, 2012.

(D) Local governments within the regional jurisdiction of the Council of Fresno County Governments, the Kern County Council of Governments, and the Sacramento Area Council of Governments: June 30, 2013.

(E) Local governments within the regional jurisdiction of the Association of Monterey Bay Area Governments: December 31, 2014.

(F) All other local governments: December 31, 2015.

(3) The State Board of Forestry and Fire Protection shall, and a local agency may, review the draft or an existing safety element and report its written recommendations to the planning agency within 60 days of its receipt of the draft or existing safety element. The State Board of Forestry and Fire Protection and local agency shall review the draft or existing safety element and may offer written recommendations for changes to the draft or existing safety element regarding both of the following:

(A) Uses of land and policies in state responsibility areas and very high fire hazard severity zones that will protect life, property, and natural resources from unreasonable risks associated with wildland fires.
(B) Methods and strategies for wildland fire risk reduction and prevention within state responsibility areas and very high hazard severity zones.
(b) Prior to the adoption of its draft element or draft amendment, the board of supervisors of the county or the city council of a city shall consider the recommendations made by the State Board of Forestry and Fire Protection and any local agency that provides fire protection to territory in the city or county. If the board of supervisors or city council determines not to accept all or some of the recommendations, if any, made by the State Board of Forestry and Fire Protection or local agency, the board of supervisors or city council shall communicate in writing to the State Board of Forestry and Fire Protection or to the local agency, its reasons for not accepting the recommendations.

Open Space Plans

65560. (a) "Local open-space plan" is the open-space element of a county or city general plan adopted by the board or council, either as the local open-space plan or as the interim local open-space plan adopted pursuant to Section 65563.
(b) "Open-space land" is any parcel or area of land or water that is essentially unimproved and devoted to an open-space use as defined in this section, and that is designated on a local, regional or state open-space plan as any of the following:
(1) Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.
(2) Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.
(3) Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.
(4) Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

September 3, 2008

Mr. Michael Gaston, AICP
Community Development Director
City of Selma
1710 Tucker Street
Selma, CA 93662

RE: General Plan Notice of Preparation Comments

Dear Mr. Gaston:

Thank you for the opportunity to comment on the Notice of Preparation for the above referenced project. I understand the City intends to adopt a Program EIR for its General Plan update. My initial comments follow.

1. A "PV" Zone was previously adopted for the 14.42 acre parcel of land known as Pioneer Village Historic Park. The DEIR should include this existing special zoning.

   a. In the alternative, if the "PV" zoning has been intentionally removed from the General Plan Policy Statements, the DEIR should disclose this change in zoning and identify the historic resource impacts that might occur as a result of this zoning change.[1] Feasible mitigation measures should be adopted to mitigate these historic resource impacts caused by the potential zoning change.

2. The DEIR should describe and assess the total park space that is required to serve Selma's current population and the increases in park/open space that will be necessary to accommodate Selma's anticipated growth. Please identify any environmental impacts and the necessary mitigation measures that become evident from this analysis.

3. The Draft EIR should analyze impacts to *historic* resources in addition to its analysis of "cultural resource" impacts. Historic resources are considered part of the environment for purposes of CEQA.

4. The DEIR should include a listing of those specific historic resources which have already been designated on the Fresno County Landmarks Register. A listing of the Landmarks contained within the City of Selma's sphere of influence can be obtained from the California History Room in the Main Fresno County Library, Fresno, CA. The inclusion of this list of resources within the DEIR will improve the informational quality of the General Plan and allow decision makers and members of the public to readily identify potential historic resource impacts to these recognized important resources. Please specifically identify the individual historic resource impacts that may occur to

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[1] Historic resources include historic objects in addition to the more traditionally considered historic structures. A number of historic artifacts are contained within the buildings of Pioneer Village. The DEIR should also identify impacts to historic objects and the mitigation measures proposed to mitigate those impacts.

these designated historic resources as a result of this Plan and identify adequate feasible mitigation measures.

It should be noted that the designated County Landmark 1904 Vincent House and the designated County Landmark St. Ansgar's Danish Lutheran Church are only two of the Landmarks contained within the General Plan area. These two designated Landmarks are contained within Pioneer Village. Other historic buildings contained in the Park include the 1887 Selma Depot, the National Register eligible Section Buildings, the 1901 Lincoln school house and the 1906 Rasmussen Barn.

5. Selma has a significant volume of housing stock that is in excess of 50 years old. Selma also contains many neighborhoods which may meet the criteria to qualify as County, State or National Register historic districts. As stated correctly in the Initial Study, historic resources are not limited to only those resources designated (listed) on a County, State or National inventory (discussed in #4, above). The City of Selma has not conducted comprehensive historic resource surveys within its jurisdiction to identify the existence of "non-listed" historic resources, however. Therefore, absent these comprehensive surveys, it does not appear that adequate substantial evidence is available to adequately assess individual or cumulative historic resource impacts within this DEIR. Thus, mitigation measures should be adopted to insure future planning processes recognize, identify and mitigate potential historic resource impacts that may result from subsequent project approvals.

In addition to environmental, "green" and educational benefits, historic preservation efforts have been shown to provide positive economic and job creation benefits for communities across the state.

6. Please describe Selma's existing parks, including Pioneer Village, and their intended long term uses in the General Plan. At least two parks, Lincoln and Pioneer Village, include historic resources. I propose the addition of General Plan Policy Goals and Policies within the Conservation and Open Space element that would serve to emphasize the City's intent to identify, apply and acquire state park funding, bond measures and grants for use in these two parks. State park funds/bonds and other grants could be utilized for the restoration and enhancement of the historic structures within both parks and would serve to improve the educational opportunities available within these locations. To date, state bond/park funding opportunities have been overlooked, however both parks have benefited from significant amounts of private donations. Classrooms have begun to visit Pioneer Village to learn about the settlement of the County and Selma history. The identification of purposeful goals that would serve to improve access to available public funds so these parks could be continually enhanced and restored would be a proactive, positive step for residents of Selma and its children.

7. It is noted that Pioneer Village Historical Park is completely surrounded by Regional Commercial Zoning and the freeway. Please identify and analyze the environmental impacts that may occur to the historic park as a result of the regional commercial development in the area. Additionally, please analyze how the application of the

proposed 20 foot setback requirement for a regional commercial project adjacent to Pioneer Village Historical Park could result in significant impacts to historic resources and park land. Finally, a project design that would permit loading docs, trash facilities, etc. to be sited along the PV perimeter could result in significant historic resource, aesthetic and noise impacts. The General Plan Policies propose to protect the freeway from views of the less desirable components of regional commercial developments. Selma's parks and historic landmarks deserve no less. Please identify appropriate mitigation measures to mitigate all potential direct and indirect significant aesthetic, historic, traffic, glare and noise impacts as the land surrounding the park are developed for regional commercial uses.

Thank you for considering the above. Please contact me when the DEIR is released for review and comment. If you have any questions about the above, please do not hesitate to contact me. I'm willing to assist in any manner possible.

Sincerely,

Jeanette L. Jurkovich
1130 W. Roberts
Fresno, CA 93711

COPY

SEP 26 2008

September 24, 2008

City of Selma
Community Development Department
Attn: Michael S. Gaston, AICP, Community Development Director
1710 Tucker Street,
Selma, CA 93662

Dear Mr. Gaston:

Subject: *City of Selma General Plan Update 2035 - Notice of Preparation/Initial Study*

We have reviewed the City of Selma's Draft General Plan Update 2035 and Notice of Preparation/Initial Study. We offer the following comments in response to these documents:

1. The City identifies a number of existing and future boundaries on the maps included within the NOP/IS and Draft General Plan Update. These boundaries include the existing City limits and Sphere of Influence (SOI) boundary, a 40,000 population Urban Development Boundary (UDB), 70,000 population UDB, and Area of Interest. A modest portion of the 40,000 UDB, and a substantial portion of the 70,000 UDB are located outside of the existing SOI. Additionally, the City's Area of Interest includes approximately 18 square miles which are not included within the City's existing SOI. It is not clear from these different boundaries which, if any, represent a new proposed Sphere of Influence for the City. If the City desires to revise its SOI and to include this new SOI as part of the EIR currently being prepared for the City's new General Plan, LAFCo believes it would be appropriate to specifically identify the proposed SOI within these documents. Otherwise, LAFCo staff can only provide generalized comments in relationship to the appropriateness of a revised SOI.

   Per LAFCo policy 320-08, the City's future SOI should be based on historical growth patterns using a twenty to twenty-five year projection. The City's estimate of sustained 4% annual growth through the 2035 General Plan, planning horizon appears to be somewhat optimistic given that the City's estimated growth rate is between 2 ½% and 3%, based on the 2000 Census population of 19,444 and a 2007 population estimate of 23,194 per the California Department of Finance. At the time the City seeks to amend its current SOI, LAFCo staff will include the City's historical growth rate in its analysis. When the City seeks to amend its current SOI, its proposal should consider the City's historical growth rate. It is likely that, if the City were to seek an SOI that is significantly larger than those lands needed to meet its projected population growth, the LAFCo Commissioners may object on the grounds that such an SOI would not conform to State law and LAFCo's policies promoting orderly growth and development and discouraging urban sprawl.

2. LAFCo is charged under the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 with encouraging orderly growth and development, discouraging urban sprawl, preserving open space and agricultural lands, and efficiently extending urban services. LAFCo has some concerns related to how build-out of the City in conformance with the General Plan will affect these factors, as follows:

   - As identified in the Initial Study and the proposed 2035 General Plan, the City is surrounded by prime farmland. Page 3-7 of the Initial Study, Response 2(a) states that build out of the City to the 70,000 UDB will result in the conversion of 6,478 acres of prime farmland to non-agricultural use "which would be a potentially significant impact. This issue will be analyzed further in the Draft EIR and mitigation measures will be recommended as appropriate."

   LAFCo has some concern related to the conversion of such a significant amount of prime farmland, much of which will be developed for residential use. While it is acknowledged that any significant expansion of the City's boundaries cannot feasibly avoid conversion of prime farmland, our concern is related to the minimal amount of land designated for high density and medium high density residential development. The Plan identifies an additional 28 acres and 6 acres, respectively, for these two designations. Staff looks forward to reviewing and commenting on specific measures designed to mitigate conversion of this land.

   - The Initial Study, page 3-7, Response 2(b) states that much of the land outside the City, but within its SOI, is under Williamson Act Contract which will have to be cancelled or non-renewed prior to development. It is also stated that "Update of the General Plan will result in development of agricultural lands", but "The policies of the Open Space, Conservation and Recreation Element (reference Appendix A) will prevent unnecessary and premature development of agricultural lands."

   With regard to properties under Williamson Act Contract, please be aware that in order for this land to be included within the City of Selma's SOI and to annex this land into the City, LAFCo must make specific findings pursuant to Government Code Sections 56426.5 and 56856.5.

   With regard to the referenced Open Space, Conservation and Recreation Element policies (page 5-3), these policies state that prime agricultural land "should be conserved through orderly expansion of the City" (Policy 5.8); that "the City will encourage lower density development adjacent to land planned for long-term agricultural uses" (Policy 5.9); and that the City will "Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operations and to prevent parcelization into rural residential or ranchette developments" (Policy 5.11).

We note that there is no land designated for Agriculture within the entirety of the City's boundaries, SOI, and Area of Interest. Therefore, Policy 5.11 should not be considered as mitigation for conversion of agricultural lands.

With respect to Policy 5.9, which indicates lower density uses are more properly sited adjacent to land planned for long-term agricultural uses, we observe that the City has designated 7,738 acres outside its Urban Development Boundary, but within its Area of Interest as Extremely Low Density Residential, which is described in the 2035 General Plan as having development potential of 0.0 to 0.5 units per acre and a minimum parcel size of 20,000 square feet. We also note that the vast majority of land within this area has been identified as prime farmland. Should this land ultimately be annexed to the City and developed according to this designation, it would appear to violate LAFCo's policies related to discouraging urban sprawl and preserving open-space and prime agricultural lands. Given this information, while protecting agriculture from more intense uses, adherence to Policy 5.9 would appear to result in conversion of significantly more prime farmland, arguably offsetting any gain that the Policy might achieve. Additionally, extending services to provide for such low density development is more costly and inefficient than providing such services to medium and high density areas and does not appear to be consistent with LAFCo law or policies.

Further, as has been seen in the City of Fresno and surrounding areas, creation of rural ranchettes and development of parcels at a density which may be considered similar to Selma's Extremely Low Density Residential designation, has created significant difficulties with efficient use of territories surrounding Fresno now that much of the more densely urbanized area is abutting rural residential uses. If developed as shown in the 2035 General Plan, it would appear that the City of Selma will ultimately face issues related to creation of urban sprawl, which this General Plan presumably seeks to avoid. The Draft EIR should address this potential negative effect of Policy 5.9.

3. Pursuant to Government Code Section 56668(k) LAFCo is required to consider timely availability of water supplies adequate for projected needs. As stated in the Initial Study, the City of Selma relies on groundwater for its water supply. Section 8 of the Initial Study addresses Hydrology and Water Quality and indicates that additional development could result in a potentially significant impact with respect to groundwater depletion. Response 8(b) states:

> *"Development as a result of the proposed General Plan Update will lead to additional urbanization in the Planning area. Urbanized lands generally consume equal amounts of water as agricultural*

> *land on a per acre basis, however, urbanizing lands may reduce the amount of permeable land surface through which water in the form of rainfall or surface flows can recharge the water table. This could result in a net deficit in aquifer recharge.... This potentially significant impact will be discussed further in the Draft EIR."*

LAFCo is aware that the aquifer from which Selma draws its water has been in a situation of overdraft for some time. LAFCO also acknowledges that the report correctly points out that urban areas are less permeable and could result in a greater groundwater overdraft than agricultural areas. When revising the Draft EIR with respect to this point, the City's analysis should also consider that developed areas require a consistent water supply, whereas it is possible to discontinue watering agricultural land when water is in short supply or not available.

As the City seeks to annex additional territories, it will be required to identify the affected territories' water demand and how the City will meet that demand without resulting in additional net overdraft to the aquifer. The Draft EIR should address how the City will mitigate the anticipated increase in water demand such that increase in use will not result in net depletion of the aquifer during the 2035 planning horizon.

4. As part of any annexations to the City of Selma, detachment from the Kings River Conservation District, Consolidated Irrigation District (CID), and the Fresno County Fire Protection District will be necessary. Annexation to the Selma-Kingsburg-Fowler Sanitation District will also be required. Additionally, the project site is located within a number of other special districts which are not required to detach from the area upon annexation. The Initial Study should consider potential impacts of the reorganization on all affected special districts which would take place upon annexation of additional territories to the City of Selma.

5. At this time, we understand that the City of Selma utilizes facilities owned and operated by CID for storm drainage purposes and that there is a question as to whether the City will be allowed to continue to do so indefinitely. If the City intends for any development stemming from this General Plan update to also utilize CID facilities, it should indicate this in the Plan and should revise any mitigation measures as appropriate, if it is determined that these facilities are no longer available to the City.

6. As shown in the 2035 General Plan, the City of Selma has identified its Area of Interest as extending east to the intersection of Academy and Dinuba Avenues which is located approximately one half-mile south of the City of Parlier, and a mile east of the City of Parlier's westernmost boundary. Selma's Area of Interest also extends as far north as South Avenue, approximately one mile north of its existing SOI and approximately one half-mile south of Mountain View Avenue between State Route 99 and Temperance Avenue.

For some time there has been discussion between the County of Fresno, the 15 cities, Fresno COG, and LAFCo regarding the potential use of buffers to separate individual cities and/or to retain individual cities' identities as people travel between the cities. Consistent with the recommendation included in the Municipal Service Review (MSR) prepared for the City of Selma and approved by our Commission in July 2007, we would again request that the City of Selma consider the issue of land use buffers in its planning process. Consideration of land use buffers will be included within LAFCo's review of a future Sphere of Influence revision or amendment.

We appreciate the opportunity to provide comments on the Initial Study and Draft 2035 General Plan and look forward to receiving a copy of the Draft EIR for further review and comment as appropriate. If you have any questions, please contact me at (559) 495-0604.

Sincerely,

Darrel Schmidt, Deputy Executive Officer
Fresno Local Agency Formation Commission

C: Alan Weaver, Director, County of Fresno Department of Public Works and Planning
Lynn Gorman, Deputy Director of Planning, Fresno Department of Public Works and Planning
Phil Desatoff, Manager, Consolidated Irrigation District
David Orth, Manager, Kings River Conservation District
Keith Larkin, Fire Chief, Fresno County Fire Protection District
David Michael, Manager, Selma-Kingsburg-Fowler County Sanitation District
LAFCo Commissioners

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STATE OF CALIFORNIA — Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

COPY

August 25, 2008

Michael Gaston
City of Selma
1710 Tucker Street
Selma, Ca 93662

RE: SCH#2008081082 General Plan Update 2035: Fresno County.

Dear Mr. Gaston:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Program Analyst

CC: State Clearinghouse

Native nerican Contacts
Fresno County
August 25, 2008

Santa Rosa Rancheria
Clarence Atwell, Chairperson
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278
(559) 924-3583 Fax
Tache
Tachi
Yokut

Dumna Tribal Government
Karin Wilson Kirkendal, Chairperson
1003 S. 9th St.
Fresno , CA 93702
559-241-0226
Dumna/Foothill
Choinumni

Table Mountain Rancheria
Lee Ann Walker Grant, Chairperson
P.O. Box 410
Friant , CA 93626-0177
(559) 822-2587
(559) 822-2693 FAX
Yokuts

Traditional Choinumni Tribe
Angie Osborne
2787 N Piedra Road
Sanger , CA 93657
(559) 787-3336
Choinumni/Foothill

Patricia Ann Murphy Brattland
600 Coldstream Drive
El Cajon , CA 92020
yet-choo-nook@gerlecreek.
(619) 444-1944 Home
(619) 990-5094 Work
(619) 447-3219 Fax
Dumna/Foothill
Pomo

Sierra Nevada Native American Coalition
Lawrence Bill, Interim Chairperson
P.O. 125
Dunlap , CA 93621
(559) 338-2354
Mono
Foothill Yokuts

Dumna Wo-Wah Tribal Goverment
Keith F. Turner, Tribal Contact
P.O. Box 306
Auberry , CA 93602
(559) 855-3128 Home
(559) 696-0191 (Cell)
Dumna/Foothill
Mono

Table Mountain Rancheria
Michael Russell, Tribal Administrator
P.O. Box 410
Friant , CA 93626-0177
(559) 822-2587
(559) 822-2693 FAX
Yokuts

's current only as of the date of this document.

of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

/ applicable for contacting local Native Americans with regard to cultural resources for the proposed 082 General Plan Update 2035; Fresno County.

Native nerican Contacts
Fresno County
August 25, 2008

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410 — Yokuts
Friant , CA 93626-0177
(559) 325-0351
(559) 217-9718 - cell
(559) 325-0394 FAX

Chowchilla Tribe of Yokuts
Jerry Brown
10553 N. Rice Road — North Valley Yokuts
Fresno , CA 93720
559-434-3160

Kings River Choinumni Farm Tribe
John Davis, Chairman
1051 Brookside Drive — Foothill Yokuts
Clovis , CA 93611 — Choinumni
559-324-9908

Kings River Choinumni Farm Tribe
Stan Alec
2248 Vartikian — Foothill Yokuts
Clovis , CA 93611 — Choinumni
559-297-1787
559-647-3227 - cell

Esohm Valley Band of Indians
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct. — Foothill Yokuts
Salinas , CA 93906 — Mono
831-443-9702

The Choinumni Tribe of Yokuts
Rosemary Smith, Chairperson
1505 Barstow — Choinumni
Clovis , CA 96311 — Foothill YoKut
monoclovis@yahoo.com
559-862-5757

Dumna Tribal Government
Jim Redmoon - Cultural Resources Representative
1305 E. Sussex Way — Dumna/Foothill
Fresno , CA 93704 — Choinumni
559-241-0226

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH3 2008081082 General Plan Update 2035; Fresno County.

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FILED

AUG 25 2008

FRESNO COUNTY CLERK
By
DEPUTY

Notice of Preparation/Initial Study

City of Selma

General Plan Update 2035

Lead Agency:

City of Selma
1710 Tucker Street
Selma, CA 93662
(559) 891-2200
Contact: Michael Gaston, AICP
Community Development Director

Prepared by:

Quad Knopf

5110 West Cypress Avenue
Visalia, California 93278
(559) 733-0440
Contact: James Alcorn, AICP

August 2008

070214

SEE CLERK FOR VIEWING OF CD.

Selma General Plan Update 2035
Environmental Impact Report

Under the California Environmental Quality Act (CEQA), when discretionary projects are undertaken by public agencies, an Environmental Impact Report (EIR) is required if the Lead Agency determines that the project may cause a significant environmental impact. The City of Selma is in the process of preparing the Draft Program EIR for the General Plan Update 2035 and has just circulated the Initial Study/Notice of Preparation.

The proposed project includes an update of the City of Selma's General Plan and related implementing actions. The Planning Area is comprised of approximately 31 square miles, and contains a mixture of residential, agricultural, commercial, public and industrial land uses. The General Plan will include Safety, Open Space, Conservation and Recreation, Circulation, Land Use, and Public Services and Facilities Elements. The Housing Element is not a part of the General Plan Update and is being updated separately. The Plan includes Goals, Objectives, and Policies and Standards to guide future growth and development, a Background Report, Land Use and Circulation map and implementation plan.

Pursuant to CEQA, the Draft EIR (DEIR) will identify all potentially significant impacts associated with the implementation of the project and appropriate mitigation measures to reduce the potential impacts to a less than significant level.

This notice is given in order to provide all interested parties an opportunity to present their views with respect to the potential environmental effects of the proposed project prior to circulation of the DEIR. A scoping meeting will be held at City Hall on September 3, 2008 at 3:00 p.m. at 1810 Tucker Street (City Council Chambers) in Selma for public input.

Scoping Meeting
Date: September 3, 2008
Time: 3:00 p.m.
Place: Selma City Hall - City Council Chambers
Address: 1810 Tucker Street, Selma, CA 93662

A copy of the Initial Study/Notice of Preparation is available for review at Selma City Hall Annex, located at 1710 Tucker St., Selma, California 93662. If you wish to comment on the Initial Study/Notice of Preparation you may submit written comments during the environmental review period which will run from August 21, 2008 through September 24, 2008. Comments during the DEIR circulation period are also welcome. Comments must be submitted to Michael Gaston, AICP, Community Development Director, at 1710 Tucker Street in Selma, California 93662.

Publish August 20, 2008

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9/29/08

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

COPY

September 15, 2008

Michael Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

Re: Notice of Preparation (NOP), Draft Environmental Impact Report (EIR)
For the 2035 General Plan Update
SCH# 2008081082

Dear Mr. Gaston:

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian traffic at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, railroad personnel, and railroad passengers.

The Commission recommends that the City include consideration of potential project-related rail safety impacts and measures to reduce adverse impacts of the proposed project. The project's traffic impact study (TIS) is the mechanism by which to address these concerns since it will be the basis for the analysis within the Traffic/Circulation section of the DEIR.

In general, the major types of impacts to consider are collisions between trains and vehicles, and between trains and pedestrians. Changes in land use should not be allowed that would permit housing adjacent to existing rail yards. Similarly, where a need for grade-separated crossings is identified, new development should not be placed adjacent to at-grade highway rail crossings, within the footprint of land needed for future grade-separation structures.

General categories of measures to reduce potential adverse impacts on rail safety include:

- Installation of grade separations at crossings, i.e., physically separating roads and railroad track by constructing overpasses or underpasses
- Improvements to warning devices at existing highway-rail crossings
- Installation of additional warning signage
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption

- Installation of median separation to prevent vehicles from driving around railroad crossing gates
- Where soundwalls, landscaping, buildings, etc. would be installed near crossings, maintaining the visibility of warning devices and approaching trains
- Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains
- Installation of pedestrian-specific warning devices and channelization
- Installation of additional traffic lanes through the crossing to accommodate additional traffic
- Construction of pull-out lanes for buses and vehicles transporting hazardous materials
- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way
- Elimination of driveways near crossings
- Increased enforcement of traffic laws at crossings
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings

CPUC also encourages localities to set up mechanisms whereby new developments pay a fair share of their impact costs to fund the above measures if not already in an existing Fee program by the City or a Regional Fee program.

Commission approval is required to modify an existing highway-rail crossing or to construct a new crossing.

Please forward the TIS scope, so we may have an opportunity to review the proposed analysis which will make our review more efficient and expedient for the project proponent. Should you have a planned scoping meeting for the traffic study, we would like to be notified along with other agencies affected or impacted by the proposed project.

Thank you for your consideration of these comments and we look forward to working with the City on this project. If you have any questions in this matter, please call me at (415) 713-0092 or email at ms2@cpuc.ca.gov.

Sincerely,

Moses Stites

Moses Stites
Rail Corridor Safety Specialist
Consumer Protection and Safety Division
Rail Transit and crossings Branch
515 L Street, Suite 1119
Sacramento, CA 95814

COPY

Sun-Maid Growers of California

Headquarters: 13525 South Bethel Avenue • Kingsburg, CA U.S.A. 93631-9232
Ph. 559 896-8000 • Fax 559 897-2362
E-mail: smaid@sunmaid.com • www.sunmaid.com

September 3, 2008

Mr. D-B Heusser, City Manager
City of Selma
1710 Tucker Street
Selma, CA 93662

Re: City of Selma Proposed General Plan Update and SOI Expansion

Dear Mr. Heusser:

As you know, Sun-Maid Growers of California is a vertically integrated cooperative owned by over 1,000 farmer-members. It has been in operation in the Selma area for over 40 years. During that time, its plant facility and employment base has expanded to the community's benefit. As one of the largest employers in the area, Sun-Maid has a vested interest in seeing Selma progress and prosper.

It is our understanding the City of Selma is proposing an update to its General Plan and an expansion to its Sphere of Influence (SOI) that would include properties on the north side of E. Mountain View Avenue and extend as far east as S. Bethel Avenue. The purpose of the proposed General Plan update and SOI expansion is to meet the projected future growth within the city.

Sun-Maid is in a unique position as it relates to the proposed General Plan update and SOI expansion. Not only does Sun-Maid own property within the proposed General Plan update and sphere boundary (APNs 393-073-12 and 13) generally located at the northwest corner of Mountain View Avenue and Bethel Avenue, but also within the SOI of the City of Kingsburg. As such, we believe it is important the two community's plans are compatible and recognize the important role that Sun-Maid and other agricultural processing facilities have and will continue to have in the future.

With those thoughts in mind, Sun-Maid believes it is appropriate the Selma General Plan and SOI Expansion EIR consider the following:

1. Review the transportation and circulation system within the area to ensure that proper access is maintained to all properties.
2. Consider the traffic impacts at the intersection of Mountain View Avenue and Bethel Avenue. In particular, we believe there is a need for signalization of the intersection to insure an adequate level of service for the existing industrial and private usage as well as future new traffic volume.
3. Potential conflicts of development in proximity to existing agricultural processing facilities and industrial uses.
4. Consider requiring Right to Farm covenants for new developments within the proposed SOI expansion area.
5. Consider requiring Right to Process Agricultural Products covenant consistent with the requirements of California Civil Code Section 3482.6.

Sun-Maid recognizes the preparation and adoption of a General Plan and its EIR are a very involved process. These actions require detailed planning and great foresight as they essentially create the blueprint for future growth for all members of the community. We respectfully request Sun-Maid be provided notice of all public meetings and hearings related to the General Plan Update, the proposed SOI expansion and the EIR.

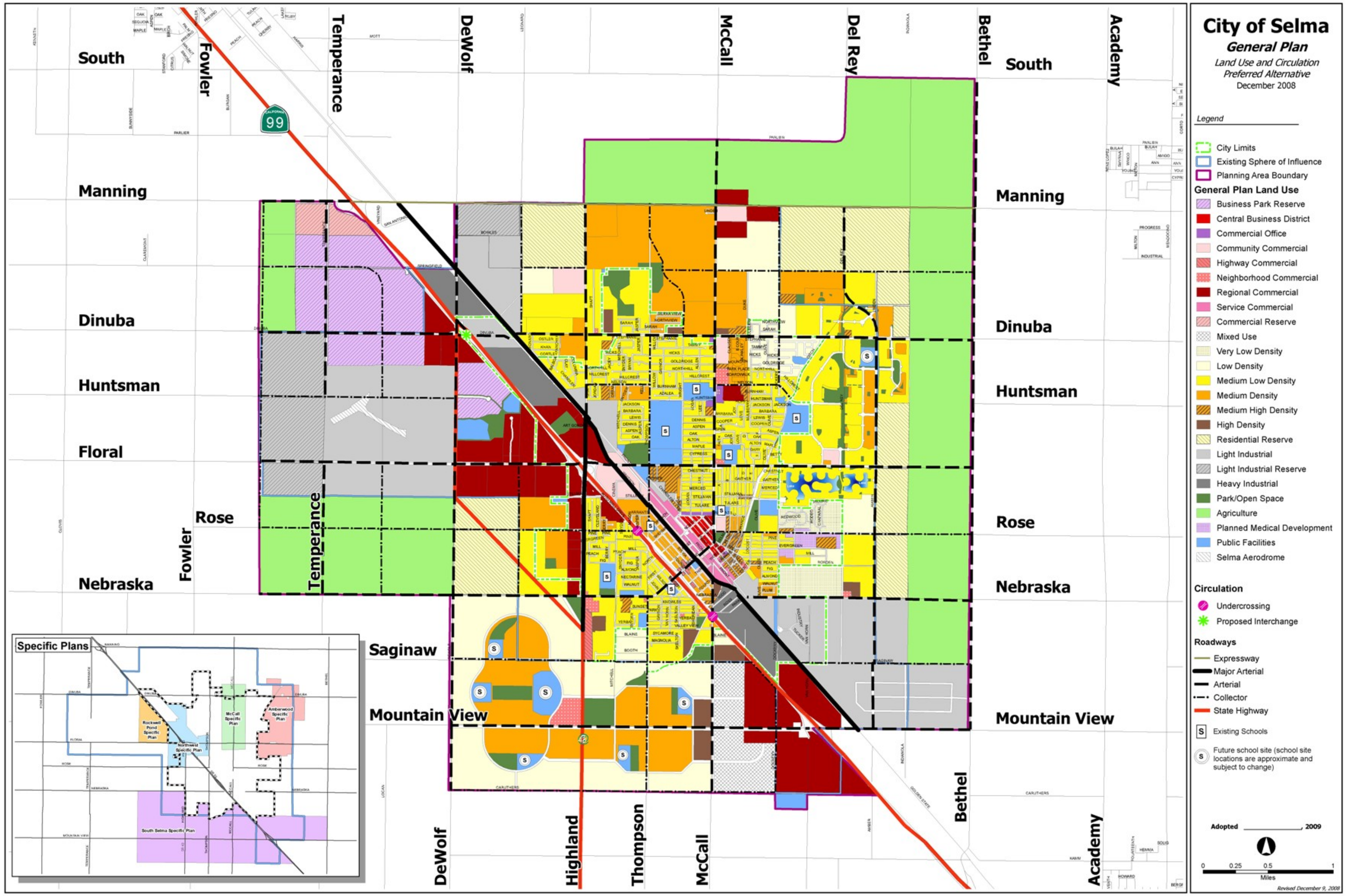
We appreciate the opportunity to comment on the proposed General Plan Update and look forward to being involved in the hearing process. If you have any questions, please do not hesitate to contact us.

Sincerely,

Vaughn Koligian
Director of Good Agricultural Practices

cc: Honorable Dennis Lujan, Mayor Pro Tem
Mr. Michael Gaston, Planning Director
Mr. Dirk Poeschel, AICP

APPENDIX A1



PROPOSED LAND USE DIAGRAM AS ANALYZED IN THIS EIR

Quad Knopf

APPENDIX B

NON-RESIDENTIAL

URBEMIS Designation	General Plan Land Use Category	FAR	Existing General Plan City Limits		Existing General Plan, Plan Area		Proposed General Plan, Plan Area	
			Acres	Units	Acres	Units	Acres	Units
Supermarket	**Community Commercial**	**0.60**	**87**	**2273.83**	**127**	**3319.27**	**113**	**2953.37**
Strip Mall	Neighborhood Commercial	0.40	22	383.33	27	470.45	50	871.20
Strip Mall	Service Commercial	0.75	39	1274.13	39	1274.13	39	1274.13
Total Strip Mall			**148**	**3931.29**	**193**	**5063.85**	**202**	**5098.698**
Regnl shop. Center	Regional Commercial	0.60	116	3031.78	155	4051.08	931	24332.62
Regnl shop. Center	Highway Commercial	0.60	5	130.68	202	5279.47	19	496.58
Total Regnl shop. Center			**121**	**3162.456**	**357**	**9330.552**	**950**	**24829.2**
General office Building	Central Business District	1.00	19	827.64	19	827.64	19	827.64
General office Building	Commercial Office	0.40	10	174.24	11	191.66	11	191.66
General office Building	Commercial Reserve	0.40			185	3223.44	69	1202.26
General office Building	Mixed Use	0.50					193	4203.54
Total General office Building			**29**	**1001.88**	**215**	**4242.744**	**292**	**6425.1**
Medical Office Building	**Planned Medical Development**	**0.40**	**24**	**418.18**	**24**	**418.18**	**24**	**418.18**
Office Park	Business Park	0.75	1	32.67	169	5521.23		
Office Park	Business Park Reserve	0.75			623	20353.41	619	20222.73
Total Office Park			**1**	**32.67**	**792**	**25874.64**	**619**	**20222.73**
Government Office	**Public Facilities**	**0.50**	**174**	**3789.72**	**176**	**3833.28**	**367**	**7993.26**
City Park	**Park/Open Space**	**1.00**	**112**		**283**		**344**	
Light Industrial	Light Industrial	0.80	240	8363.52	481	16761.89	1,498	52202.30
	Light Industrial Reserve	0.80	1	34.85	1,434	49972.03	566	19723.97
Total Light Industrial			**241**	**8398.368**	**1915**	**66733.92**	**2064**	**71926.272**
Heavy Industrial	**Heavy Industrial**	**0.90**	**205**	**8036.82**	**496**	**19445.184**	**252**	**9879.408**

RESIDENTIAL

URBEMIS Designation	General Plan Land Use Category	DU/AC	Existing General Plan City Limits		Existing General Plan, Plan Area		Proposed General Plan, Plan Area	
			Acres	DU	Acres	DU	Acres	DU
	Very Low Density	1.00	52	52	201	201	104	104
	Low Density	2.50	90	225	491	1228	786	1965
	Medium Low Density	4.25	1091	4637	2094	8900	2036	8653
Single Family	Residential Reserve	4.25	6	26	1920	8160	992	4216
Total Single Family			**1239**	**4939**	**4706**	**18488**	**3918**	**14938**
Condo/Townhome	**Medium Density**	**6.75**	**137**	**925**	**370**	**2498**	**900**	**6075**
Apartment Low rise	**Medium High Density**	**11.00**	**78**	**858**	**135**	**1485**	**156**	**1716**
Apartment mid rise	**High Density**	**16.00**	**11**	**176**	**45**	**720**	**100**	**1600**

APPENDIX C

Selma General Plan Update
Natural Diversity Database
CNDDB Wide Tabular Report
Quads: Selma, Conejo, Burris Park, Laton, Wahtoke, Reedley, Fresno South, Caruthers, Traver, Sanger, Malaga, and Riverdale

					Element Occ Ranks						Population Status		Presence		
Name (Scientific/Common)	**CNDDB Ranks**	**Other Lists**	**Listing Status**	**Total EO's**	**A**	**B**	**C**	**D**	**X**	**U**	**Historic >20 yr**	**Recent <=20 yr**	**Pres. Extant**	**Poss. Extirp.**	**Extirp.**
Actinemys marmorata western pond turtle	G3G4 S3	CDFG: SC	Fed: None Cal: None	355 S:1	0	0	0	0	0	1	1	0	1	0	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	CDFG: SC	Fed: Threatened Cal: unknown	1001 S:5	0	1	0	0	2	2	2	3	3	0	2
Antrozous pallidus pallid bat	G5 S3	CDFG: SC	Fed: None Cal: None	398 S:2	0	1	0	0	0	1	1	1	2	0	0
Athene cunicularia burrowing owl	G4 S2	CDFG: SC	Fed: None Cal: None	1182 S:5	0	2	2	0	0	1	0	5	5	0	0
Atriplex depressa brittlescale	G2Q S2.2	CNPS: 1B.2	Fed: None Cal: None	52 S:1	0	0	0	0	0	1	1	0	1	0	0
Atriplex erecticaulis Earlimart orache	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	20 S:1	0	0	1	0	0	0	0	1	1	0	0
Atriplex minuscula lesser saltscale	G1 S1.1	CNPS: 1B.1	Fed: None Cal: None	27 S:2	0	1	1	0	0	0	0	2	2	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S2S3	CDFG:	Fed: Threatened Cal: None	596 S:6	0	1	2	0	0	3	0	6	6	0	0
Buteo swainsoni Swainson's hawk	G5 S2	CDFG:	Fed: None Cal: Threatened	1677 S:3	0	0	0	1	0	2	2	1	3	0	0
Caulanthus californicus California jewel-flower	G1 S1.1	CNPS: 1B.1	Fed: Endangered Cal: Endangered	63 S:1	0	0	0	0	1	0	1	0	0	0	1
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T3Q S1	CDFG:	Fed: Candidate Cal: Endangered	112 S:1	0	0	0	0	1	0	1	0	0	0	1
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	CDFG:	Fed: Threatened Cal: None	201 S:11	1	1	1	1	0	7	1	10	11	0	0
Efferia antiochi Antioch efferian robberfly	G1G3 S1S3	CDFG:	Fed: None Cal: None	4 S:1	0	0	0	0	0	1	1	0	1	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3?	CDFG: SC	Fed: None Cal: None	293 S:3	0	0	0	0	0	3	2	1	3	0	0
Great Valley Mixed Riparian Forest	G2 S2.2		Fed: None Cal: None	68 S:2	0	0	0	0	0	2	2	0	2	0	0

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Imperata brevifolia California satintail	G2 S2.1	CNPS: 2.1	Fed: None Cal: None	27 S:3	0	0	0	0	0	3	3	0	3	0	0
Lasiurus cinereus hoary bat	G5 S4?	CDFG:	Fed: None Cal: None	235 S:2	0	0	0	0	0	2	2	0	2	0	0
Lepidium jaredii ssp. album Panoche pepper-grass	G1T1 S1.2	CNPS: 1B.2	Fed: None Cal: None	19 S:1	0	0	0	0	1	0	1	0	0	0	1
Lepidurus packardi vernal pool tadpole shrimp	G3 S2S3	CDFG:	Fed: Endangered Cal: None	249 S:3	0	0	3	0	0	0	0	3	3	0	0
Lytta molesta molestan blister beetle	G2 S2	CDFG:	Fed: None Cal: None	17 S:1	0	0	0	0	0	1	1	0	0	1	0
Metapogon hurdi Hurd's metapogon robberfly	G1G3 S1S3	CDFG:	Fed: None Cal: None	2 S:1	0	0	0	0	0	1	1	0	0	1	0
Northern Claypan Vernal Pool	G1 S1.1		Fed: None Cal: None	21 S:1	0	0	0	0	0	1	1	0	1	0	0
Orcuttia inaequalis San Joaquin Valley orcutt grass	G2 S2.1	CNPS: 1B.1	Fed: Threatened Cal: Endangered	47 S:1	0	0	0	0	1	0	1	0	0	0	1
Perognathus inornatus inornatus San Joaquin pocket mouse	G4T2T3 S2S3	CDFG:	Fed: None Cal: None	109 S:1	0	0	0	0	0	1	1	0	1	0	0
Pseudobahia peirsonii San Joaquin adobe sunburst	G2 S2.1	CNPS: 1B.1	Fed: Threatened Cal: Endangered	41 S:2	0	0	1	0	1	0	1	1	1	0	1
Spea hammondii western spadefoot	G3 S3	CDFG: SC	Fed: None Cal: None	406 S:1	0	1	0	0	0	0	0	1	1	0	0
Tropidocarpum capparideum caper-fruited tropidocarpum	G1 S1.1	CNPS: 1B.1	Fed: None Cal: None	19 S:1	0	0	0	0	0	1	1	0	1	0	0
Tuctoria greenei Greene's tuctoria	G2 S2.2	CNPS: 1B.1	Fed: Endangered Cal: Rare	45 S:1	0	0	0	0	1	0	1	0	0	0	1
Valley Sacaton Grassland	G1 S1.1		Fed: None Cal: None	9 S:1	0	0	0	1	0	0	1	0	1	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2T3 S2S3	CDFG:	Fed: Endangered Cal: Threatened	950 S:7	0	0	1	0	0	6	4	3	7	0	0

APPENDIX D

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

v7-09a 1-13-09

Status: search results - Wed, Apr. 8, 2009, 12:47 b

{QUADS_123} =~ m/357D|335A|335B|356B|356C|334B|357A|357B|358A|358D|3: Search

Tip: Lathyrus Astragalus returns species from both genera.[all tips and help.][search history]

Hits 1 to 10 of 10

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Atriplex depressa**	brittlescale	Chenopodiaceae	List 1B.2
		1	**Atriplex erecticaulis**	Earlimart orache	Chenopodiaceae	List 1B.2
		1	**Atriplex minuscula**	lesser saltscale	Chenopodiaceae	List 1B.1
		1	**Eryngium spinosepalum**	spiny-sepaled button-celery	Apiaceae	List 1B.2
		1	**Imperata brevifolia**	California satintail	Poaceae	List 2.1
		1	**Lepidium jaredii ssp. album**	Panoche pepper-grass	Brassicaceae	List 1B.2
		1	**Mimulus acutidens**	Kings River monkeyflower	Scrophulariaceae	List 3
		1	**Orcuttia inaequalis**	San Joaquin Valley Orcutt grass	Poaceae	List 1B.1
		1	**Pseudobahia peirsonii**	San Joaquin adobe sunburst	Asteraceae	List 1B.1
		1	**Schizymenium shevockii**	Shevock's copper moss	Bryaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

APPENDIX E

These buttons will not appear on your list.

Revise Selection

Print this page

Make Official Letter

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 090408015259

Database Last Updated: January 29, 2009

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)

- Branchinecta lynchi
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)

- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)

- Lepidurus packardi
  - Critical habitat, vernal pool tadpole shrimp (X)
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - delta smelt (T)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)
  - Critical habitat, CA tiger salamander, central population (X)

- Rana aurora draytonii
  - California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)

- Thamnophis gigas
  - giant garter snake (T)

Mammals

- Dipodomys nitratoides exilis
  - Fresno kangaroo rat (E)

- Dipodomys nitratoides nitratoides
  - Tipton kangaroo rat (E)

- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

Plants

- Chamaesyce hooveri
  - Critical habitat, Hoover's spurge (X)

- Orcuttia inaequalis
  - Critical habitat, San Joaquin Valley Orcutt grass (X)

- Pseudobahia peirsonii
  - San Joaquin adobe sunburst (T)

Quads Containing Listed, Proposed or Candidate Species:

TRAVER (334B)

BURRIS PARK (335A)

LATON (335B)

RIVERDALE (336A)

WAHTOKE (356B)

REEDLEY (356C)

SANGER (357A)

MALAGA (357B)

CONEJO (357C)

SELMA (357D)

FRESNO SOUTH (358A)

CARUTHERS (358D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 07, 2009.

APPENDIX F

CSUB

Center for Archaeological Research
California State University, Bakersfield
9001 Stockdale Highway, 24 DDH
Bakersfield, CA 93311

661/654-6161 office
661/654-2143 fax

April 13, 2009

Elena Nuño
Quad Knopf, Inc.
P.O. Box 3699
Visalia, CA 93278

Re: Cultural Resources Records Search for the Selma General Plan Update, Selma, California (Quad Knopf Project No. 070214)

Dear Ms. Nuño:

Per your request, a cultural resources records search (RS#07-215; CAR Project No. 07-24) was conducted for the above-referenced project today, at the Southern San Joaquin Valley Historical Resources Information Center at California State University, Bakersfield. The purpose of this records search is for the General Plan Update for the City of Selma, California. The project area includes approximately 13,000 acres and encompasses the current Selma Sphere of Influence and additional properties. The records search included an examination of the *National Register of Historic Places, the California Register of Historical Resources, California Points of Historical Interest, California Inventory of Historic Resources*, *California State Historic Landmarks Registry,* and the HRIC files of pertinent historical and archaeological data

The results of the records search indicate that there have been twenty surveys conducted either on the project area or directly adjacent. Eighteen of the surveys resulted in negative results while two surveys identified 1) five historical structures *in situ* in Selma (Brady 2003b) and 2) three historical structures located in a City Park (Matthews 1972). Twelve additional properties are listed in the Historic Property Data File (California Office of Historic Preservation 2007). The Fowler Switch Bridge (ca. 1934) has also been recorded. The following table captures the structures and sites identified during the records search:

Table 1
Historical Properties, Selma, California

OHP #/APN/ Primary	Address	Description	Year of Construction
068382	Unknown	Restroom EA 3463-26	Unknown
053459	8262 Bethel Avenue	Jensen Home	1901
162580	8674 E. Khan Street		1958
053458	2415 Floral Avenue	Selma Japanese Mission Church	1956
156835	2134 Gaither Street		1923
150439	2428 Jasper Street		1930
155398	1445 Peach Street	Stockley Terrace	1952
067121	2639 Pine Street		Unknown
066039	12490 S. Highland Avenue	State Route 43 Widening	Unknown

143751	9727 S. Shaft Avenue		1930
074390	Selma Street	Selma Women's Clubhouse	Unknown
162649	2487 Thompson Avenue		1936
388-041-26	2564 Stillman Street	Single Family Residence	Ca. 1930
388-041-09	2600 Stillman Street	Single Family Residence	1926
388-041-26	2506 Stillman Street(1)	Single Family Residence	Ca. 1930
388-041-26	2506 Stillman Street (2)	Single Family Residence	Ca. 1915
388-041-26	2523 Whitson Avenue	Single Family Residence	Ca. 1925
	Art Gonzales Pkwy and Highland Ave	Historic buildings including a school, church, various residential buildings.	Various
P-10-002963	Fowler Switch Canal	Ca. 1934 bridge	

Only a small portion of the Selma Sphere of Influence and the planned areas of expansion have been surveyed for historical or archaeological resources, and given that limited coverage and the age of many of the surveys (see References), the possibility remains that resources do exist there. While a survey is not being suggested at this time, it is recommended that cultural resource surveys be performed for *all* areas outside the current Sphere of Influence as projects are proposed. Should as-yet undetected (i.e., buried) cultural resources or human remains be encountered on the property during *any* construction activities, a qualified archaeologist should be contacted to evaluate any such discoveries.

If you have any further questions or concerns, please feel free to contact me at 661-654-6161 or by email at rorfila@csub.edu.

Sincerely,

Rebecca S. Orfila

Rebecca S. Orfila, M.A., RPA
Assistant Director

REFERENCES

Arrington, Cindy
2006 Cultural Resources Final Report of Monitoring and Findings for Qwest Network Construction Project. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Billat, Lorna
2000 Nextel Communications Wireless Telecommunications Service Facility, Site CA0366B/Selma. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Bonner, Wayne
2005 Records Search Results and Site Visit for Cricket Telecommunications Facility Candidate FAT-055A (Selma), 3036 Thompson Avenue. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Brady, Jon L.
1989 Archaeological Survey Report for Widening of 06-FRE-198, P.M. 16.0/22.4. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

2003a Archaeological Survey Report for Home Depot Project: APN 348-190-49S and 348-190-37S. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

2003b Historical Properties Survey for Proposed Villa Apartment Complex. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Cursi, Kathleen
1979 Archaeological Reconnaissance for Manning Avenue between Highway 99 and McCall Avenue. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Durr, Eleanor H.
2001 Historical and Cultural Resources Assessment 36 CFR, Part 800, Review for Cingular Wireless CV-613-01 Selma Site, 3350 Floral Avenue. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Jones, Kari
2005 Archaeological Survey of Proposed Floral/McCall Cingular Wireless Cell Site (FS-521-C1). Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Kamplain, J., and K. O'Neil
1980 Archaeological Reconnaissance of Tamkin Subdivision. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Kers, J., and C. Mader
1989 Historical Property Survey Report, Route 43, P.M. 7.1/7.5. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Matthews, Steven
2002 Verizon Wireless/Crown Castle Antenna Site CA1184; 3170 Highland Avenue, Selma. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Napton, L. K.
n.d. Cultural Resources Inventory of Selma NW Growth Area Expanded Initial Study. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Nissen, K., and M. Kennedy
n.d. Widening of Route 43, South of Selma, P.M. 7.9/9.3. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Roper, Christina
2005 Cultural Resources Survey for 600 Acres, Sermian Property, Selma. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

2006 Cultural Resources Survey for 100 Acres, Sermian Property, Selma. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Varner, Dudley
1994 Archaeological Study of Property on Highway 99 at Manning Avenue. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Wilson, Steven
1974 Archaeological Investigation and Historical Research of Proposed Location of the Guardian Industries Glass Plant. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Woodward-Clyde Consultants, Inc.
1995 Cultural Resources Inventory for Mojave Northward Expansion Project. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

Wren, Donald
1989 Selma Unified School District School Site. Report on file at the Southern San Joaquin Valley Historical Information Center, California State University, Bakersfield.

APPENDIX G

Scanned 9/29/08

Consolidated Irrigation District

Urban Impacts

White Paper

Summers Engineering, Inc.
Consulting Engineers
Hanford, California

November 2007

<u>Background on the District</u>

Consolidated Irrigation District (CID) is located in the San Joaquin Valley, on the eastern side of Fresno County and in portions of Kings and Tulare Counties. Figure 1 is a map of the overall District boundary with CID's (main) Class A canals indicated. CID is comprised of approximately 145,000 acres (gross) of irrigable land. Approximately 95,000 acres are capable of receiving surface water through the District's diversion from the Kings River. CID's average annual surface water deliveries are approximately 238,000 acre feet. The remaining 50,000 acres (gross) obtain a water supply exclusively from groundwater.

CID's water delivery system is comprised of approximately 350 miles of open channels, which include constructed ditches and channelized natural drains and sloughs. The water system also includes more than 50 dedicated recharge basins with a total surface area of approximately 1,300 acres. Irrigation deliveries are diverted from the Kings River to eligible District growers through the system of ditches and laterals. These deliveries typically occur in the spring and summer and their annual duration and volume are dependent upon runoff conditions in the Kings River. The River is regulated by Pine Flat Dam, which is located upstream of CID's diversion point. When there are flood releases from the dam, which typically occur during the winter and spring, CID diverts a portion of the flood flow into its recharge basins through the same system of ditches and laterals that are otherwise used for irrigation deliveries. The native soils in the District are sandy and allow relatively rapid infiltration through dedicated recharge basins, unlined canals, or the ground surface of agricultural lands. The groundwater basin is also largely unconfined, which means infiltration at the surface provides a direct contribution to the groundwater basin.

On an average annual basis, the land in CID that is eligible for surface water deliveries (approximately 65% of total CID acreage) receives a little over half of its irrigation supplies from imported Kings River water. All other irrigation in the District is supplied with pumped groundwater. Therefore, protecting and maintaining groundwater supplies in the District is crucial for CID's growers. All of the incorporated cities, urban areas, and commercial-industrial water users in the District also rely on pumped groundwater for one-hundred percent (100%) of their municipal and industrial supplies.

CID maintains a system of approximately 80 groundwater monitoring wells located on a 2 mile square grid pattern throughout the District. The water levels in these wells have been measured and recorded by District staff multiple times per year since 1923. When the average depth to groundwater in the monitoring wells is plotted over the period of record, there is a definite downward trend, indicating that groundwater overdraft is occurring. The District is located within the Kings sub-basin, and the California Department of Water Resources has published bulletins which list the Kings sub-basin as being subject to critical conditions of overdraft. Also, a Groundwater Impacts Analysis prepared by WRIME for CID and the Integrated Regional Water Management Plan prepared by WRIME for the Upper Kings River Water Forum each indicate there is groundwater overdraft in CID and that the rate of overdraft will continue to increase with future urban development.

Almost all of the acreage in CID has historically been used for agricultural purposes. The incorporated cities of Fowler, Kingsburg, Parlier, Sanger, and Selma, as well as several unincorporated urban communities such as Caruthers and Del Rey, are within the exterior boundaries of CID. In recent years the growth rate of these urban areas has increased dramatically. Growth projections indicate the rate of urban growth in this region of California will remain high for at least the next 10 to 20 years.

In the past, the District has typically maintained a cooperative relationship with city governments and developers. With the lower urban growth rates of the past and relatively small urban areas, CID was able to adapt its operations to accommodate the growth that did occur. However, even these small incremental impacts have accumulated over the years, resulting in difficult operating conditions, strained budgets, and increased risk to public safety. The conversion of agricultural land that uses imported surface water to urban land that is supported exclusively with groundwater also has a significant cumulative impact on groundwater supplies. In the past, the District was less concerned about the impacts urban development had on groundwater because growth rates were much lower. However, the cumulative impacts on groundwater from more rapid urban growth are now a major concern to the District because its users rely on groundwater supplies to either supplement the imported surface water they receive for irrigation, or provide all of their irrigation water. With the current accelerated rate of urban growth, impacts on the District have become much more severe and caused the District to seek mitigation measures from new urban developers.

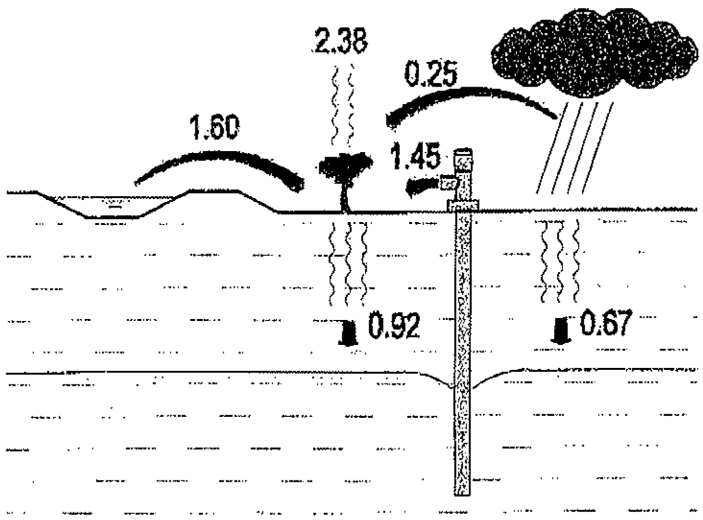
Preparation of an Engineer's Report and Nexus Study on urban impacts was commissioned by CID in 2007. In July 2007 a draft of the report was circulated to the cities and counties in the District. The Engineer's Report identifies the impacts urban development has on CID and provides a basis for quantifying mitigation fees proposed by the District. A table of the proposed mitigation fees is attached. This White Paper summarizes the following key findings of the Engineer's Report and provides conceptual solutions for mitigating the impacts to CID from urban development.

Impacts of urban development

- Groundwater and Water Supplies
- District Operation and Maintenance
- Urban Storm Water
- Public Safety and Operating Efficiency

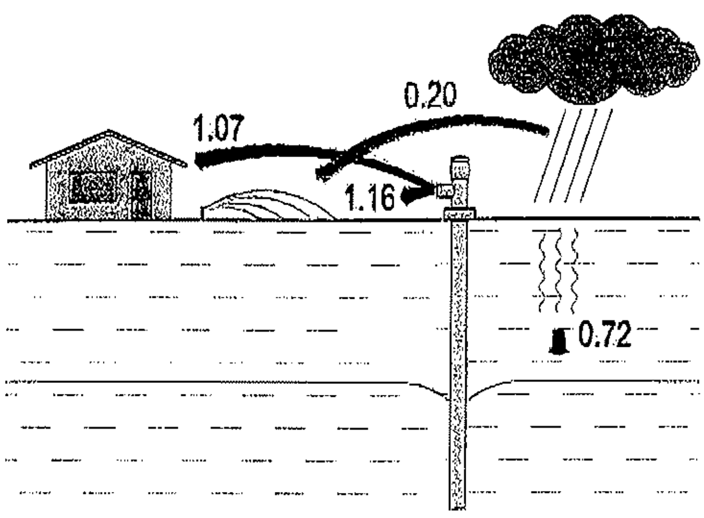
Impacts of Urban Development on Groundwater and Water Supplies

When agricultural land in CID is irrigated with surface water and groundwater, there is a small net contribution to groundwater. The average annual balance of groundwater use is illustrated and calculated as follows:



Irrigation Demand = 1.60 + 1.45 = 3.05 ac-ft/ac
Net Groundwater Contribution = 0.92 + 0.67 - 1.45 = 0.14 ac-ft/ac

When land in CID is used for urban housing, the annual net consumption is about 1.5 acre-feet per acre, illustrated and calculated as follows:



Water Demand = 1.07 + 1.16 = 2.23 ac-ft/ac
Net Groundwater Consumption = 1.07 + 1.16 - 0.72 = 1.51 ac-ft/ac

Two main factors cause the difference in net consumption between urban and agricultural land use. (1) Agricultural users import approximately one-half of their demands. Urban users do not import any surface supplies. (2) Permeable soil conditions result in approximately 30% of the water applied for irrigation being returned as useable groundwater, while much less of the urban water is returned.

Some portion of the urban water that is used indoors is transported off-site to regional waste water treatment plants. These treatment plants percolate and evaporate their effluent water in ponding basins, but the effectiveness of this water source as a means for mitigating groundwater impacts is minimal. The Cities of Selma, Kingsburg, and Fowler are served by the regional SKF treatment plant located near the southerly boundary of the District. Since groundwater in the District migrates from northeast to southwest, water percolated at the SKF plant primarily effects the areas immediately around the plant and to the southwest. That water is effectively lost for the purposes of mitigating the groundwater impacts from urban development occurring along the Highway 99 corridor in the cities of Fowler and Selma. It is also noteworthy that the effluent from waste water treatment plants in CID is of much poorer quality than other sources of groundwater recharge such as imported Kings River water and rainfall. The effects from this poorer quality recharge water are an increasing concern of the Regional Water Quality Control Board. Urban water that is not returned to a wastewater treatment plant is less likely to percolate into the groundwater because it is subject to evaporation on sidewalks and streets.

Imported surface water cannot be delivered to thirty-five percent (35%) of the agricultural land in CID, so the net annual groundwater consumption for these lands is approximately equal to that of urban land (3.05 - 0.92 - 0.67 = 1.46 ac-ft/ac).

The following district-wide water balance was determined using the values of net groundwater consumption calculated above together with the corresponding acreages of land use. Agricultural land with an entitlement for "Church Water" has a higher net contribution to groundwater than other land that receives imported surface water because irrigation deliveries to these lands typically occur over a longer period of the spring and summer.

Water Service	Acreage	Unit Consumption (ac-ft/ac/yr)	Annual Consumption (ac-ft/yr)
CID Gravity	86,002	-0.14	-12,000
Church Gravity	7,892	-1.00	-7,900
Pump	47,866	1.46	69,900
Other	635	-0.90	-600
Total Ag Consumption			49,400
City	10,197	1.51	15,400
Total annual overdraft			64,800

Deliveries of Kings River water into CID's ponds during the months of September through March account for an average annual recharge of 31,000 acre-feet. During periods of very high run off in the Kings River, such as March 1981 through January 1984, deliveries to the ponds can occur throughout the entire year. Also, operation of the District's unlined canals for irrigation or recharge deliveries results in seepage losses that provide groundwater recharge. Therefore, it is estimated that the total average annual recharge provided by CID through the operation of its canals and recharge basins is 51,000 acre-feet (31,000 recharge basins Sep. to Mar. + 20,000 recharge basins Apr. to Aug. and canal seepage).

On an average annual basis CID is recharging a little more than the total net consumption of the agricultural users in the District (51,000 ac-ft recharge vs. 49,400 ac-ft net consumption). Conversely, the cities in CID do not provide any imported water supplies to offset their net consumption of 15,400 acre-feet per year. The analysis demonstrates that urban groundwater consumption is primarily responsible for the average annual overdraft of groundwater in CID. It also shows how urbanization of agricultural land that was irrigated with imported surface water results in an impact on groundwater supplies of 1.65 acre-feet per acre (1.51 urban consumption – (-0.14) ag contribution).

The water balance does not include consumption or recharge values for rural residential water use. Rural homes in the District rely on small domestic wells for their water supplies and they typically discharge their sewer water to septic tanks with leach fields. Since only a portion of the water pumped is returned through the septic systems, there is a net consumption of groundwater by these users. Inclusion of this additional consumption in the water balance would increase the average annual overdraft in the District, but it would not change the calculated impact that urban development has on groundwater supplies.

Mitigating the cumulative impacts urban development has on groundwater supplies will require the construction of additional recharge facilities and, if practical, seeking additional sources of surface water for recharge. CID currently recharges as much of the available flood water from the Kings River as it possibly can. The majority of CID's existing recharge basins are in the western half of the District and are served by the Fowler Switch Canal, which is one of the two main canals in the District. When flood water is available, the Fowler Switch Canal and the recharge ponds served by it, operate at or near their capacities. To mitigate impacts from urban development in Sanger and Parlier and along the Highway 99 corridor will require additional recharge up-gradient of Highway 99. CID possesses only a few relatively small recharge basins in this region. The District's other main canal, the C&K Canal, would have capacity during non-irrigation periods to deliver additional flood water if there were more basins available to recharge the water. Appendix D of the Engineer's Report identifies eight (8) specific capital projects that would increase CID's recharge capacity east of Highway 99. The projects include land purchase and construction of levees and regulating structures for new recharge basins that can be served through the C&K Canal. The recharge projects would be funded and constructed using mitigation fees collected over the next 20 years.

In addition to capital improvements, mitigation of groundwater impacts includes paying the market value of the water and paying CID to deliver the additional supplies through its canals. These costs are calculated in the Engineer's report and they are based on the replacement value of the District's water system and the fraction of the District's total delivery capacity that will be utilized.

During the past two years CID has raised the issue of urban development's impact on groundwater and water supplies through the CEQA process. CID is not opposed to new urban development if it includes a long term sustainable water supply that is sufficient to support the land use. The cities in CID have not demonstrated that such water supplies are being provided for new development. CID as an affected agency has repeatedly responded through CEQA that cities should not approve new developments without provisions for a long term sustainable water supply, or appropriate mitigation of new development's impact on groundwater.

Impacts of Urban Development on District Operation and Maintenance

Urban development impacts CID's operation and maintenance (O&M) activities by limiting access to its canals, increasing the trash that accumulates in canals, and generally reducing the efficiency of CID's O&M. Residential and commercial developments adjacent to District canals require fencing and gates to restrict public access and provide some measure of public safety. These barriers limit the District's access to its own facilities. Urban streets and sidewalks further limit the District's access compared to rural agricultural areas.

Urban development brings more people in close proximity to CID's facilities. Consequently the amount of trash that accumulates in CID's canals increases directly with urban development. This accumulation requires more time and effort by District operators to access the canal structures and remove the additional trash that accumulates at bar screens and control structures. Greater population near CID's facilities results in more vandalism of the facilities. Vandalism of operating canals impacts the District's operations because it must be addressed immediately to prevent a canal bank failure or breach. The same type of vandalism can occur in rural areas of the District, but with much less population density, the amount of vandalism per unit of canal length is noticeably less.

New development increases property value and subsequently increases the District's liability risk from a canal breach or break. Therefore, more patrols of the canals are needed in urban areas. Canal breaches that result in flooding of urban areas can threaten public safety. Canal breaches that occur in rural areas can also cause serious problems, but the consequences are typically much less severe.

District operators patrolling urban areas come in contact with a greater number of homeowners or trespassers than they do in rural areas. This additional interaction with the public inevitably causes operator delays and reduces efficiency.

The impacts on O&M are difficult to quantify and it would require a prohibitively expensive study over a period of years to determine the precise impact urban development has on O&M expenses. The Engineer's Report quantifies the impacts based on specific budget expenses and estimates of reduced efficiency made by District Operations staff. Mitigation of the impacts on O&M will require compensation to CID for associated increases in labor and equipment costs.

Impacts of Urban Development on Storm Water

Agricultural land in CID typically does not drain a significant percentage of local storm water offsite because the topography is generally flat and the sandy soils quickly percolate surface water. Urban development, which includes the addition of impervious surfaces such as roofs and street paving, reduces percolation and requires the storm water to be collected and disposed in basins or in irrigation channels that are not in use or not operating at capacity.

Use of CID's channels for this purpose impacts CID's ability to deliver imported surface water into its recharge basins and requires CID to maintain adequate capacity downstream of the storm water connections into its system. When rain is anticipated or falling, canals with limited flow capacity must be constantly patrolled to check the status of city storm water pumps and the levels of the canal. If only recharge water is being delivered, two patrols per day are adequate. Urban storm water conveys additional trash into the canal that must be removed at bar screens and structures. Discharge points cause channel erosion and sediment deposits. In years when recharge water is not available to CID, storm water inundates canals that might otherwise remain dry. The cycle of wetting and drying throughout the winter promotes more weed growth than would occur without the storm water, which increases maintenance costs.

In the five (5) incorporated cities in CID there are 37 storm water connections to CID's canal system. Each new development that connects to a city's storm water system has the potential to increase the amount of storm water discharged to CID's system. Proposed mitigation of urban storm water impacts from new development would require a fee based on the replacement value of applicable CID facilities and the fraction of those facilities' flow capacity that is utilized to dispose of the urban storm water.

CID is also concerned about the quality of urban storm water that is discharged into its canals because run off from city streets is prone to contaminates such as oils and heavy metals. In addition to the proposed mitigation measures, cities must demonstrate to CID that their storm water discharges are legally permitted by the State and comply with water quality standards for such permitted discharges. Heretofore, no such evidence or documentation has been provided to CID.

Impacts of Urban Development on Public Safety and Operating Efficiency

In recent years urban developers have generally complied with CID in mitigating site specific impacts. Typically these mitigation measures involve undergrounding some existing open canals with pipelines, installing fences along other open canals, and providing well defined rights-of-way for District facilities. These mitigation measures address public safety and the District's operating efficiency within the boundaries of a development project. However, they do not address CID facilities that may be located directly adjacent to the development project. Concentrated urban populations can be located in close proximity to unprotected open ditches which were never intended to operate in an urban environment. There are also older urban development projects that were permitted without undergrounding of CID's canals.

In addition to the public safety risk, these development scenarios have resulted in the District's delivery system being segmented into short sections of open canal and pipelines, which are more difficult to patrol and maintain than contiguous sections of either.

Because these facilities are located in urban areas where no further development will occur over or adjacent to the canals, there is little chance that a future urban development will construct the needed improvements to CID's facilities. However, additional urban development in the general vicinity of these unprotected facilities will increase the population that will potentially come in contact with the facilities through increased vehicle and foot traffic, and it will further restrict the District's ability to access its facilities for O&M.

In Appendix D of the Engineer's Report, seven (7) specific capital improvement projects are defined that would mitigate impacts on public safety and operating efficiency of District facilities in critical urban areas. The projects involve piping sections of smaller open canals and installing remote water level monitoring equipment on large canals where piping is infeasible. The projects would be funded and constructed using mitigation fees collected over the next 20 years.

De-annexation

One of the issues raised in connection with the conversion of agricultural land to urban uses has been whether or not that land at the time it is being annexed to a city should or should not be de-annexed from the District. The existing policy has been to remove the urbanized land from the District. That policy reflects the District's primary mission, which is to provide irrigation water to farmers in accordance with the practices and water rights established over many decades by appropriation and diversion of water from the Kings River on to land within the District. A key factor in the present policy is the election of the District's Board of Directors by residents of the District. CID's directors are elected by division so residents who are eligible to vote in a particular division select the director from that division. Section 21585 of the California Water Code requires those divisions to be "as nearly equal in area and population as may be practicable" (a requirement that seems to presume a typical rural area inhabited by scattered farmsteads). More recently, Section 22000 of the California Election Code requires that the District adjust the boundaries of each division after each federal decennial census. More importantly, in the case of CID and other governmental entities that include within their boundaries land located in Kings County, such a delineation of the divisions must be approved in advance by the United States Department of Justice to ensure compliance with the federal Voting Rights Act. To receive such pre-approval, the District must assure the Department of Justice that the division boundaries do not disadvantage any voter who is a member of a protected class. That assurance involves a complicated process of demographic analysis and division rearrangement. In sum, the issue of de-annexation involves understanding that (1) having more urban voters with no connection to irrigation could impact the District's primary mission, and (2) increasing the total number of voters in the District with concentrated areas of urban voters can intensify an already expensive federal pre-approval process.

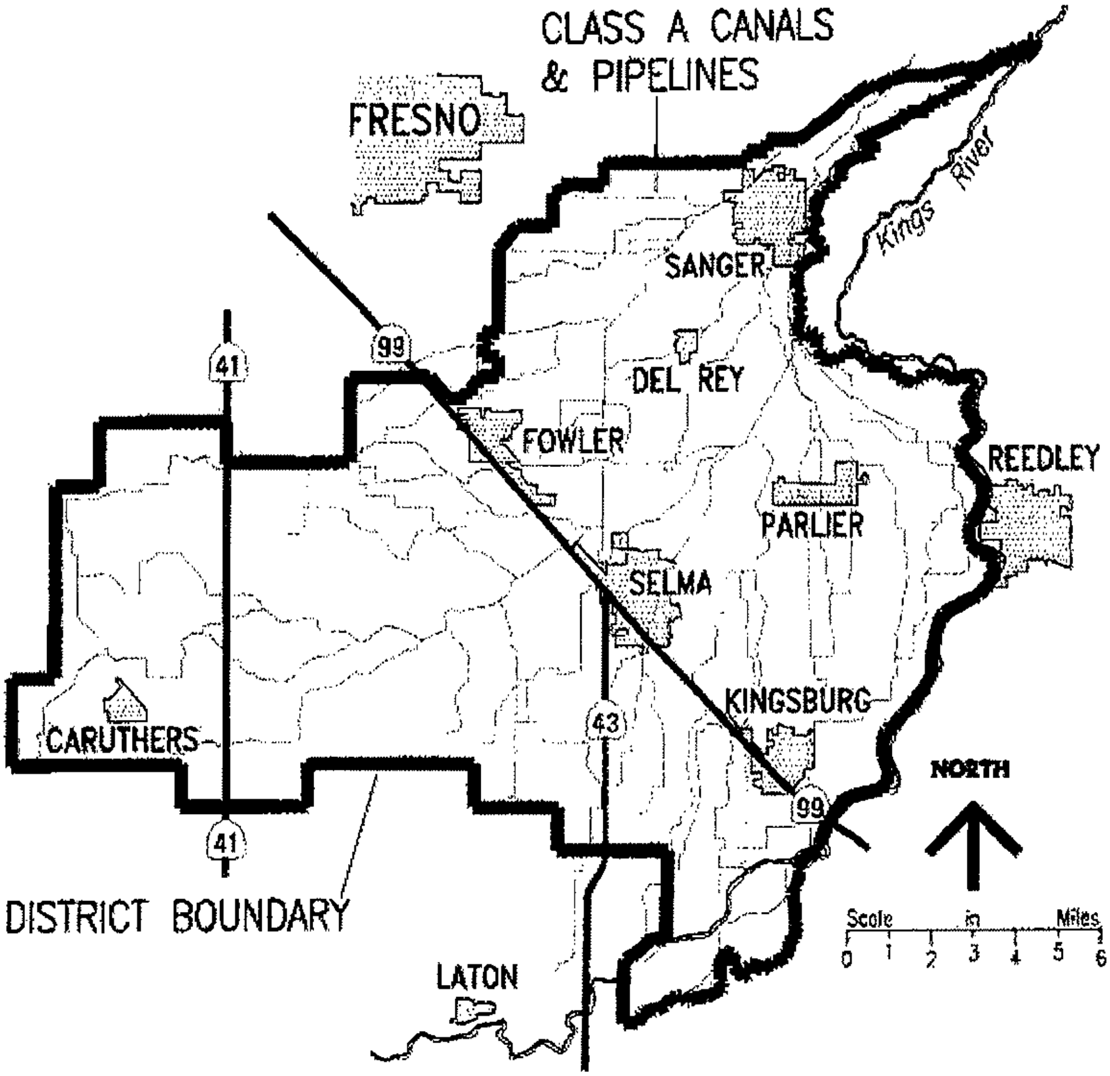
Alternative Solutions

CID has recently discussed with officials from the cities in the District possible alternatives for mitigating urban impacts. One suggestion is for cities to pay CID a volumetric rate for the groundwater they pump in return for CID delivering an equal supply of imported surface water into the District. The imported supplies would be a combination of water that is purchased (when available) and flood water that is diverted to new recharge facilities. An advantage this solution would have over mitigation fees is that the total groundwater overdraft caused by urban use could be addressed versus only the impacts from new development. Impacts on O&M and public safety would still need to be addressed through a fee imposed on new development, but the total amount of that initial fee could be much less. Additional details about this type of alternative are discussed in the attached August 9, 2007 memorandum. The memorandum was presented to CID's Board and made available to the public at CID's August 2007 Board meeting, which was attended by several representatives from cities in CID.

A possible alternative for mitigating the impacts from urban storm water would be for the cities to pay an annual standby fee for each storm water connection to the District's system plus a volumetric rate for the storm water that is actually discharged. This alternative would be more equitable (than a district-wide mitigation fee) for urban developments in cities that only have one or two storm water connections. The volumetric charge would also address cities making interconnections from new storm water basins to the existing District connections. Implementing the volumetric charge will require the installation of meters at the storm water connections.

CID is encouraged by the discussions with the cities and is open to alternative solutions that adequately mitigate urban impacts. Cooperative agreements were established between CID and the cities in the early 1980's. CID has recently notified the cities that these agreements, which are renewed annually, do not adequately address the current impacts of urban development and that the agreements will be maintained on only an interim basis until new provisions can be established. CID believes the cooperative nature of the existing agreements should be maintained, but the terms and provisions for mitigating impacts must be updated.

Figure 1



CONSOLIDATED IRRIGATION DISTRICT

CONSOLIDATED IRRIGATION DISTRICT

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MEMORANDUM

TO: Consolidated I.D. Board

CC: City Managers

FROM: District General Manager, Mark Gilkey

DATE: August 9, 2007

SUBJECT: Utility Mitigation Rate Alternative to Urban Impact Fees

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Following a recent meeting with the city managers within the District, Staff and Summers Engineering made an analysis to determine a water utility mitigation rate for certain urban impacts to CID. The utility mitigation rate would presumably be charged to all domestic water users that are served groundwater extracted by the various city water systems located within CID's overall boundary. The approach used to determine the mitigation rates was based on the following assumptions:

- CID constructs recharge pond projects such as those identified in the Urban Impacts Study prepared by Summers Engineering.
- CID's goal would be to deliver water when feasible to these facilities to offset existing urban groundwater extractions.
- The water supply would come from excess flood flows in the Kings River which currently cannot be diverted due to limits on CID's recharge capacity. Also, surface water could be purchased when feasible.
- CID would explore ways to raise the initial capital needed to construct the projects through bond sales, loans, or grants.
- In addition to the initial recharge facilities, CID would continue to pursue construction of additional recharge ponds to offset new urban groundwater extractions.
- After all facilities are constructed and paid for, groundwater should be in balance on an average annual basis.

Table A indicates the revenue that is needed to fund the recharge expansion projects. Each city's proportional share of the first year cost is listed. A 3% annual escalator would be applied to these amounts in subsequent years. The table also indicates the cost for CID to deliver the recharge water. This charge is based on the replacement value of CID's system and the portion of its delivery capacity needed to offset the urban extractions. Table A also includes storm water disposal charges, assuming they are applied uniformly throughout the District and recouped through the water utility mitigation rates. Alternatively, a mitigation charge could be determined for each city based on the quantity and size of its connections to CID's system. Cities could choose whether the storm water charge is paid through water utility mitigation rates or other revenue sources.

The number of municipal water services was estimated for each city based on population data, and this was used to calculate monthly water utility mitigation rates that would generate the required revenue. The utility mitigation rate would need to be charged per family unit equivalent (FUE) so that large commercial and industrial water users would pay their proportional share. Typical municipal water rate schedules set the number of FUE's by connection size. For instance a 1½" connection might be rated at 8 FUE's and a 2" connection 13 FUE's. This means that 1½" and 2" connections have the potential to use 8 and 13 times as much water, respectively, as a connection to a single residence. Assuming the above FUE ratings, the monthly utility charge for a 2" commercial connection would be 13 times more than the charge for a single residence.

Population data provides a good basis for estimating the number of residential service connections, but it does not provide an indication of commercial / industrial connections. Therefore, the FUE's for commercial / industrial connections had to be estimated based on total water demands. If this estimate is significantly different than the actual number of FUE's, the monthly rates shown in Table A would need to change accordingly. In other words, if there are much fewer FUE's than estimated, the monthly mitigation rates would need to increase.

The proposed water utility mitigation rates would not address other impacts to CID that are identified in the Urban Impacts Study. Impacts to assessment revenue and operation and maintenance could still be mitigated through an urban development fee. The system improvements (pipeline projects) identified in the Urban Impacts Study to mitigate impacts on public safety and operating efficiency in critical urban areas could also be implemented through an urban development fee. The total amount of the development fee (if used in conjunction with water utility rates) would be about $1750 per acre or $470 per new home.

Table B is a comparison of annual revenue that could potentially be generated through the urban development fees proposed in the Urban Impacts Study versus the revenue generated through water utility mitigation rates or a combination of water utility rates and lower urban development fees. The revenue estimates in Table B are based on the average annual increases in urban acreage over the past five years and the utility rates indicated in Table A.

Table A

City	Capital Recharge Projects		Water Recharge		Storm Water Disposal		Totals	
	Cost/yr [1]	$/mo/FUE	Cost/yr	$/mo/FUE	Cost/yr	$/mo/FUE	Cost/yr	$/mo/FUE
Fowler	$40,000	$1.11	$83,000	$2.32	$63,000	$1.75	$186,000	$5.18
Kingsburg	$76,000	$1.11	$157,000	$2.32	$119,000	$1.75	$352,000	$5.18
Parlier	$88,000	$1.11	$183,000	$2.32	$138,000	$1.75	$409,000	$5.18
Sanger	$151,000	$1.11	$313,000	$2.32	$236,000	$1.75	$700,000	$5.18
Selma	$157,000	$1.11	$326,000	$2.32	$247,000	$1.75	$730,000	$5.18
Totals	$512,000		$1,062,000		$803,000		$2,377,000	

[1] Initial annual cost indicated would escalate 3% per year.

Table B

Potential annual revenue from proposed development fees	$3,297,000
Annual revenue from utility rates	$2,377,000
Annual revenue from utility rates + reduced development fees	$2,851,000

Scanned 9/29/08

WRIME Water Resources & Information Management Engineering, Inc. tel. 916.564.2236 fax 916.564.1639 1451 River Park Drive Suite 142, Sacramento, CA 95815 http://www.wrime.com • info@wrime.com

MEMORANDUM

To:	Mark Gilkey, General Manager	CC:	Elias Tijerina, Reza Namvar
From:	Matt Zidar	Date:	July 5, 2007
Subject:	**Groundwater Impact Analysis**		
Project Reference:	200.T03.00		

INTRODUCTION

The purpose of this analysis is to quantify the potential regional and local groundwater effects of urban growth in the CID service areas. WRIME was retained to evaluate and quantify the potential groundwater effects of the urbanization using the Kings Basin Integrated Groundwater Surface Water Model (Kings IGSM) to compare the 2005 Existing Conditions and the 2030 Baseline Conditions.

RESULTS

The groundwater level responses to the two different land use conditions were evaluated using a representative 41 year hydrologic period and comparing the water level hydrographs, water level contours, and water budgets. The total groundwater pumping for urban uses increases from an average of 18.7 Thousand Acre Feet per year (TAF) under the 2005 Existing Conditions, to 43.0 TAF under the 2030 Baseline Conditions, an annual increase of 24.3 TAF of additional groundwater pumping. In addition to the increase in groundwater pumping there is a decrease of 46.7 TAF of surface water applied for agricultural purposes as a result of urban development between the 2005 Existing Conditions and the 2030 Baseline Conditions. This results in a decrease in recharge to the groundwater basin from the applied surface water of 11.7 TAF. Both the increase in pumping and decrease in irrigation applied surface water result in changes to the groundwater elevations and storage.

If the 2005 land use conditions were to continue into the future, the water levels at the end of the 41 year period would decline an average of 10 feet throughout the CID area. The effects vary within the CID area, ranging from a decrease of 32 feet in the Caruthers area in the west, to a decline of 2 to 3 feet in the Parlier and Kingsburg areas closer to the Kings River. The groundwater impacts are more prominent along the 99-corridor under the 2030 Baseline Conditions and water levels would decline an average of an additional 5 to 9 feet as compared to the 2005 Existing Conditions. The water level declines indicate groundwater overdraft. This means that on the average more water is removed from groundwater storage than is put into groundwater storage each year. Despite efforts from CID's groundwater recharge program, the District has an average annual overdraft of 24.5 TAF from 1964 to 2004. Continuing urban development will add an additional annual overdraft is approximately 36.0 TAF/yr under 2030 baseline conditions.

MODELING ASSUMPTIONS AND INPUT SUMMARY

The King IGSM model was used to evaluate two future land and water use conditions based on 2005 Existing Conditions and 2030 Baseline Conditions. The model input files for the two land use conditions were developed using projected data for the cities or water purveyors, and based on assumptions listed in Table 1. The Kings IGSM model can vary the model inputs for each subregion. This allows for varying land use and water supply assumptions within specific geographic areas.

Table 1. CID Assumptions Summary

	2005 Existing Conditions	2030 Baseline Conditions
Land Use	2004 Land Use	2030 Land Use
Agricultural Water Demand	Based on: - 2004 Land Use and Crop Acreage - 1964-2004 Hydrology	Based on: - 2030 Land Use and Crop Acreage - 1964-2004 Hydrology
Crop Acreage	- 2004 Crop Acreage	- 2030 Crop Acreage (2004 crop acreage minus agricultural areas converted to urban)
Recharge Ponds	2004 Conditions	Same as 2005 conditions
Urban Water Demand	2004 Urban Demand	2030 Urban Demand
Wastewater Treatment Plants Flows	Use 2004 conditions for SKF WWTP	Same as 2005 conditions
Pine Flat Reservoir Operations	Historical releases and flows	Same as 2005 conditions
Surface Water Deliveries - Kings River	Historical deliveries and diversions	Same as 2005 conditions
Initial Conditions	- Use End of Sep 2004 values for GW levels, soil moisture, unsaturated soil moisture, and small watershed soil moisture	Same as 2005 conditions

The CID has senior Kings River water rights that allow for diversion and distribution within the CID jurisdictional area ('place of use'). Lands that annex to the city upon development detach

APPENDIX H

GROUNDWATER CONDITIONS IN THE CITY OF SELMA GENERAL PLAN UPDATE 2035 AREA

prepared for
Quad Knopf
Visalia, California

by
Kenneth D. Schmidt and Associates
Groundwater Quality Consultants
Fresno, California

June 2009

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GROUNDWATER CONDITIONS IN THE CITY OF SELMA GENERAL PLAN UPDATE 2035 AREA

INTRODUCTION

Quad Knopf (2008) is preparing an Initial Study for the City of Selma General Plan Update for 2035. As part of this study, Kenneth D. Schmidt and Associates (KDSA) prepared this hydrogeologic evaluation of the plan area. The west boundary of the plan area is Armstrong Avenue. The north boundary of the area is Manning Avenue on the west and South Avenue on the east. The east boundary of the area is Bethel Avenue. The south boundary of the area is near Caruthers Avenue for the area west of Highway 99 and Mountain View Avenue farther east. Urban development is predominant in the area bounded by Dinuba Avenue on the north, Leonard Avenue on the west, Saginaw Avenue on the south, and Dockery Avenue on the east. Agricultural lands are predominant in the rest of the plan update area. Water for the City has been pumped from wells owned and operated by the California Water Service Co. (CWS). Water for irrigation is provided by the Consolidated Irrigation District (CID) from the Kings River and by pumpage from private irrigation wells.

EXISTING CONDITIONS

Subsurface Geologic Conditions

Page and LeBlanc (1969) described general groundwater conditions in the Fresno area, which includes Selma. Highly permeable alluvial deposits are present, and these are tapped by numerous water supply wells in the area. Prior to the 1980's, private domestic, city, and irrigation wells tapped deposits within the uppermost 350 feet of the alluvium, which is termed the Quaternary Older Alluvium. Somewhat finer-grained deposits are usually present below a depth of about 350 feet, and these are termed the Tertiary-Quaternary continental deposits. Starting in the 1980's, deeper CWS Selma wells began to be drilled, due to water quality problems with the shallow groundwater. These newer wells tap strata below a depth of 340 feet and above a depth of 650 feet.

As part of this evaluation, two subsurface geologic sections were developed (Figure 1). The first (Section A-A') extends from the northwest to the southeast, generally along Highway 99 (Figure 2). This section extends from a deep City of Fowler well near Parlier Avenue, to the southeast through three deep City wells, to a deep test well and deep supply well that are south of Mountain View Avenue. This section is oriented perpendicular to the inferred dip of the alluvial deposits, and thus the layers of deposits appear to be relatively flat. The color of the deposits above a depth of about 600 to 700 feet along this section is indicated to primarily be brown. Sand and gravel layers are common, and many clay layers are discontinuous along this section. One fairly continuous clay layer averages about 80 feet deep beneath the part of the section north of Nebraska Avenue. Another fairly continuous clay layer averages about 180 feet deep in the same area. A third fairly lat-

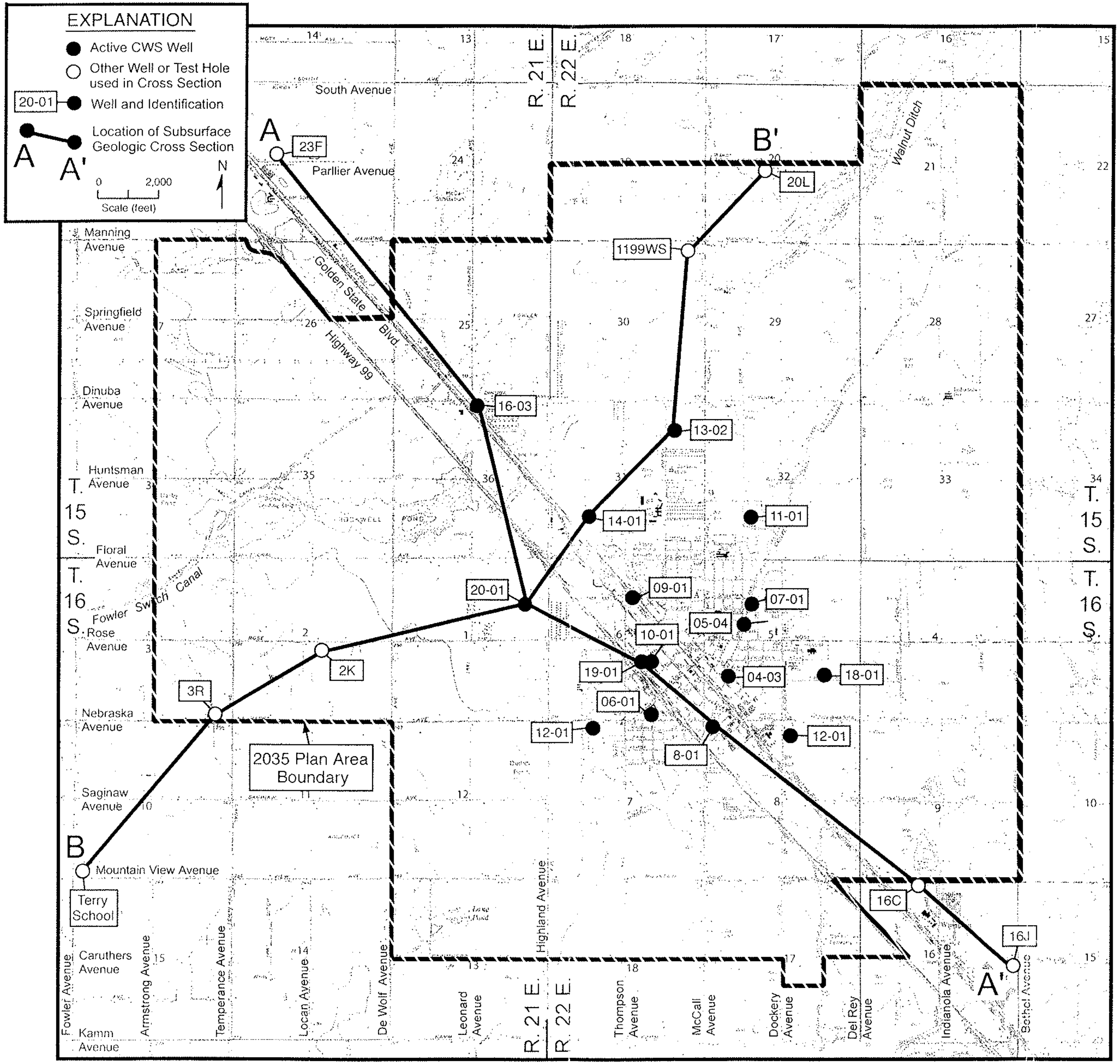

FIGURE 1 - LOCATION OF PLAN UPDATE AREA, ACTIVE CALIFORNIA WATER SERVICE CO.
SELMA WELLS, AND SUBSURFACE GEOLOGIC CROSS SECTIONS

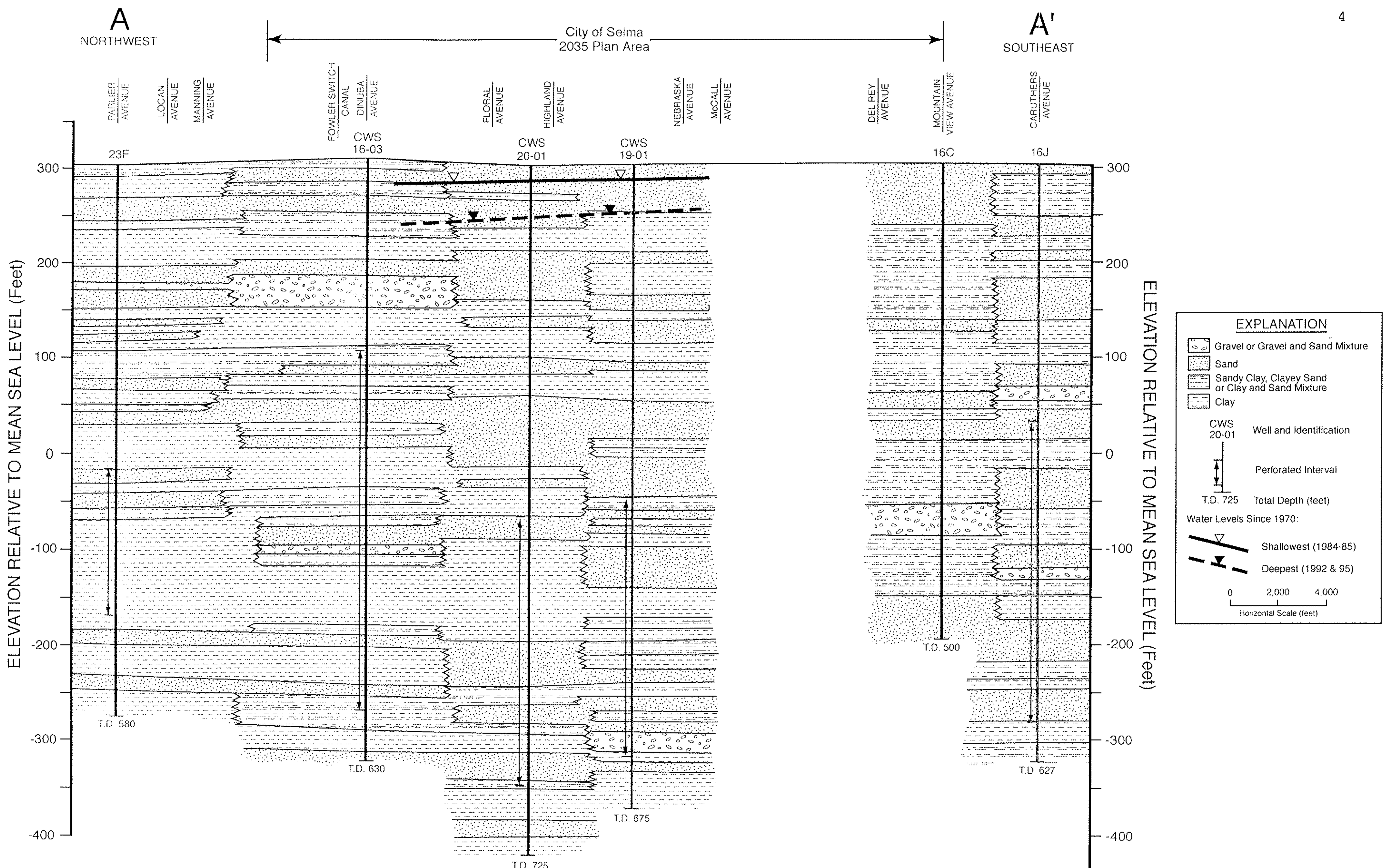

FIGURE 2 - SUBSURFACE GEOLOGIC CROSS SECTION A - A'

erally extensive fine-grained layer is at an average depth of about 300 feet along most of this section. This deep layer is indicated to be important in terms of groundwater quality, which is described in a later part of this report.

Cross Section B-B′ (Figure 3) extends from near Fowler and Mountain View Avenue, to the northeast through two deep CWS wells, thence further north-northeast through a moderately deep water system well, to near Parlier Avenue, east of McCall Avenue. This section is oriented along the inferred dip of the alluvial deposits, and the layers slightly dip to the southwest. Coarse-grained strata are also predominant above a depth of about 350 feet along this section. Apparently continuous clay layers are present at average depths of about 60 feet, 200 feet, and about 350 feet along most of the section. The deepest of these is indicated to be important in terms of groundwater quality. Fine-grained strata appear to be predominant below a depth of about 400 feet along this section. However, enough interbedded sand layers are also present that highly productive wells tapping only deep strata can be developed.

California Water Service Co. Selma Wells

Figure 1 shows the locations of 15 CWS Selma wells. Of these wells, 05-04 has been on standby and 12-01 was temporarily out of service. Table 1 provides construction data for these wells.

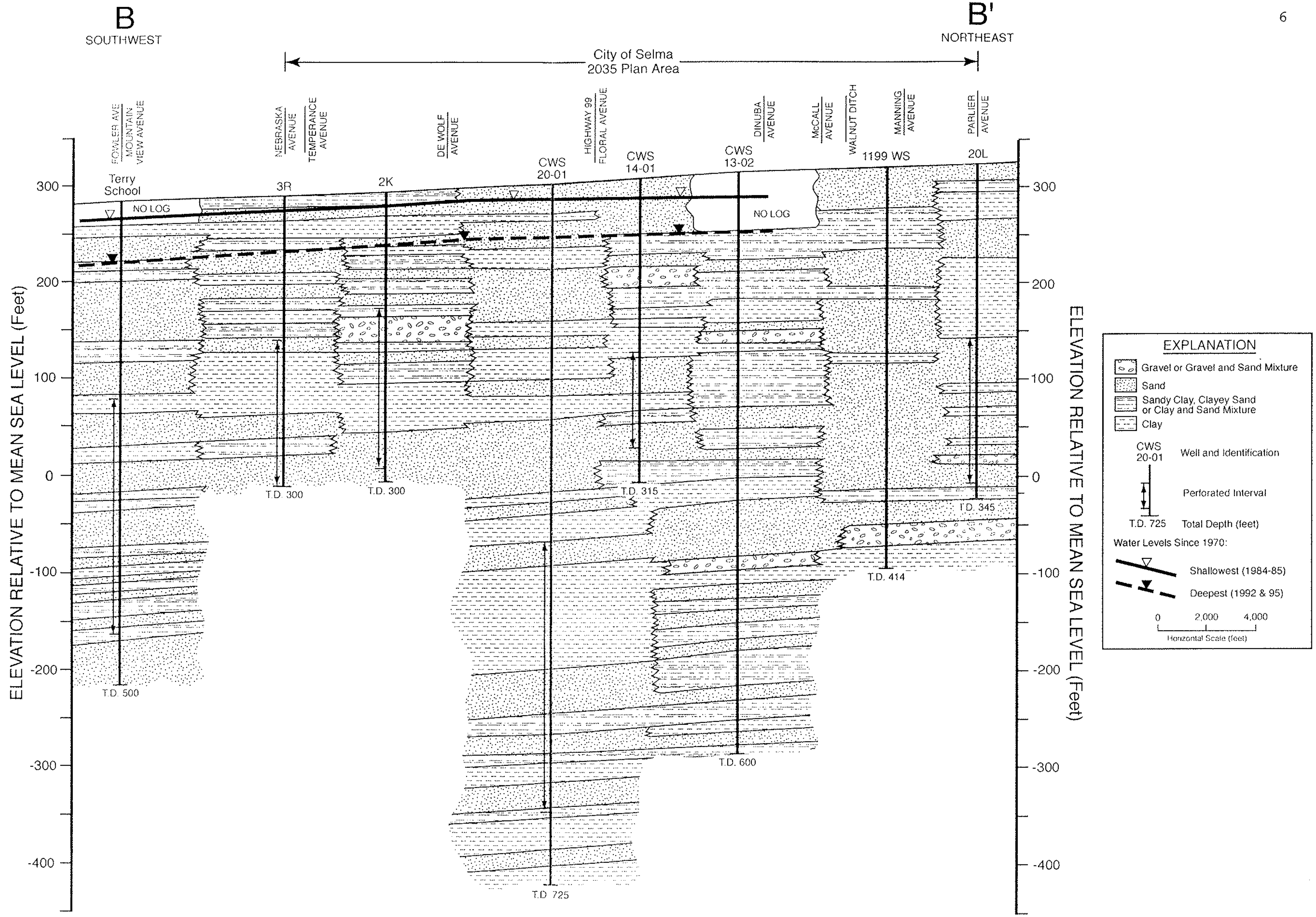

FIGURE 3 - SUBSURFACE GEOLOGIC CROSS SECTION B - B'

TABLE 1-CONSTRUCTION DATA FOR CALIFORNIA WATER SERVICE CO. SELMA WELLS

No.	Date Drilled	Total Depth (feet)	Cased Depth (feet)	Casing Diameter (feet)	Perforated Interval (feet)	Annular Seal (feet)
04-03	1955	264	225	14	O.B.	-
05-04	-	245	229	-	O.B.	-
06-01	1952	296	-	-	O.B.	-
07-01	1930's	211	208	14	O.B.	-
08-01	1934	242	228	12	O.B.	-
09-01	1949	212	172	14	O.B.	-
10-01	1950	330	290	14	O.B.	-
11-01	1956	300	287	16	O.B.	-
12-01	1961	382	376	16	O.B.	-
13-02	1983	600	560	14	340-560	0-300
14-01	1976	315	300	16	179-280	0-61
16-03	1987	602	582		380-582	0-350
17-02						
18-01	1992	610	570	16	340-570	0-320
19-01	1994	675	620	16	350-600	0-330
20-01	1999	725	675	16	375-650	0-350

Wells drilled prior to 1976 were drilled by the cable-tool method. O.B. is open bottom well. Wells in this table that were drilled after 1961 were drilled by the reverse rotary method, and are gravel packed. Data from well completion reports and files of CDOHS.

Wells drilled prior to 1976 were constructed by the cable-tool method, have non-perforated casings, and are open-bottomed. Wells drilled since 1976 were constructed by the reverse rotary method and are gravel packed. CWS Selma wells drilled prior to 1983 ranged from about 210 to 380 feet in depth. Five wells have been constructed since 1983, and these range in cased depth from 560 to 675 feet. These wells have annular seals ranging from 300 to 350 feet in depth.

Other Supply Wells

Most private domestic wells in the area are less than 200 feet deep and most irrigation wells are less than 300 feet deep. Some of the deepest private domestic and irrigation wells in the area range from about 300 to 400 feet in depth. Other relatively deep wells are in the City of Fowler, and for other water system or school wells. These wells range from about 410 to 620 feet deep.

Water Levels

Water levels in eight wells in or near the study area have been regularly measured since 1946. Table 2 provides water-level data for January 11, 2006. The water levels ranged from 46 to 60 feet deep on January 11, 2006 and were shallowest in two wells (T15S/R22E-32N1 and 33R1) in and east of the City. The deepest water levels on January 11, 2006 were in two wells along Fowler Avenue to the west (T15S/R21E-27D1 and T16S/R21E-15D1). Figure 4

TABLE 2-WATER-LEVEL DATA FOR JANUARY 11, 2006

Well Location	Land Surface Elevation (feet)	Depth to Water (feet)	Water-Level Elevation (feet)
T15S/R21E-27D1	302.3	53.9	248.4
-34N1	293.2	48.7	244.5
-35R1	315.0	47.5	267.5
T15S/R22E-32N1	309.0	46.8	262.2
-33R1	317.7	46.1	271.6
T16S/R21E-14A2	288.4	48.2	240.2
-15D1	282.2	59.9	222.3

Data from California Department of Water Resources.

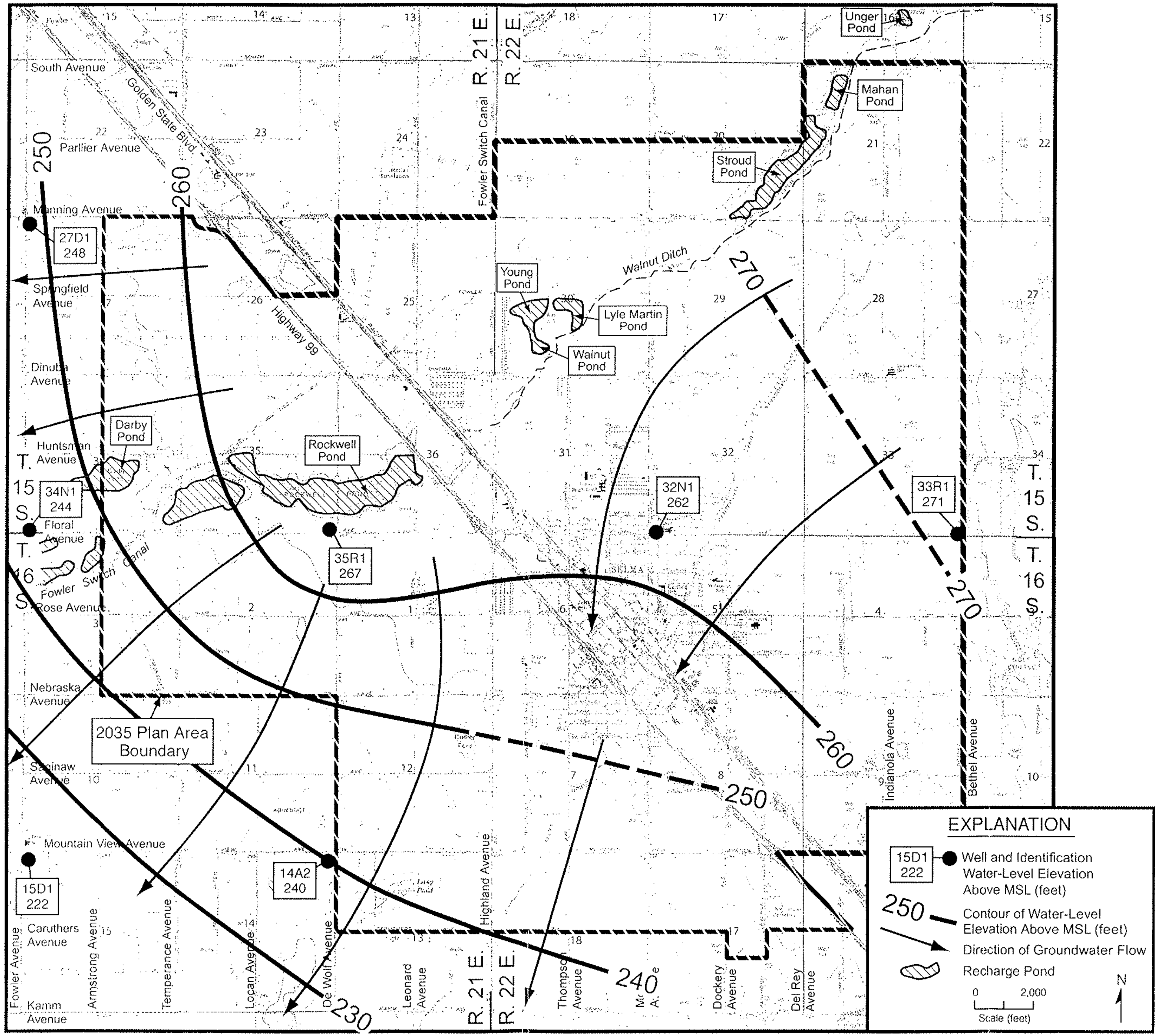

FIGURE 4 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW
(JANAURY 11, 2006)

shows water-level elevations and the direction of groundwater flow for January 11, 2006. The highest water-level elevation was at Well T15S/R21E-33R1, east of the City, and the lowest was at Well T16S/R21E-15D1, to the southwest near Mountain View and Fowler Avenues. The direction of groundwater flow was generally to the southwest, and the influence of CID pond recharge was apparent, due to the curvature of the contours in the vicinity of these.

Water-level hydrographs were prepared for these eight wells and are provided in Appendix A. Figure 5 shows a water-level hydrograph for Well T15S/R22E-32N1, which is located near Floral and McCall Avenues. Since 1950, depth to water in this well has ranged from about 20 to 55 feet. The shallowest water levels (less than 30 feet deep) were in the 1940's and 1950's, 1969-71, 1973-74, 1980-87, and 1998-99. The deepest water levels (greater than 45 feet) were in 1977-78, 1991-95, and in 2005-06. Water levels in wells in the Selma vicinity rise and fall, largely depending on Kings River water deliveries to the CID. Since 1960, there has been an overall decline in the water levels in Well 32N1 averaging about 0.2 foot per year. Except for two wells near the west boundary of the plan area (T15S/R21E-27D1 and T16S/R21E-15D1), water-levels in the other wells in the plan area with long-term records have fallen an average of 0.3 foot per year since 1960. Water levels in Well 27D1 and 15D1 have fallen an average of 0.5 to 0.6 foot per year since 1960. There have been greater water-level declines

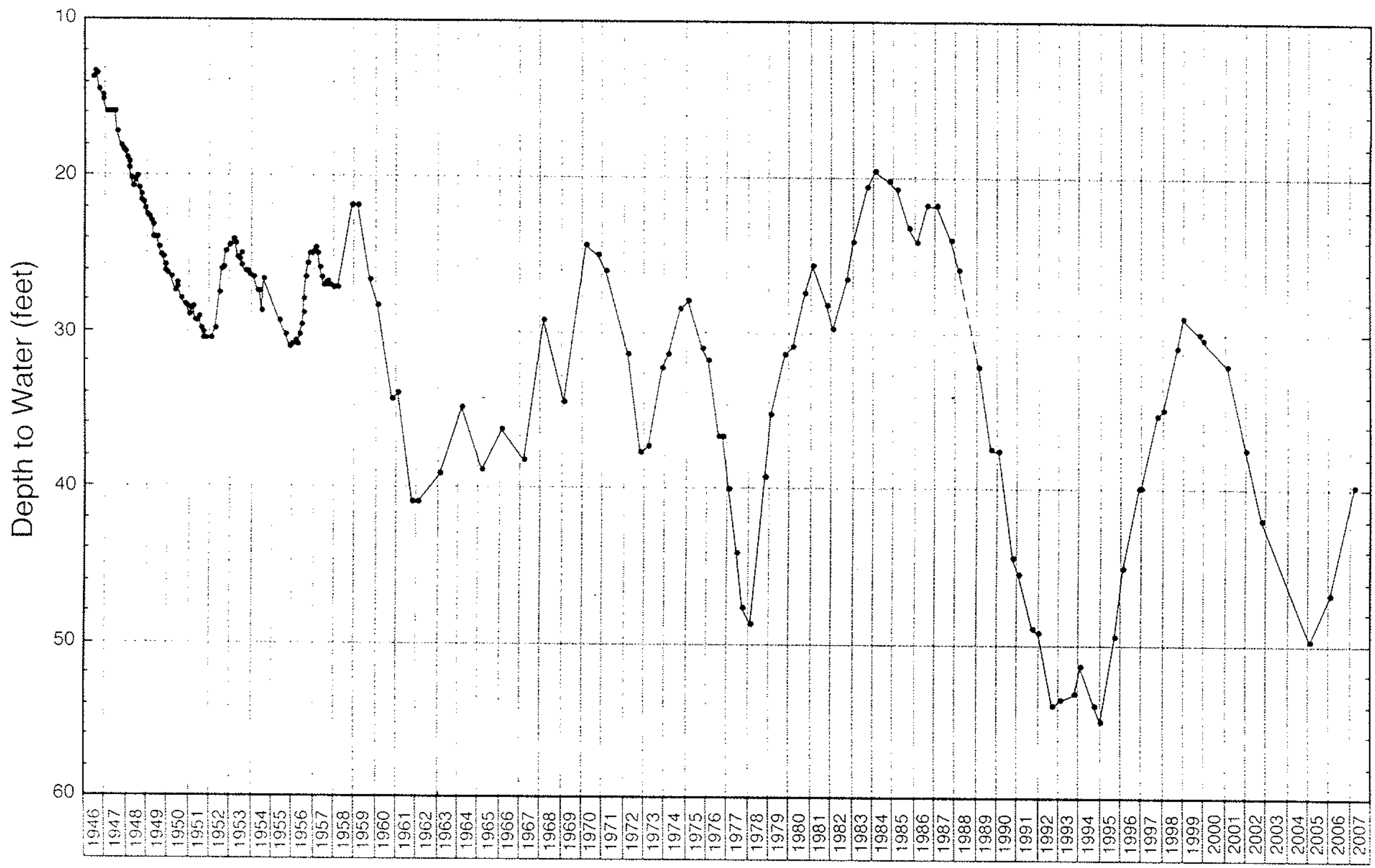

FIGURE 5- LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T15S/R22E-32N1

in the area west and southwest of the plan area than farther east. There are a number of CID recharge ponds in the Selma area, and these have been used to recharge the groundwater, along with seepage from canals and deep percolation of applied canal water. According to Summers Engineering (2007), the average rate of water-level decline in the CID has been about 1.5 feet per year.

Well Production

Records of the California Department of Health Services (DOHS) indicate that operational pumping rates for most of the cable-tool drilled CWS Selma wells have ranged from about 500 to 800 gpm. For the deeper gravel packed wells, operational pumping rates have usually ranged from about 700 to 1,200 gpm.

Pumpage

DOHS records indicate that total CWS Selma water system pumpage in 2006 was about 6,300 acre-feet. This was for a total of 6,315 connections serving a population of about 24,000 residents.

There are several industries in the City of Selma that have their own wells for water supply. The annual pumpage from these is estimated to be about 500 acre-feet per year.

Recharge

Summers Engineering, Inc. (2002) described water supplies in the CID. The two main canals are the Fowler Switch Canal, which passes through the plan area near the northwest corner of the City, and the Centerville and Kingsburg (C&K) Canal, which passes through the east and south parts of the City. Canal water deliveries normally begin in April and end in mid-August. The CID conducts recharge to the groundwater by seepage from the canals and dedicated recharge basins. There is typically basin recharge when there are excess flows or flood releases in the Kings River. Plate D-1 of Summers Engineering shows locations of recharge ponds near Selma, and these are shown in Figure 4. Summers Engineering (2007) indicated that pond deliveries in the CID averaged about 31,000 acre-feet per year over the period of record. There is an estimated 20,000 acre-feet per year of canal seepage and pond deliveries during the irrigation season. In addition, Summers Engineering (2007) estimated that deep percolation losses from water applied to irrigated fields in the CID were about 30 percent.

Wastewater Flows

Data from the Selma-Kingsburg-Fowler County Sanitation District (SKFCSD) indicate a wastewater flow from Selma of about 3,000 acre-feet in 2008. The effluent is sent to a series of ponds south of Conejo Avenue, and most of it percolates (about 2,700 acre-feet per year from Selma) to the groundwater, while the remainder evaporates.

Groundwater Overdraft

Based on the water-level hydrographs for the eight wells in the 2035 plan area with long-term records, the average rate of water-level decline since 1960 has been about 0.35 foot per year. Using an estimated average specific yield of 0.15 for the shallow deposits, the amount of groundwater overdraft in the 2035 plan area has averaged about 800 acre-feet per year since 1960.

Groundwater Quality

In general, the quality of groundwater in most of the plan area has been suitable for public supply, except for DBCP and uranium in the shallow groundwater at some locations. Since 1983, new CWS Selma wells have been drilled to depths of at least 600 feet and the shallow groundwater sealed off. Other new water system wells have also been constructed in a similar manner.

Inorganic Constituents

Table 3 shows the results of analyses for selected constituents for water samples collected from shallower CWS Selma wells during 2007-08. Total dissolved solids (TDS) concentrations ranged from 136 to 260 mg/l. The lowest TDS concentrations (175 mg/l or less) were in water from Wells No. 05-03, 07-01, 11-01, and 14-01. The first three of these wells were near the C&K Canal, and the other was near the Walnut Ditch. The waters from this group of wells were of the calcium or calcium-sodium bicarbonate type, and

TABLE 3-CHEMICAL AND RADIOLOGICAL QUALITY OF WATER FROM
SHALLOWER CALIFORNIA WATER SERVICE CO. SELMA WELLS

Constituent (mg/l)	No. 04-03	No. 05-03	No. 06-01	No. 07-01
Calcium	34	29	40	31
Magnesium	6	3	4	4
Sodium	21	22	27	18
Carbonate	<1	3	3	4
Bicarbonate	146	116	133	120
Sulfate	17	11	20	15
Chloride	16	12	30	13
Nitrate	13	8	16	11
Fluoride	0.1	<0.1	<0.1	<0.1
pH	8.2	8.1	8.0	8.2
Electrical Conductivity (micromhos/cm @ 25°C)	300	268	381	282
Total Dissolved Solids	220	136	224	172
Arsenic (ppb)	<2	1.9	1.1	<1
Iron	<0.1	<0.1	<0.1	<0.1
Manganese	<0.02	<0.02	<0.02	<0.02
Alpha Activity (pC/l)	8.9	3.6	7.1	6.5
DBCP (ppb)	0.15	0.05	<0.01	0.12
1,2,3-TCP (ppb)	<0.01	<0.01	<0.01	<0.01
Date	07/15/08	01/10/06	10/07/08	04/08/08
Perforated Interval (ft)	225 O.B.	229 O.B.	T.D.296	208 O.B.

Continued:

TABLE 3-CHEMICAL AND RADIOLOGICAL QUALITY OF WATER FROM SHALLOWER CALIFORNIA WATER SERVICE CO. SELMA WELLS (Continued:)

Constituent (mg/l)	No. 08-01	No. 10-01	No. 11-01	No. 14-01
Calcium	36	45	24	27
Magnesium	6	3	1	3
Sodium	23	33	20	21
Carbonate	<1	<1	4	4
Bicarbonate	183	305	93	115
Sulfate	11	29	18	12
Chloride	14	26	9	7
Nitrate	9	29	11	15
Fluoride	0.1	<0.1	<0.1	<0.1
pH	8.1	8.0	8.3	8.2
Electrical Conductivity (micromhos/cm @ 25°C)	300	400	225	263
Total Dissolved Solids	220	260	160	160
Arsenic (ppb)	<2	<2	<1	1.0
Iron	<0.1	<0.1	<0.1	<0.1
Manganese	<0.02	<0.02	<0.02	<0.02
Alpha Activity (pC/l)	5.9	3.1	3.5	5.5
DBCP (ppb)	<0.01	<0.01	<0.01	0.10
1,2,3-TCP (ppb)	<0.01	<0.01	<0.01	<0.01
Date	09/11/07	09/11/07	07/10/07	10/07/08
Perforated Interval (ft)	228 O.B.	290 O.B.	287 O.B.	179-280

Water from Well No. 14-01 is treated for DBCP removal prior to use.
Analyses from CDOHS files.

pH values ranged from 8.0 to 8.3. Nitrate concentrations in water from these wells ranged from 8 to 29 mg/l, below the MCL of 45 mg/l. The lowest nitrate concentrations (15 mg or less) were from the wells with the lowest TDS concentrations. Concentrations of iron, manganese, and arsenic in water from these were well below the respective MCLs.

Table 4 shows the results of analyses for inorganic constituents in water samples collected from deeper CWS Selma wells during 2007-08. TDS concentrations ranged from 62 to 132 mg/l. Water from three of these wells (No. 17-02, 19-01, and 20-01) were less than 70 mg/l. The waters were of the sodium or calcium-sodium bicarbonate type and pH values ranged from 8.3 to 8.9. Nitrate concentrations in water from these wells ranged from less than 1 to 11 mg/l. Concentrations of iron and manganese were well below the respective MCLs. Arsenic concentrations ranged from about 2 to 5 ppb, below the MCL of 10 ppb.

<u>Radiological Constituents</u>

CWS Selma Well No. 15-01 is now inactive, but produced uranium concentrations near or exceeding the MCL. This well was perforated from 160 to 300 feet in depth. Table 3 indicates that alpha activities in water from the shallower CWS Selma wells ranged from about 3 to 9 picocuries per liter in 2007-08, below the MCL of 15 picocuries per liter. The highest alpha activities were generally

TABLE 4-CHEMICAL ANALYSES OF WATER FROM DEEPER CALIFORNIA WATER SERVICE CO. SELMA WELLS

Constituent (mg/l)	No. 13-02	No. 16-03	No. 17-02	No. 18-01	No. 19-01	No. 20-01
Calcium	15	13	6	14	8	7
Magnesium	1	<1	<1	<1	<1	<1
Sodium	20	20	15	19	16	17
Carbonate	6	<1	6	7	7	8
Bicarbonate	79	70	67	60	46	54
Sulfate	9	<10	3	6	6	3
Chloride	5	13	2	15	7	3
Nitrate	11	8	<1	7	7	5
Fluoride	<0.1	<0.1	0.1	<0.1	0.1	0.1
pH	8.6	8.3	8.5	8.7	8.9	8.8
Electrical Conductivity (micromhos/cm @ 25°C)	173	160	100	161	133	116
Total Dissolved Solids	132	110	67	98	68	62
Arsenic (ppb)	1.6	<2	2.7	5.3	3.5	3.8
Iron	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Alpha Activity (pC/l)	2.3	<3.0	<3.0	<3.0	<3.0	<3.0
DBCP (ppb)	0.04	0.05	<0.01	0.02	<0.01	<0.01
1,2,3-TCP (ppb)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Date	10/16/07	07/29/08	12/09/08	01/09/07	12/14/07	03/06/07
Perforated Intervals (ft)	340-560	380-582		340-570	350-600	375-650

Analyses from CDOHS. No. 17-01 is a new well, not yet in service.

in wells with the shallowest perforations. Table 4 indicates that alpha activities in water from all of the deeper CWS Selma wells were less than 3 picocuries per liter.

Trace Organics

DBCP was applied in some irrigated lands in the eastern San Joaquin Valley to control nematodies, particularly for vineyards on sandy soils, until it was banned in 1977. CSUF (1994) evaluated the distribution of DBCP in the Kings Basin, which includes the project site. High DBCP concentrations in groundwater usually coincide with sandy topsoils, coarse-grained under-lying alluvium, and vineyards. DBCP in the groundwater has been found to be primarily above a depth of about 250 feet in the Selma area. Tables 3 and 4 also show DBCP concentrations in water from CWS Selma wells in 2007-08. DBCP was detected in water from four of the shallower CWS Selma wells at concentrations ranging from 0.05 to 0.15 ppb, below the MCL of 0.2 ppb. Water from CWS Well 14-01 is treated for DBCP removal. CWS Selma cable-tool wells that draw water from below a depth of about 290 feet appear to normally have had no detectable DBCP concentrations in the pumped water. DBCP concentrations in water from three deeper CWS Selma wells were non-detectable (Table 4). Water from the other three of the deeper wells had DBCP concentrations ranging from 0.02 to 0.05 ppb, below the MCL.

Summary

The quality of groundwater below a depth of about 300 feet and above a depth of about 700 feet beneath the City of Selma plan area appears to be excellent for public supply. Shallower groundwater is generally of suitable quality for irrigation use.

Existing Water Budget

Urban

CDOHS records indicate that pumpage from CWS Selma wells was 6,300 acre feet in 2006, or an average of about 2.6 acre-feet per acre per year for the 2,400 acres in the City limits. There is an additional estimated pumpage of 500 acre-feet per year from several industries in the City of Selma. Information from the SKFCSD indicates a dry weather wastewater influent amount from the City of Selma of 2,600 acre-feet in 2008. The estimated outdoor water use in the City was thus about 3,700 acre-feet per year. Assuming an average irrigation efficiency of 60 percent in the urban area, the consumptive use of applied water in the urban area would be about 2,200 acre-feet per year, or about 0.9 acre-foot per acre per year.

Information on SKFCSD effluent ponds evaporation and percolation is submitted by the SKFCSD to the Regional Water Quality Control Board on an annual basis. Of the City of Selma contribution to wastewater effluent from the SKFCSD WWTF, an estimated 200 acre-feet per year (rounded), has been lost to pond evaporation, when the ponds have been allowed to gradually plug. Thus the total consumptive use for the City of Selma was about 2,400 acre-feet per year, or about 1.0 acre-foot per acre per year. In 2009 the percolation ponds were deep ripped, and after this was completed, the pond water surface area decreased from about 110 acres to 15 acres (Ben Munoz, person communication). Thus infiltration rates from the ponds can be increased and evaporation rates decreased in the future by periodic maintenance. Recharge of storm water in the City hasn't been exactly determined, but is estimated to be less than 100 acre-feet per year.

Rural

Summers Engineering (2007) summarized canal water deliveries in the CID. The CID delivers an average of 239,000 acre-feet per year of water to 95,000 acres in the CID. Assuming that two-thirds of the 9,900 irrigated acres in the plan area were provided canal water by the CID (based on the District-wide average), the canal water delivery to the plan area would average 15,000 acre-feet per year. According to Summers Engineering (2007), the CID recharges an average of about 51,000 acre-feet per year in recharge ponds and canals in the District. An estimated 500 acres of these ponds are in the 2035 plan area. The estimated recharge from the ponds and canals in the plan area averages about 10,000 acre-feet per year.

Aerial photos were reviewed for the 2035 plan area. The part of this area east of Locan Avenue was covered by a photo for August 20, 2004, and the part of the area to the west was covered by a photo of March 30, 2007. The plan area encompasses about 15,200 acres of land. Of the land, a total of about 9,900 acres was irrigated, 3,100 acres were urban, 500 acres were recharge basins, and 1,700 acres were idle land, agricultural residences, and ancillary land in the rural area.

Based on a review of these aerial photos, there were about 8,040 acres of vineyards, 1,540 acres of deciduous orchards, and 400 acres of other irrigated crops in the 2035 plan area (based on the November 2008 preferred alternative map). Using California Department of Water Resources Bulletin 113-3 values for evapotranspiration of applied water by crops, the consumptive use of applied water in the 2035 plan area was 21,000 acre-feet per year. The average consumptive use in the rural area was thus 2.1 acre-feet per acre per year, or about twice the estimated urban consumptive use (including evaporation of the City's share of sewage effluent from SKFCSD ponds). Using an estimated irrigation efficiency of 60 percent, the applied water requirement for irrigation in the plan area would be about 35,000 acre-feet per year. If an average of 15,000 acre-feet per year of irrigation water has been delivered in this area from canals, then the groundwater pumpage for irrigation in this area has averaged about 20,000 acre-feet per year.

In the CID as a whole, canal water deliveries (for irrigation and recharge) have been less than the crop consumptive use and the groundwater outflow to the west. This is demonstrated by the history of water-level declines shown by water-level hydrographs for numerous wells in the District. The larger water-level declines aren't associated with urban areas, rather they are associated with pumpage for agricultural irrigation, both in and west of the CID. Average rates of water-level decline in the City of Selma plan area have been much less than the reported average decline in the CID.

Using an average water-level decline in the 2035 plan area of about 0.35 foot per year since 1960, and a specific yield of about 0.15 for the shallow deposits, the average annual groundwater overdraft in the plan area has been about 800 acre-feet per year.

IMPACTS OF DEVELOPMENT OF PLAN AREA ON GROUNDWATER

Based on the November 2008 preferred alternative 2035 plan area, about 14,700 acres of land would be urban (excludes CID canals and recharge ponds). California Water Service (2006) estimated the water requirement for year 2030 would be about 27,600 acre-feet per year. If groundwater pumpage alone is used to supply the urban demand for the 2035 planning area, the increased pumpage would be about 8,000 acre-feet per year compared to existing conditions. There would be an estimated urban consumptive use of about 15,000 acre-feet per year under full development of the 2035 plan area. This would be about 13,000 acre-feet per year less than the estimated present consumptive use in the plan area. The amount of wastewater generated in the plan area would be about 13,000 acre feet per year. If all of this was exported out of the plan area, there would be an average water deficit of about 15,000 acre-feet per year in the plan area. If the canal water formerly used for irrigation in the 2035 plan area (15,000 acre-feet per year) were used or recharged in the 2035 plan area under full development, then the deficit would be eliminated. If the 10,000 acre-feet of additional wastewater was used or percolated in the plan area, this would reduce the deficit significantly.

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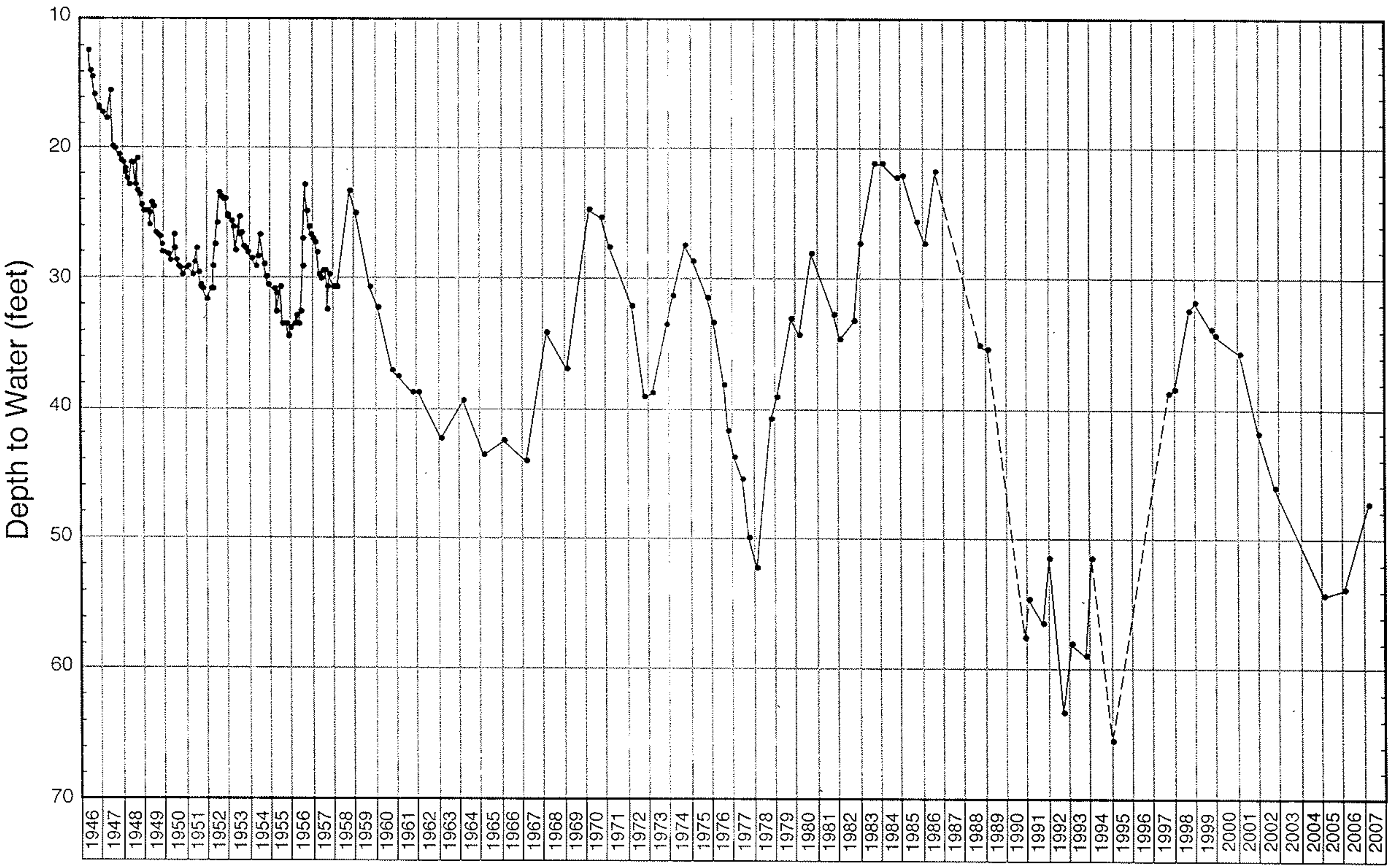
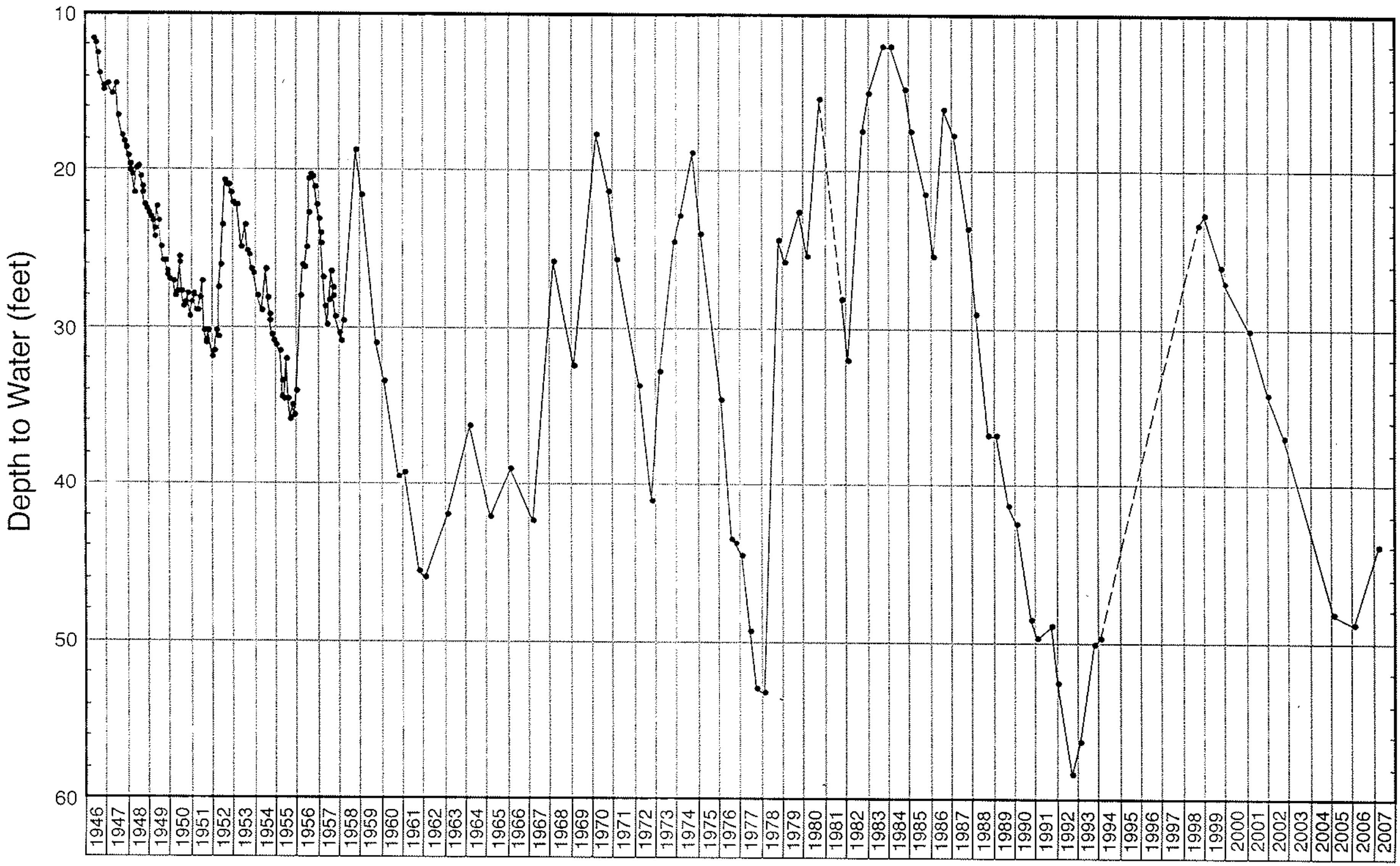
APPENDIX A

WATER-LEVEL HYDROGRAPHS



LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T15S/R21E-27D1



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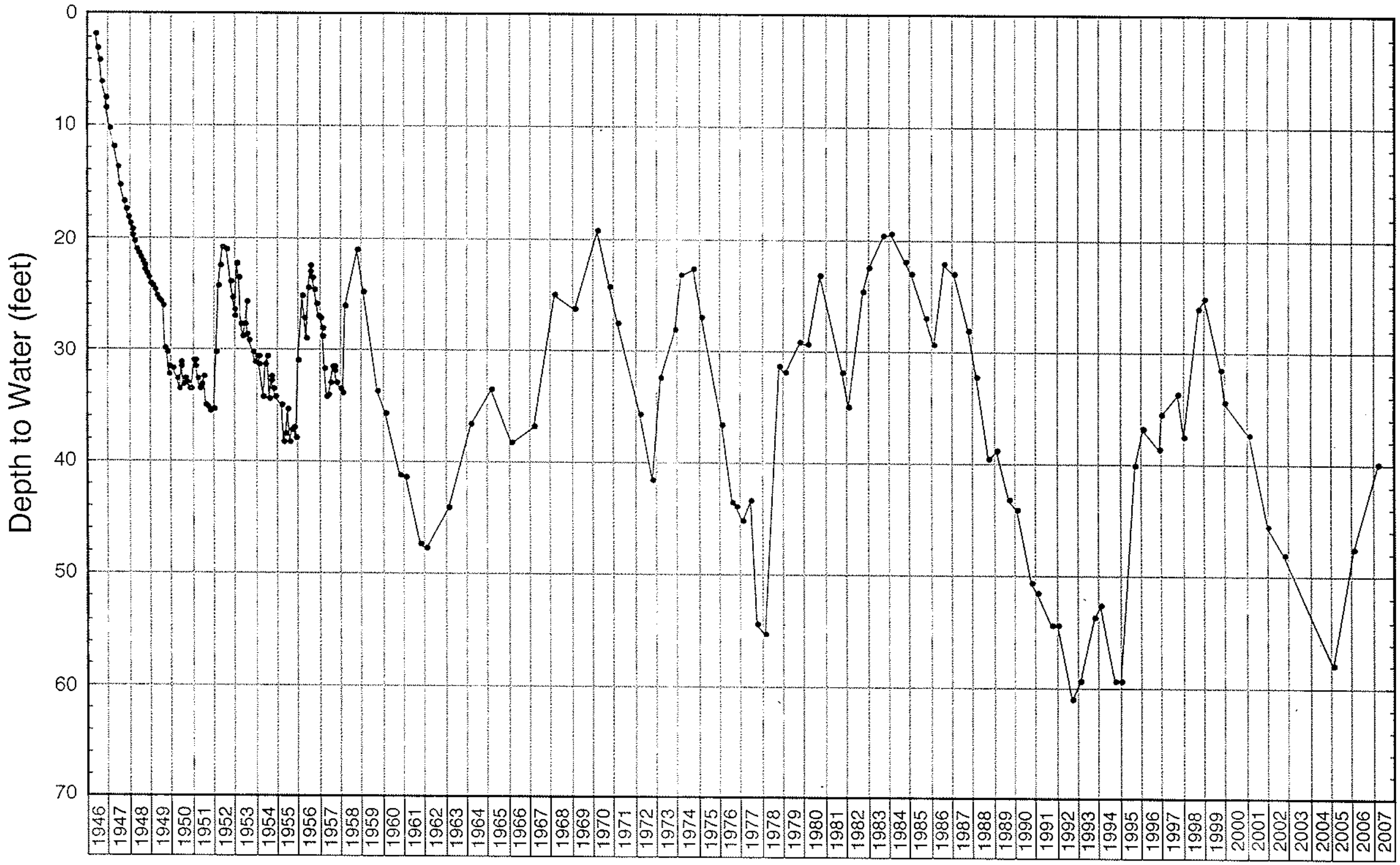

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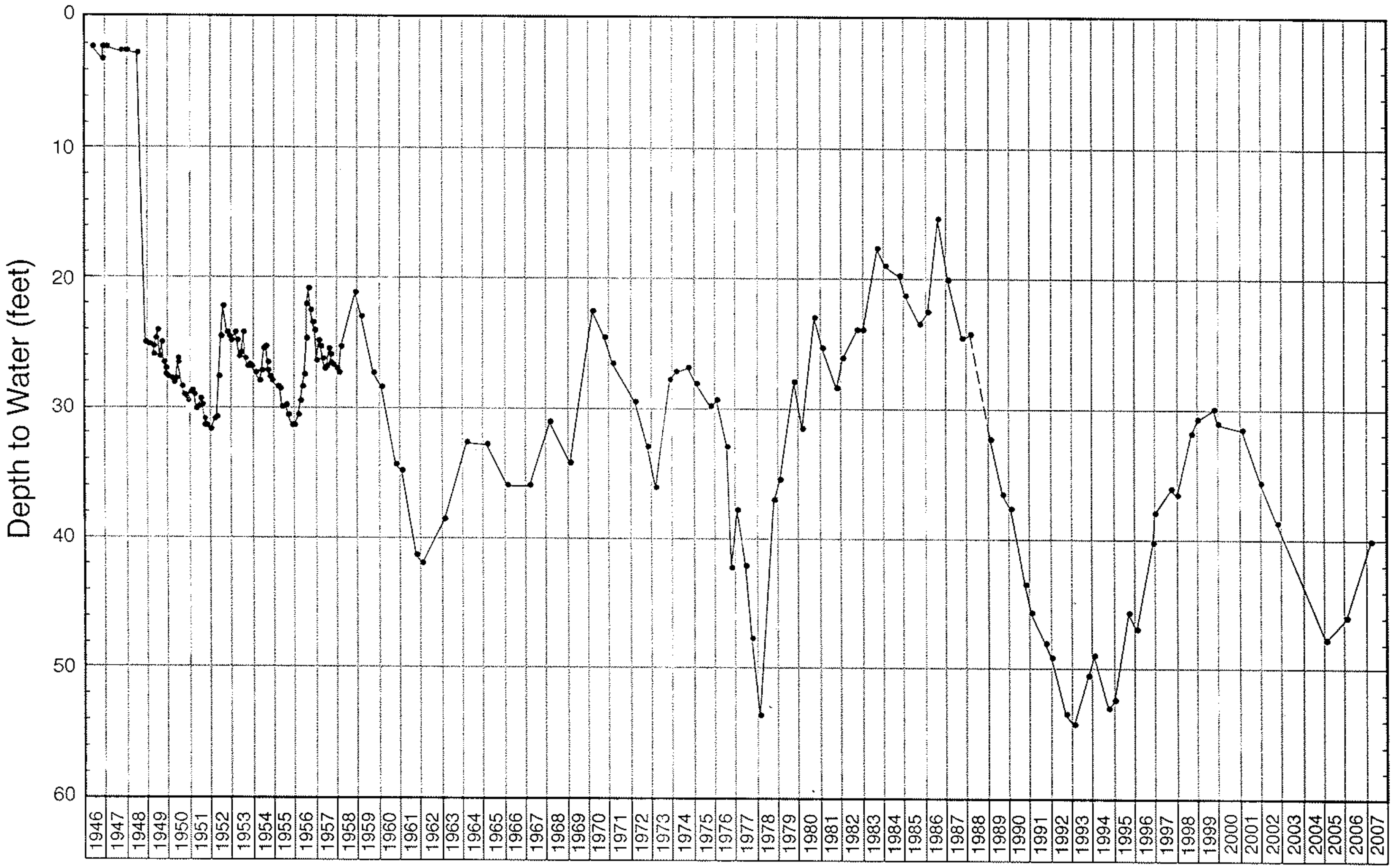

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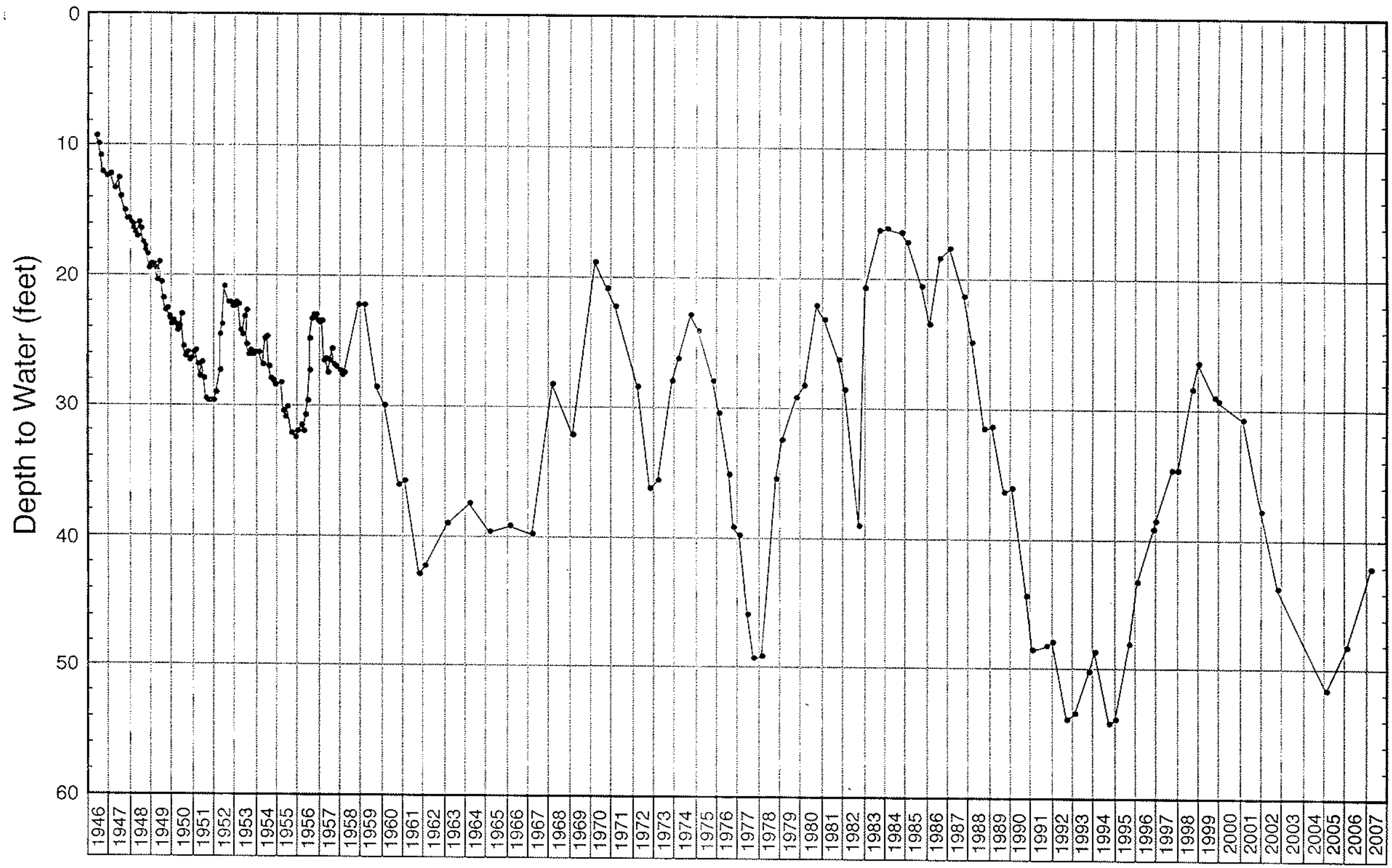

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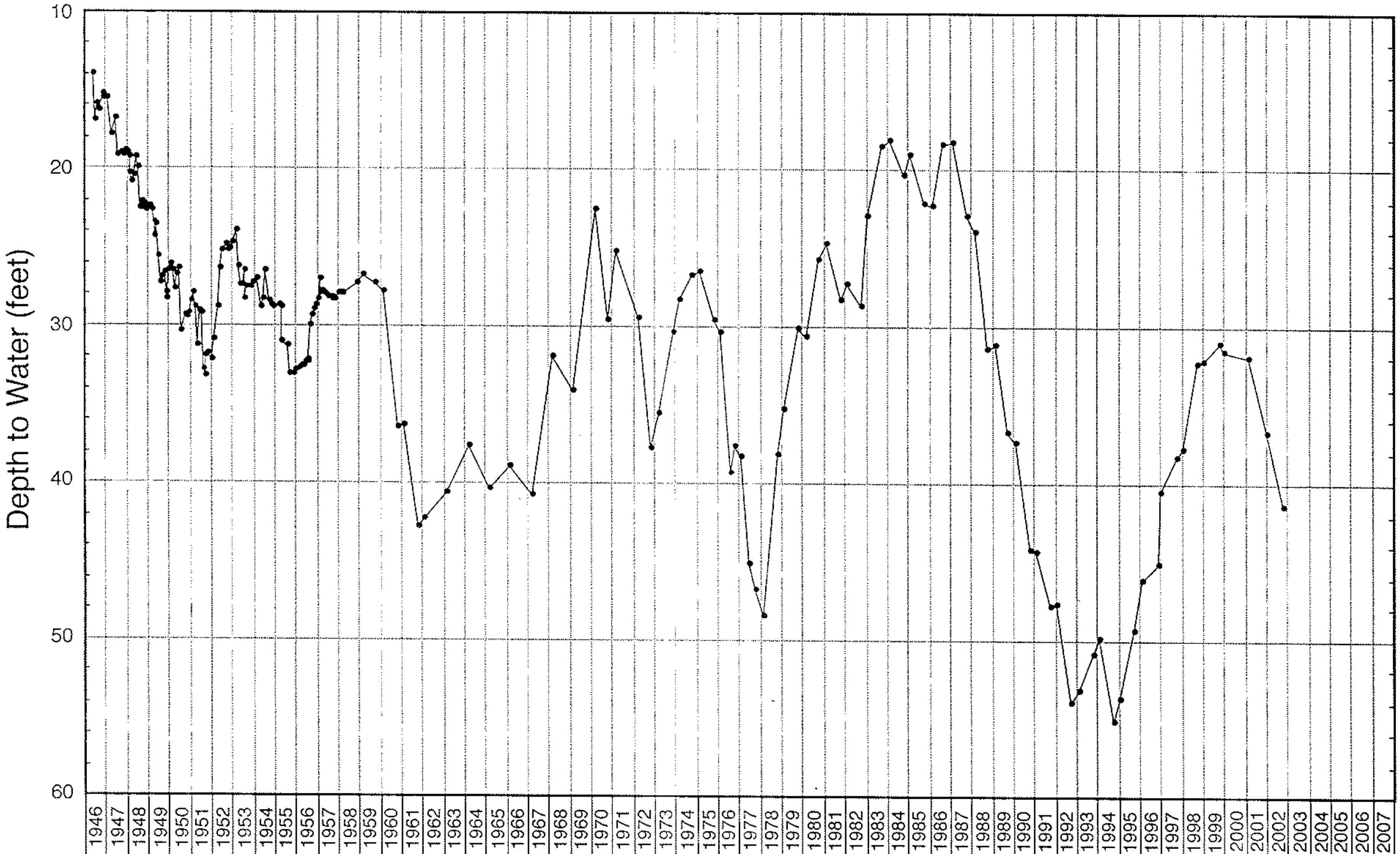
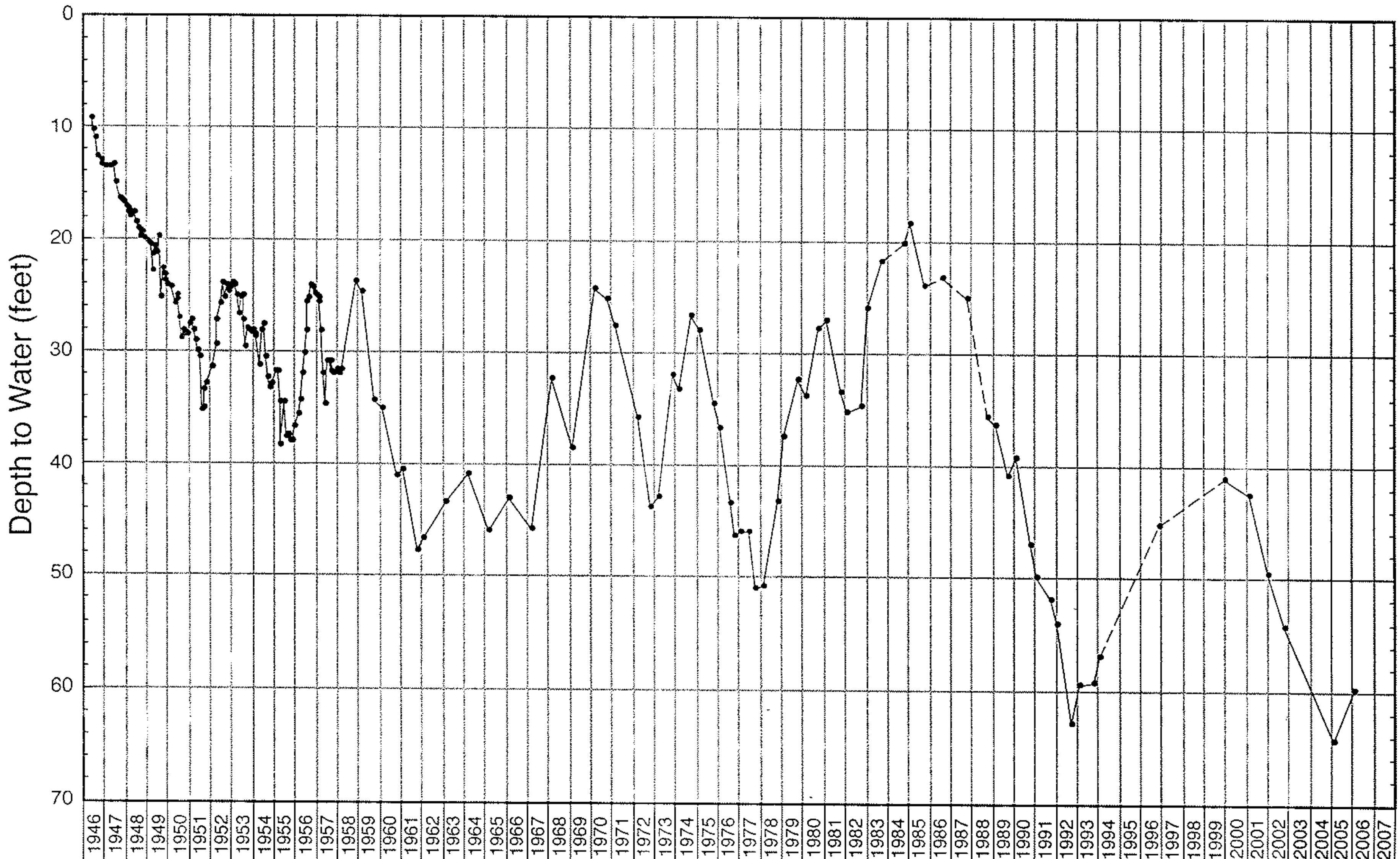


LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T16S/R22E-18A1



LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T16S/R21E-15D1

APPENDIX I

NOISE ELEMENT OF THE GENERAL PLAN
CITY OF SELMA, CALIFORNIA

PREPARED FOR

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VISALIA, CALIFORNIA 93218

PREPARED BY

BROWN-BUNTIN ASSOCIATES, INC.
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MAY 12, 2009

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CHAPTER ONE

INTRODUCTION

1.1 Purpose and Scope

The Noise Element of the General Plan is a planning document which provides a policy framework for addressing potential noise impacts encountered in the planning process.

The content of the Noise Element and the methods used in its preparation have been determined by the requirements of Section 65302 (f) of the California Government Code and by the *Guidelines for the Preparation and Content of Noise Elements of the General Plan* adopted and published by the California Office of Noise Control (ONC) in 1976. The ONC Guidelines require that major noise sources be quantified by preparing generalized noise exposure contours for current and projected conditions. The Noise Element shall be used as a guide for establishing land use patterns that minimize noise impacts on the Community and shall include measures and solutions to address existing and foreseeable noise conflicts.

According to the Government Code requirements, noise exposure information should be included in the Noise Element for the following major noise sources:

1. Highways and freeways
2. Primary arterials and major local streets
3. Railroad operations
4. Aircraft and airport operations
5. Local industrial facilities
6. Other stationary sources

Noise-sensitive uses identified by the Government Code and the City of Selma include the following:

1. Residential development
2. Schools
3. Hospitals, nursing homes
4. Churches
5. Libraries

The Noise Element is intended to minimizing future noise conflicts, whereas a noise control ordinance resolves existing noise conflicts. A noise control ordinance may be used to address noise levels generated by existing local industrial, commercial, agricultural and residential uses which are not regulated by federal or state noise level standards. The regulation of noise sources such as traffic on public roadways, railroad line operations and aircraft in flight is preempted by existing federal and/or state regulations, meaning that such sources generally may not be addressed by a local noise control ordinance. The Noise Element addresses the prevention of noise conflicts through the planning process.

1.2 Relationship to Other Elements of the General Plan

The Noise Element is related to the Land Use, Housing, Circulation and Open Space Elements of the General Plan. Recognition of the interrelationship of the Noise Element and these four other mandated elements is necessary to prepare an integrated general plan and to implement actions to achieve an acceptable noise environment within the community as defined by the Noise Element. The relationship between these elements is briefly discussed below.

1. Land Use: An objective of the Noise Element is to provide noise exposure information for use in the Land Use Element. When integrated with the Noise Element, the Land Use Element will show acceptable land uses in relation to existing and projected noise levels.

2. Housing: The Housing Element considers the provision of adequate sites for new housing and standards for housing stock. Since residential land uses are considered noise-sensitive, the noise exposure information of the Noise Element must be considered when planning the locations of new housing. The State Noise Insulation Standards may influence the locations and construction costs of multi-family dwellings, which should be considered by the Housing Element.

3. Circulation: The circulation system, which is a major source of noise, must be correlated with the Land Use Element. This is especially true for roadways which carry significant numbers of trucks. Noise exposure will thus be a decisive factor in the location and design of new transportation facilities, and in the mitigation of noise produced by existing facilities upon existing and planned land uses.

4. Open Space: Excessive noise adversely affects the enjoyment of recreational pursuits in designated open space areas, particularly in areas where quiet is a valued part of the recreational experience. Thus, noise exposure should be considered in planning for these types of open space uses. Conversely, open space can be used to buffer noise-sensitive uses from noise sources by providing setbacks and visual screening.

1.3 Definition of Key Terms

1. A-Weighted Sound Level: All sound levels referred to in this policy document are in A-weighted decibels. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and potential adverse health effects.

2. Community Noise Equivalent Level (CNEL): The time-weighted average sound level during a 24-hour day, obtained after addition of approximately 5 dB to sound levels during the evening hours (7:00 p.m.-10:00 p.m.) and 10 dB to sound levels during the nighttime hours (10:00 p.m.-7:00 a.m.). The State of California requires that aircraft noise exposure be defined in terms of the annual average CNEL.

3. Day/Night Average Sound Level (DNL): The time-weighted average sound level during a 24-hour day, obtained after addition of 10 dB to sound levels during the nighttime hours (10:00 p.m.-7:00 a.m.). The DNL and CNEL are similar descriptors of the community noise environment and are generally considered to be equivalent within ±1.0 dB.

4. Equivalent Sound Level (L_{eq}): The sound level containing the same total energy as a time varying signal over a given period. L_{eq} is typically calculated over 1, 8 and 24-hour sample periods.

5. New Development: Projects requiring land use or building permits, but excluding remodeling or additions to existing structures.

6. Noise-Sensitive Land Use: Residential land uses, transient lodging, schools, libraries, churches, hospitals and nursing homes.

7. Outdoor Activity Areas: Patios, decks, balconies, outdoor eating areas, swimming pool areas, yards of dwellings and other areas which have been designated for outdoor activities and recreation.

8. Stationary Noise Source: Any fixed or mobile source *not* preempted from local control by federal or state regulations. Examples of such sources include agricultural, industrial and commercial facilities and vehicle movements on private property.

9. Transportation Noise Source: Traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by federal or state regulations. However, the effects of noise from transportation sources may be controlled by regulating the locations and design of adjacent land uses.

CHAPTER TWO

EXISTING AND FUTURE NOISE ENVIRONMENT

2.1 Overview of Sources

Based on the requirements of the Government Code and the field studies conducted during the preparation of the Noise Element, it was determined that there are four potentially significant sources of community noise within the City of Selma. These sources include traffic on State Highway 99 (SR 99), traffic on major local roadways, commercial/industrial facilities, operations on the Union Pacific Railroad (UPRR) and aircraft operations at two nearby airports.

2.2 Methods Used to Develop Noise Exposure Information

According to the Government Code and ONC Guidelines, noise exposure contours should be developed in terms of the Day-Night Average Level (DNL) or Community Noise Equivalent Level (CNEL) for transportation-related noise sources. Both of these descriptors represents the time-weighted energy noise level for a 24-hour day after inclusion of a 10 dB penalty for noise levels occurring at night between the hours of 10:00 p.m. and 7:00 a.m. The CNEL descriptor also includes a penalty of 4.8 dB for noise levels occurring during the evening hours of 7:00 p.m. and 10:00 p.m. The CNEL descriptor was developed for the quantification of aircraft noise, and its use is required when preparing noise exposure maps for airports within the State of California. The CNEL and DNL descriptors are generally considered to be equivalent to each other for most community noise environments within ±1.0 dB.

Analytical noise modeling techniques were used to develop generalized DNL contours for major transportation noise sources within the City of Selma for existing and projected future conditions. A combination of analytical methods and actual noise measurements was used to develop noise exposure information for stationary noise sources. Since the standards to be applied to stationary noise sources are based upon the equivalent energy sound level (L_{eq}) during any one-hour period, noise exposure information was developed for these sources in terms of the L_{eq}.

The noise exposure information developed during the preparation of the Noise Element does not include all conceivable sources of industrial, commercial or transportation noise within the City, but rather is a representative sampling of typical sources. The noise exposure information developed for the sources identified for study should be used as an indicator of potential noise impacts when other, similar sources are considered.

2.3 Existing Conditions

2.3.1 Community Noise Survey

The purpose of the community noise survey was to document existing background (ambient) noise levels at representative locations within the City that are both near and removed from obvious noise sources. Two residences and two commercial business locations were selected for the survey. One of the commercial business locations was an older house that has been converted to a professional office use. The monitoring site locations are shown in Figure 1. Noise measurements were conducted continuously for 24 hours using automated sound level analyzers.

The community noise survey findings are summarized in Appendix A. Shown are the measured hourly noise levels during the survey period, as defined by the L_{eq}, L_{min} and L_{max} descriptors. The L_{max} and L_{min} represent the highest (maximum) and lowest (minimum) noise levels occurring during the hour, respectively. As previously noted, the L_{eq} is the energy average noise level during the hour. The measured DNL values for the 24-hour measurement period at each site are also noted on the figures.

Measured DNL values at the community noise survey sites were in the range of 60-70 dBA during the noise measurement period. The highest measured DNL occurred at Site 4 due its proximity to the UPRR and a railroad grade crossing at McCall Avenue. The lowest measured DNL occurred at Site 2, which is a residence in a quiet neighborhood. It was noted that ambient noise levels were higher than would normally be expected within a residential neighborhood at Sites 2 and 3 during certain hours of the noise measurement period. Such elevated noise levels may have been caused by residential maintenance, construction or other temporary activities. Without the contribution of these higher-than-normal hourly noise levels, measured DNL values would have been in the range of 55-60 dBA at Sites 2 and 3. Such levels are typical of small communities at locations located away from major noise sources.

2.3.2 Major Stationary Noise Sources

The production of noise is an inherent part of many industrial, commercial and agricultural processes, even when the best available noise control technology is applied. Noise production within industrial or commercial facilities is controlled indirectly by federal and state employee health and safety regulations (OHSA and Cal-OSHA), but exterior noise emissions from such operations have the potential to exceed locally acceptable standards at nearby noise-sensitive land uses.

The following discussion provides generalized information concerning the relative noise impacts of four major industrial noise sources within the City of Selma. The industrial uses identified for study were Blocklite, Selma Disposal and Recycling, Selma Cold and Dry Storage and the Sunmaid Plant No. 8. Other industrial or commercial noise sources may exist within the City, but such sources were not identified at the time of the study.

Noise measurements were conducted at each of the above-referenced industrial operations on July 3, 2007. Based upon those measurements, worst-case 50 and 55 dBA hourly L_{eq} contours were calculated. Table I summarizes noise level measurements and calculations for each of the identified industries.

TABLE I SUMMARY OF MEASURED AND CALCULATED NOISE LEVELS SELECTED STATIONARY NOISE SOURCES JULY 3, 2007					
Industry	**Distance**	**L_{eq}, dBA**	**L_{max}, dBA**	**Distance to 50 dBA, L_{eq}**	**Distance to 55 dBA, L_{eq}**
Blocklite Park St. & McCall Ave.	300′	68.2	71.9	2440′	1371′
Selma Disposal & Recycling Golden State & Dockery	100′	55.1	57.0	180′	101′
Selma Cold & Dry Storage* Park St. & Front St.	--	--	--	--	--
Sunmaid Plant No. 8* Nebraska Ave. & Golden State Ave.	--	--	--	--	--

*Sporadic noise from trucks, but not audible at property line.

Source: Brown-Buntin Associates, Inc.

Table I shows that the generalized 50 dBA L_{eq} contour can be as far as 2440 feet from the center of the Blocklite plant. In practice, it may not be possible to discern plant noise at distances greater than 500 feet during most times of the day because of other community noise sources (traffic, etc.), and the effects of atmospheric conditions. The generalized 50 dBA L_{eq} contour shown in Figure 2 for Blocklite should be used as a screening device to determine when potential noise-related land use conflicts may occur, and when site-specific studies should be required to properly evaluate noise at a given noise-sensitive receiver location.

2.3.3 Existing Traffic Noise Exposure

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop DNL contours for SR 99 and major local roadways. The FHWA Model is an analytical method favored by most state and local agencies, including Caltrans, for highway traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavily trucks (3 or more axles), with consideration given to vehicles volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ±1.5 dB. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Annual Average Daily Traffic (AADT) was estimated for major local streets based upon peak hourly traffic volumes obtained from the Traffic Impact Study prepared by Peters Engineering Group. AADT for SR99 was obtained from Caltrans. The day/night distribution of traffic and the percentage of trucks on major local streets were estimated based upon studies along similar roadways. The percentages of trucks on SR99 and SR43 (Highland Avenue) were obtained from Caltrans. Appendix B-1 summarizes the noise modeling assumptions used to calculate traffic noise exposure for existing conditions along state highways and major local streets.

Table II summarizes distances to DNL contours for existing traffic conditions in tabular form. Figure 3 shows the roadways where distances to DNL contours were calculated for existing traffic conditions. The streets are color coded to indicate the approximate distances to the 60 dB DNL noise contours. Traffic noise exposure information is generalized for flat terrain and the absence of acoustical shielding or reflections that may be caused by site-specific conditions.

TABLE II
DISTANCE (FEET) TO GENERALIZED TRAFFIC NOISE EXPOSURE CONTOURS
EXISTING CONDITIONS

Roadway	Segment	60 dB DNL	65 dB DNL
Manning	SR99 to DeWolf	179	83
	DeWolf-McCall	181	84
	McCall-Del Rey	187	87
	Del Rey-Indianola	188	87
Dinuba	Temperance-DeWolf	12	6
	DeWolf-SR99	--	--
	SR99-Golden State	8	4
	Golden State-Highland	86	40
	Highland-McCall	95	44
	McCall-Dockery	83	39
Floral	DeWolf-Highland	54	25
	Highland-Whitson	124	58
	Whitson-McCall	85	39
	McCall-Orange	70	32
	Orange-Del Rey	101	47
	Del Rey-Amber	100	47
Whitson/Golden State	Mtn. View-Second	114	53
	Second-Thompson	110	51
	Thompson-Floral	145	67
	Floral-Highland	110	51
	Highland-Dinuba	114	53
	Dinuba-Manning	152	70
McCall	Mtn. View-Second	46	21
	Second-Floral	54	25
	Floral-Dinuba	70	32
	Dinuba-Manning	92	43
Nebraska	DeWolf-Highland	55	26
	Highland-Thompson	70	32
	Thompson-Second	53	24
	Dockery-Del Rey	17	8
Second	Nebraska-SR99	73	34
	SR99-Whitson	89	42
	Whitson-McCall	89	42
Highland/SR43	Mtn. View-Nebraska	235	109
	Nebraska-Rose	254	118
	Rose-Floral	273	127
	Floral-Dinuba	145	67

TABLE II (CONCLUDED) DISTANCE (FEET) TO GENERALIZED TRAFFIC NOISE EXPOSURE CONTOURS EXISTING CONDITIONS			
Roadway	**Segment**	**60 dB DNL**	**65 dB DNL**
Thompson	Mtn. View-Nebraska	50	23
Rose	DeWolf-Highland	60	28
Del Rey	Nebraska-Floral	0	0
	Floral-Dinuba	23	11
	Dinuba-Manning	22	10
Mtn. View	DeWolf-Highland	48	22
	Highland-McCall	61	28
	McCall-SR99	76	35
	SR99-Golden State	151	70
	Golden State-Bethel	153	71
SR99	South of Jct. SR43	2062	957
	North of Jct. SR43	2471	1147
Source: Brown-Buntin Associates, Inc.			

2.3.4 Railroad Noise Exposure

The Union Pacific Railroad (UPRR) mainline passes through Selma in a northwest-southeast direction adjacent to Golden State Boulevard/Front Street. According to the UPRR, about 22 freight trains daily pass through Selma. Grade crossings are located at several locations within the city. Train engineers are required to sound the warning horn when approaching within approximately 1000 feet of a grade crossing. Train noise levels are therefore higher at locations near grade crossings.

Railroad noise exposure within the City of Selma was calculated based upon the above-described operations data from the UPRR and noise level data from similar studies conducted by Brown-Buntin Associates, Inc. (BBA) along the UPRR in the central San Joaquin Valley. It was assumed for the calculations that train operations may occur at any time of the day or night and that operations are equally distributed over a 24-hour day. At locations within 1000 feet of a grade crossing, the calculated distance to the 60 dB DNL contour is 760 feet from the center of the tracks. At distances greater than 1000 feet from a grade crossing, the calculated distance to the 60 dB DNL contour is 160 feet from the center of the tracks. Calculated distances are generalized and do not take into consideration site-specific conditions such as acoustic shielding or reflections caused by nearby buildings.

2.3.5 Aircraft Noise Exposure

There are two privately owned airports within the City's sphere of influence. The Quinn Airport is located near Golden State Boulevard and Dinuba Avenue and the Selma Aerodrome is located near Huntsman and Temperance Avenues. Only a few aircraft are based at the Quinn Airport and there are no records of annual operations or noise contours at that airport known to BBA. Occasional aircraft operations at the Quinn Airport may be audible at times within the community, but it is unlikely that noise from the airport is of concern in terms of the CNEL noise metric.

According to FAA records, there were 15,000 annual operations at the Selma Aerodrome in 2007. The only noise exposure contours on record were prepared in 1980. Both the data and the methodology used to prepare those contours are considered by BBA to be out of date. The 1980 contours on file in the Fresno County Airport Land Use Commission Adopted Plans & Policies should therefore not be used for land use compatibility planning purposes at this time.

2.4 Future Conditions

Future traffic noise exposure was calculated based upon the above-described FHWA Model and traffic data obtained from the Peters Engineering Group and Caltrans. Traffic noise modeling assumptions for future (2035) conditions are summarized in Appendix B-2. It was not possible to develop future noise exposure information for stationary noise sources, railroad operations or airport operations, since estimates of future activities for these sources were not known to BBA at the time of the study.

2.4.1 Future Traffic Noise Exposure

Table III summarizes distances to DNL contours for future (2035) traffic conditions in tabular form. Figure 4 shows the roadways where distances to DNL contours were calculated for future traffic conditions. The streets are color coded to indicate the approximate distances to the 60 dB DNL noise contours. Future traffic noise exposure information is generalized for flat terrain and the absence of acoustical shielding or reflections that may be caused by site-specific conditions.

TABLE III
DISTANCE (FEET) TO GENERALIZED TRAFFIC NOISE EXPOSURE CONTOURS
FUTURE CONDITIONS - 2035

Roadway	Segment	60 dB DNL	65 dB DNL
Manning	SR99 to DeWolf	269	125
	DeWolf-McCall	301	140
	McCall-Del Rey	300	139
	Del Rey-Indianola	272	126
Dinuba	Temperance-DeWolf	96	44
	DeWolf-SR99	165	77
	SR99-Golden State	112	52
	Golden State-Highland	175	81
	Highland-McCall	172	80
	McCall-Dockery	175	81
Floral	DeWolf-Highland	158	73
	Highland-Whitson	212	98
	Whitson-McCall	186	87
	McCall-Orange	149	69
	Orange-Del Rey	189	88
	Del Rey-Amber	173	80

TABLE III (CONCLUDED)
DISTANCE (FEET) TO GENERALIZED TRAFFIC NOISE EXPOSURE CONTOURS
FUTURE CONDITIONS - 2035

Roadway	Segment	60 dB DNL	65 dB DNL
Whitson/Golden State	Mtn. View-Second	361	168
	Second-Thompson	286	133
	Thompson-Floral	239	111
	Floral-Highland	196	91
	Highland-Dinuba	290	135
	Dinuba-Manning	313	145
McCall	Mtn. View-Second	172	80
	Second-Floral	103	48
	Floral-Dinuba	132	61
	Dinuba-Manning	175	81
Nebraska	DeWolf-Highland	156	73
	Highland-Thompson	159	74
	Thompson-Second	122	57
	Dockery-Del Rey	77	36
Second	Nebraska-SR99	132	61
	SR99-Whitson	152	71
	Whitson-McCall	147	68
Highland/SR43	Mtn. View-Nebraska	401	186
	Nebraska-Rose	382	178
	Rose-Floral	444	206
	Floral-Dinuba	266	123
Thompson	Mtn. View-Nebraska	108	50
Rose	DeWolf-Highland	136	63
Del Rey	Nebraska-Floral	122	57
	Floral-Dinuba	132	61
	Dinuba-Manning	74	35
Mtn. View	DeWolf-Highland	163	76
	Highland-McCall	188	87
	McCall-SR99	274	127
	SR99-Golden State	398	185
	Golden State-Bethel	323	150
SR99	South of Jct. SR43	2531	1175
	North of Jct. SR43	3033	1408
Source: Brown-Buntin Associates, Inc.			

Figure 1: Community Noise Survey Sites

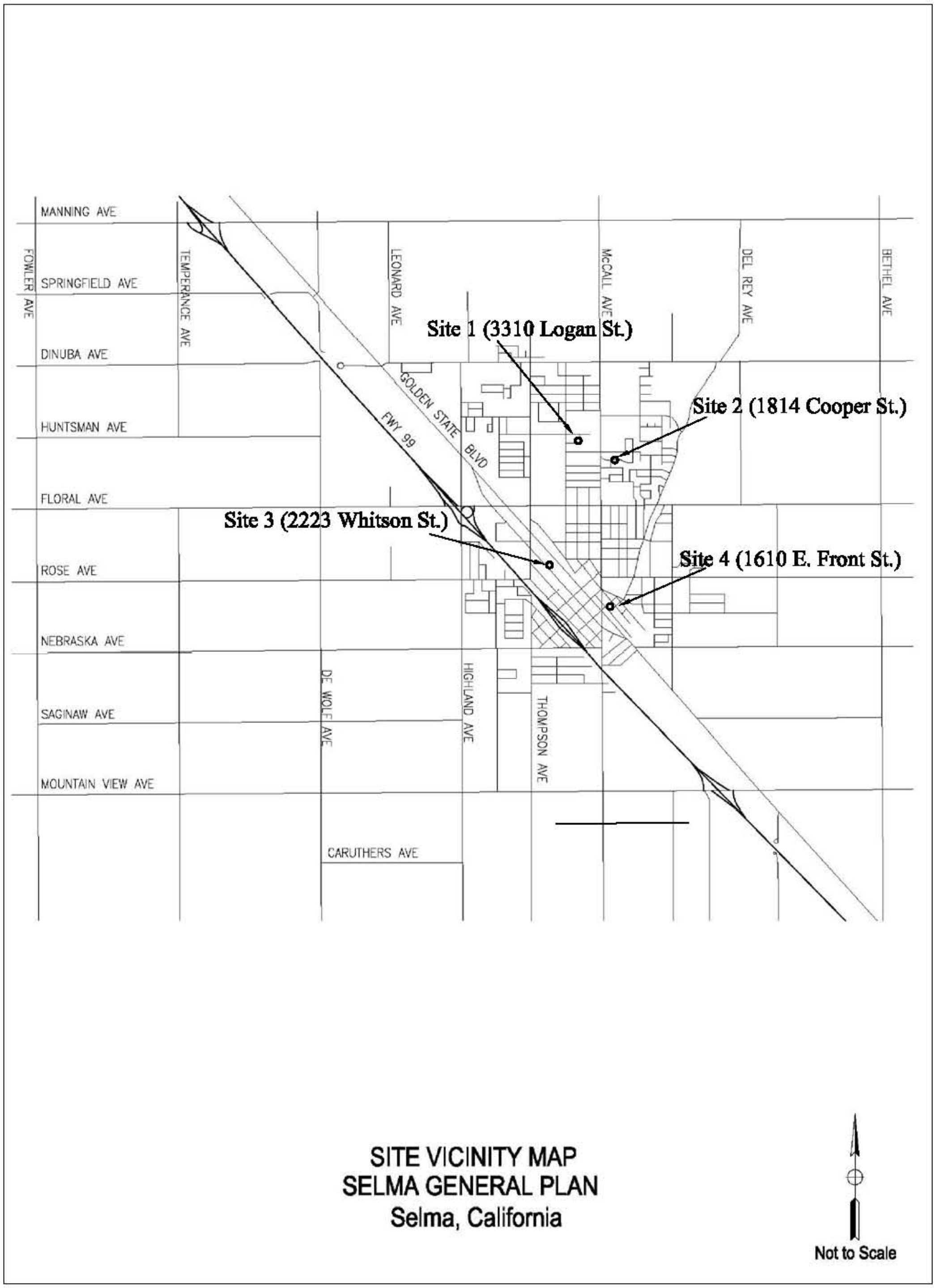


Figure 2: 50 dBA Leq Contour-Blocklite

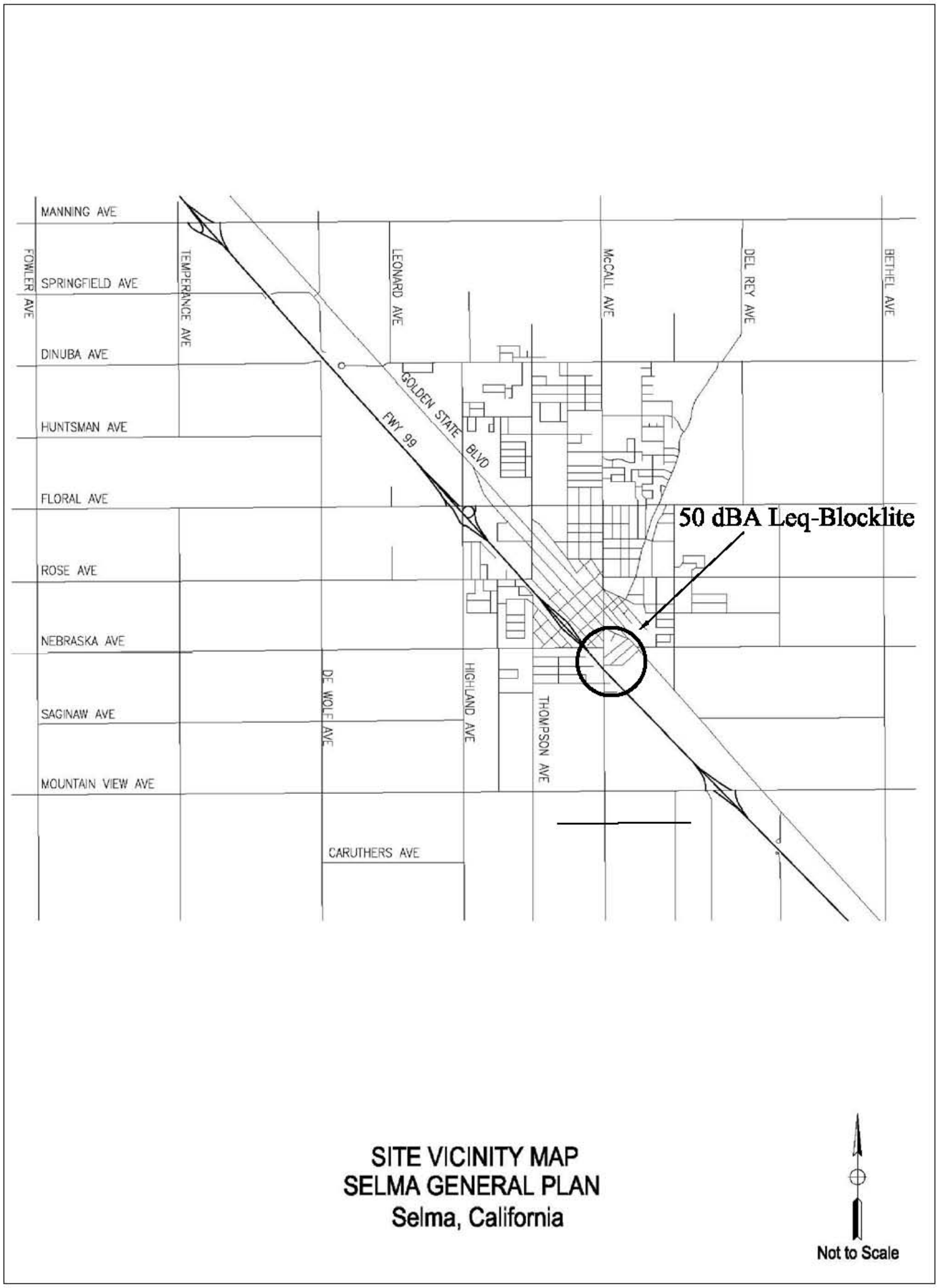
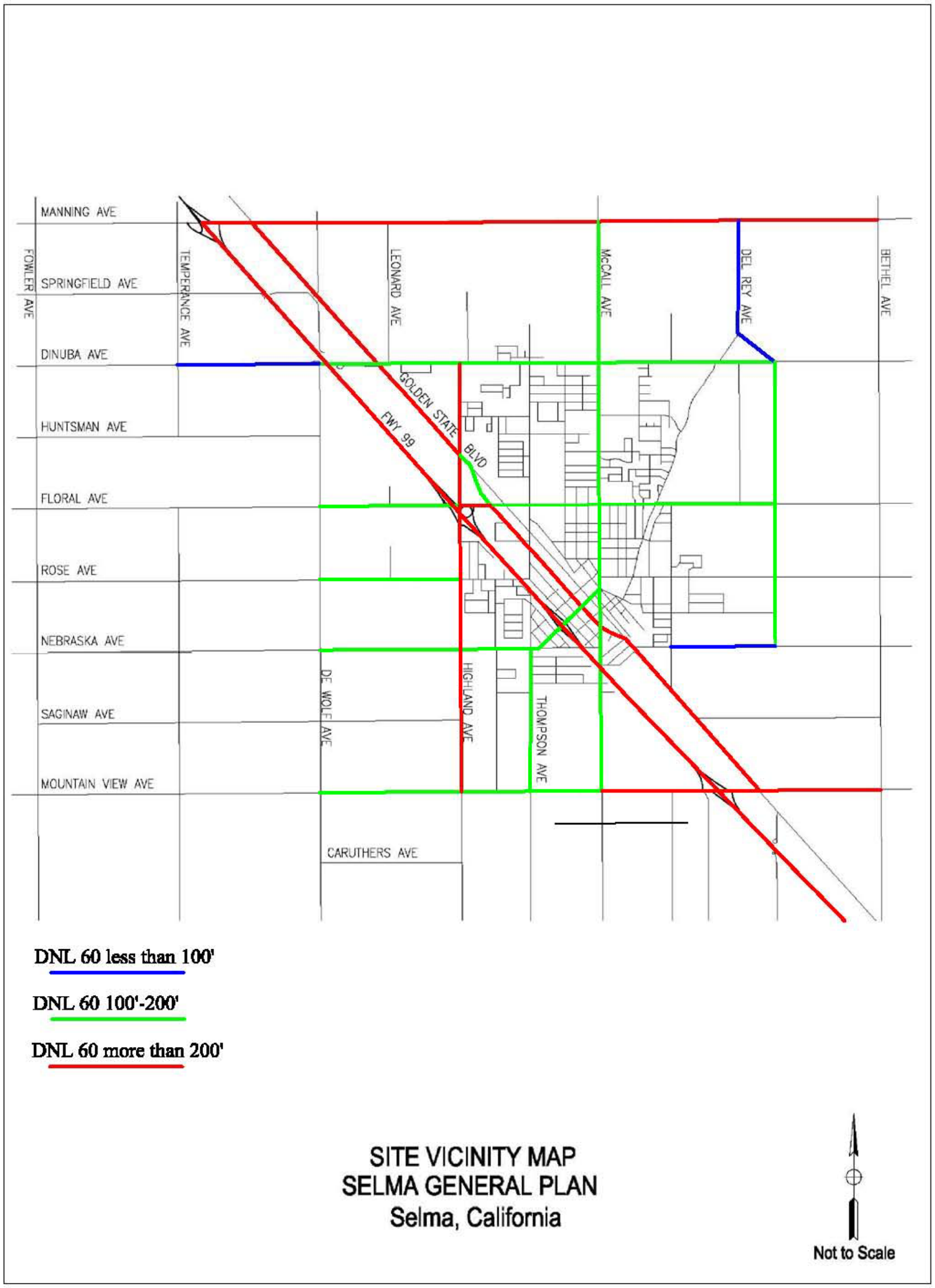


Figure 3: DNL Contour Distances-Existing Traffic Conditions

Figure 4: DNL Contour Distances-Future (2035) Traffic Conditions



CHAPTER THREE

GOALS AND POLICIES

3.1 Goals

The goals of the City of Selma Noise Element are:

1. To protect the citizens of the City from the harmful and annoying effects of exposure to excessive noise.

2. To protect the economic base of the City by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.

3. To preserve the tranquility of residential and other noise-sensitive areas by preventing noise-producing uses from encroaching upon existing or planned noise-sensitive uses.

4. To educate the citizens of the City concerning the effects of exposure to excessive noise and the methods available for minimizing such exposure.

3.2 Policies

The following specific policies have been adopted by the City of Selma to accomplish the goals of the Noise Element.

Transportation Noise Sources:

Policy 1 New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources exceeding 60 dB DNL (CNEL for aircraft exposure) within outdoor activity areas unless appropriate noise mitigation measures have been incorporated into the final project design. An exterior exposure of up to 65 dB DNL/CNL within outdoor activity areas may be allowed if a good-faith effort has been made to mitigate exterior noise exposure using a practical application of available noise mitigation measures *and* interior noise exposure due to exterior sources will not exceed 45 dB DNL/CNEL.

Policy 2 Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB DNL/CNEL within outdoor activity areas and 45 dB DNL/CNEL within interior living spaces of existing noise-sensitive land uses.

Stationary Noise Sources:

Policy 3 The new development of noise-sensitive land uses shall not be permitted in areas where noise levels from existing stationary noises sources may exceed the noise level standards summarized in Table IV.

Policy 4 Noise created by proposed stationary noise sources, or existing stationary noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards of Table IV within outdoor activity areas of existing or planned noise-sensitive land uses.

TABLE IV

ALLOWABLE NOISE EXPOSURE-STATIONARY NOISE SOURCES[1]

	Daytime (7 a.m. to 10:00 p.m.)	**Nighttime (10 p.m.-7 a.m.)**
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	70	65

[1]As determined within outdoor activity areas of existing or planned noise-sensitive uses. If outdoor activity area locations are unknown, the allowable noise exposure shall be determined at the property line of the noise-sensitive use.

CHAPTER FOUR

IMPLEMENTATION MEASURES

To achieve compliance with the policies the Noise Element, the City of Selma shall undertake the following implementation program. The implementation program focuses on the prevention of new noise-related land use conflicts by requiring that new development be reviewed to determine whether it complies with the policies of the Noise Element.

1. The City shall review new public and private development proposals to determine conformance with the policies of the Noise Element.

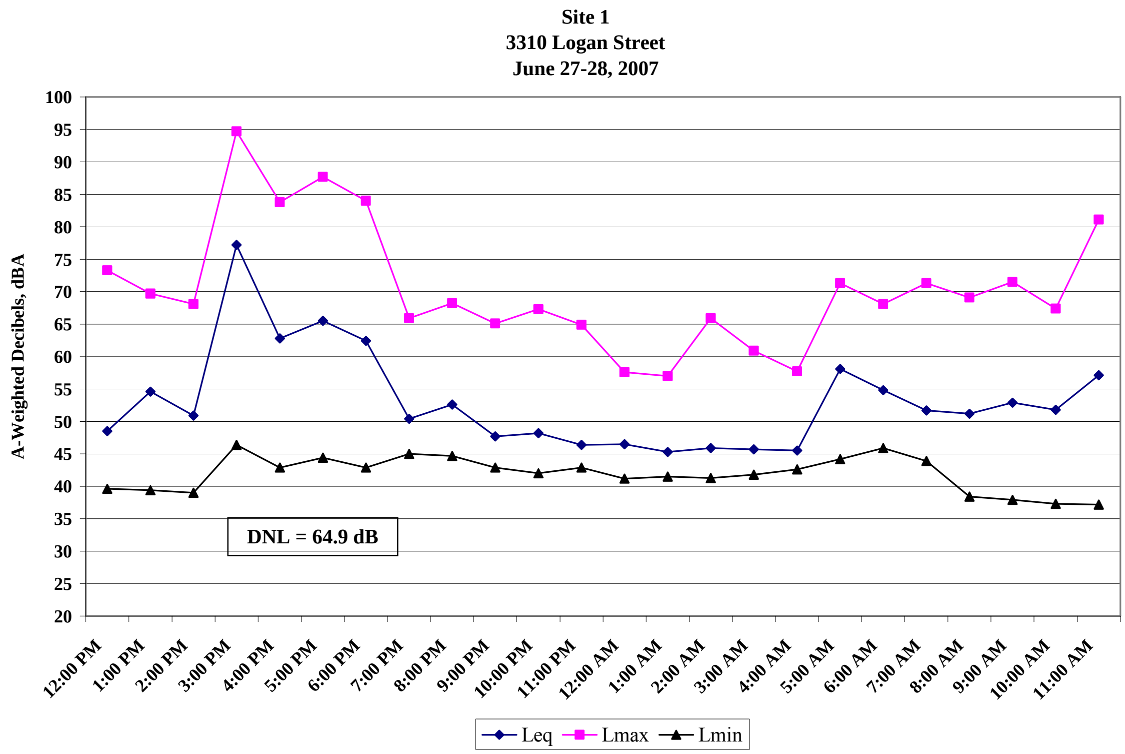
2. Where the development of a project may result in land uses being exposed to existing or projected future noise levels exceeding the levels specified by the policies of the Noise Element, the City shall require an acoustical analysis early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to the issuance of a building permit.

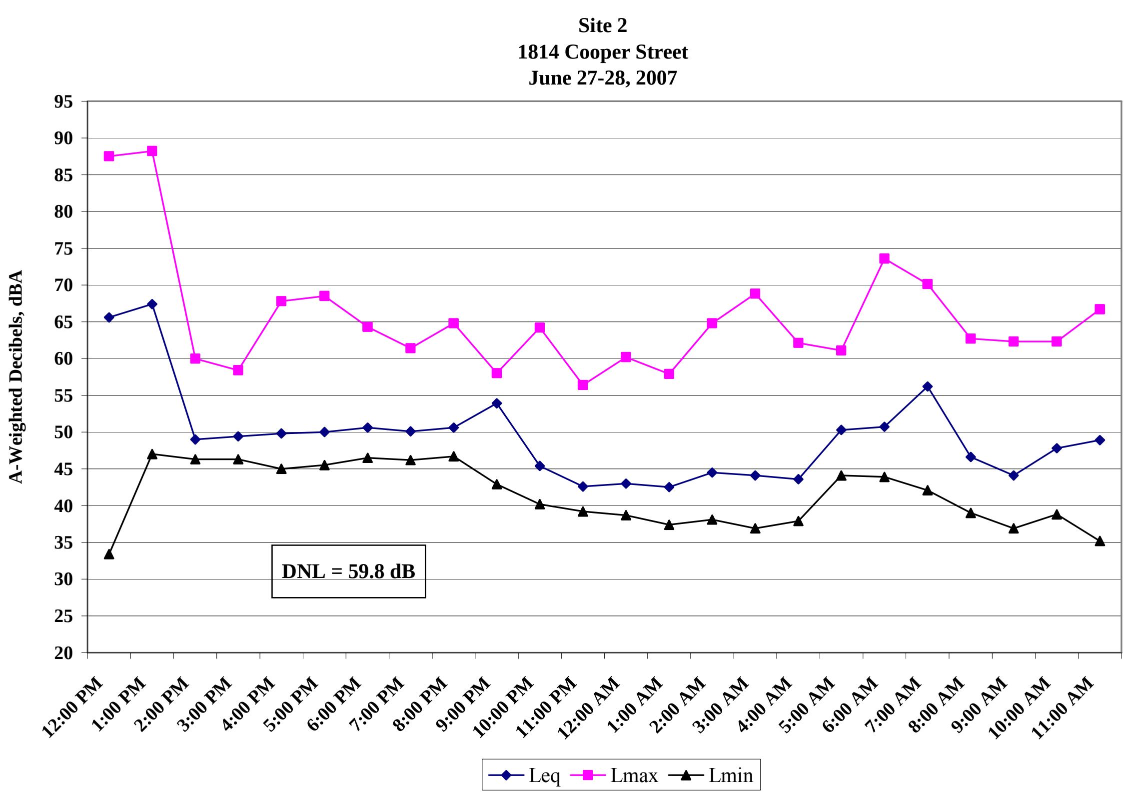
3. The City shall develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the development review and building permit processes.

4. The City shall develop and employ procedures to monitor compliance with the policies of the Noise Element after completion of projects where noise mitigation measures have been required.

Resource information available to the City for use in the review process includes the tables and noise exposure maps contained within this document. The tables and noise exposure maps are intended as screening devices to determine when a proposed development may result in excessive noise levels that require mitigation and to provide guidance in the long range planning processes. Generally, the tables and noise exposure maps provide a conservative (worst-case) assessment of noise exposure for the major noise sources identified in this Noise Element. It is possible that other major sources of noise may be identified during the project review process. This may be especially true of stationary noise sources, since only a representative sample of such sources was evaluated during the preparation of this document.

Appendix A
Measured Hourly Noise Levels-Community Noise Survey





Site 3
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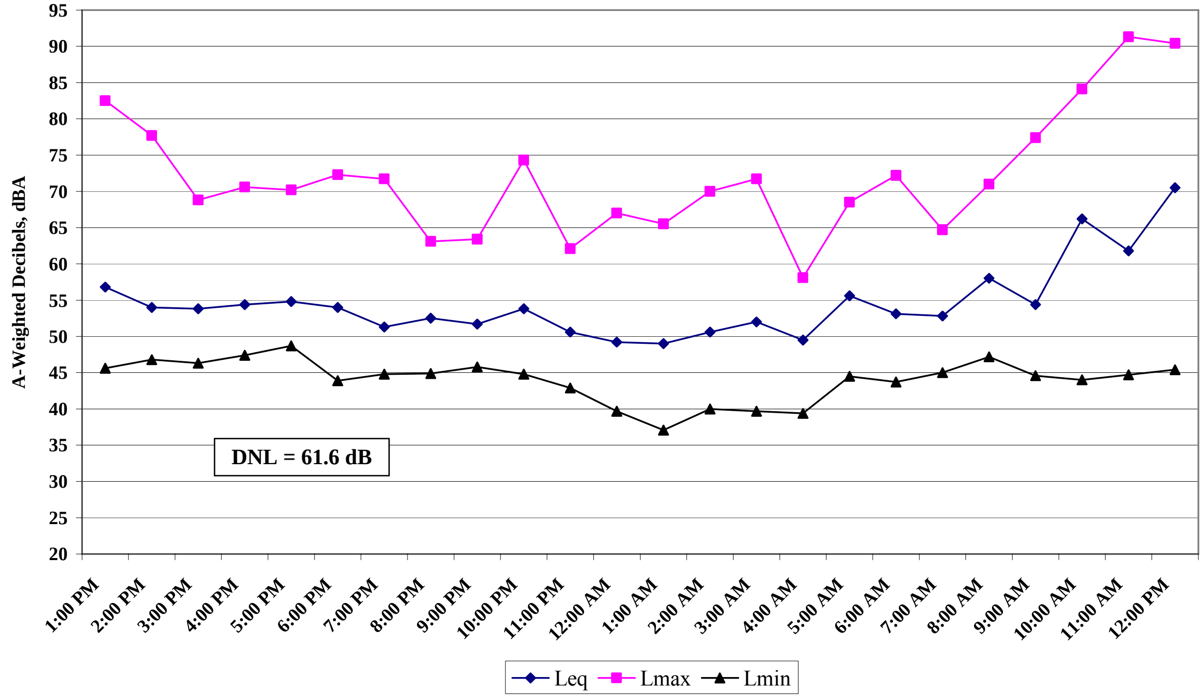
June 27-28, 2007



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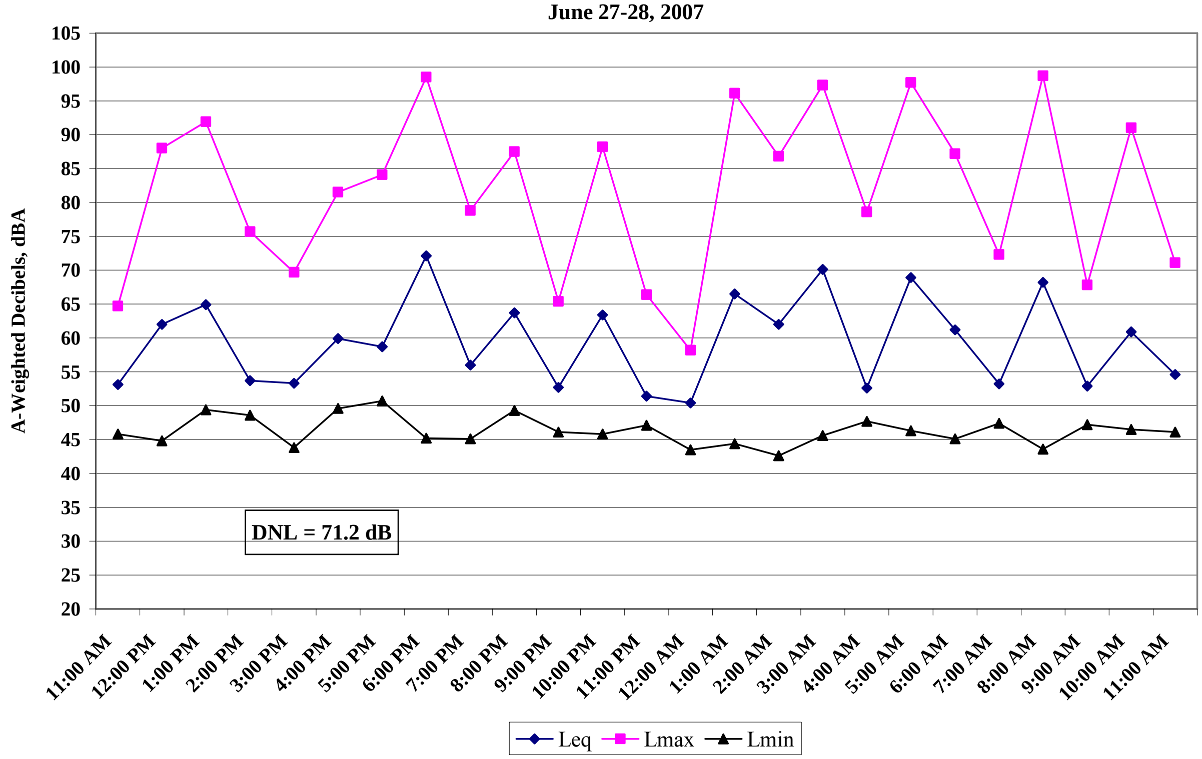
June 27-28, 2007



Brown Buntin Associates, Inc Appendix B-1
FHWA-RD-77-108
Calculation Sheets
May 18, 2009

Project #: 07-040 **Contour Levels (dB)** 55 | 60 | 65 | 70

Description: Selma Noise Element-Existing Traffic
Ldn/Cnel: Ldn
Site Type: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	Truck % Med	Truck % Hvy	Speed mph	Dist ft	Offset dB
1	Manning	SR99-DeWolf	13400	90		10	3	2	45	75	
2	Manning	DeWolf-McCall	13600	90		10	3	2	45	75	
3	Manning	McCall-Del Rey	14320	90		10	3	2	45	75	
4	Manning	Del Rey-Indianola	14460	90		10	3	2	45	75	
5	Dinuba	Temperance-DeWolf	270	90		10	2	1	45	75	
6	Dinuba	DeWolf-SR99		90		10	2	1	35	75	
7	Dinuba	SR99-Golden State	280	90		10	2	1	35	75	
8	Dinuba	Golden State-Highland	5250	90		10	2	1	45	75	
9	Dinuba	Highland-McCall	6140	90		10	2	1	45	75	
10	Dinuba	McCall-Dockery	5010	90		10	2	1	45	75	
11	Floral	DeWolf-Highland	2600	90		10	2	1	45	75	
12	Floral	Highland-Whitson	16630	90		10	2	1	35	75	
13	Floral	Whitson-McCall	9400	90		10	2	1	35	75	
14	Floral	McCall-Orange	6970	90		10	2	1	35	75	
15	Floral	Orange-Del Rey	6700	90		10	2	1	45	75	
16	Floral	Del Rey-Amber	6630	90		10	2	1	45	75	
17	Whitson/GS	Mtn. View-Second	6840	90		10	3	2	45	75	
18	Whitson/GS	Second-Thompson	6430	90		10	3	2	45	75	
19	Whitson/GS	Thompson-Floral	9730	90		10	3	2	45	75	
20	Whitson/GS	Floral-Highland	6410	90		10	3	2	45	75	
21	Whitson/GS	Highland-Dinuba	6780	90		10	3	2	45	75	

Brown Buntin Associates, Inc Appendix B-1
FHWA-RD-77-108
Calculation Sheets
May 18, 2009

Project #: 07-040 **Contour Levels (dB)** 55 60 65 70
Description: Selma Noise Element-Existing Traffic
Ldn/Cnel: Ldn
Site Type: Soft

Segment	**Roadway Name**	**Segment Description**	**ADT**	**Day %**	**Eve %**	**Night %**	**Truck % Med**	**Truck % Hvy**	**Speed mph**	**Dist ft**	**Offset dB**
22	Whitson/GS	Dinuba-Manning	10430	90		10	3	2	45	75	
23	McCall	Mtn. View-Second	2080	90		10	2	1	45	75	
24	McCall	Second-Floral	4810	90		10	2	1	35	75	
25	McCall	Floral-Dinuba	7020	90		10	2	1	35	75	
26	McCall	Dinuba-Manning	5820	90		10	2	1	45	75	
27	Nebraska	DeWolf-Highland	2690	90		10	2	1	45	75	
28	Nebraska	Highland-Thompson	3850	90		10	2	1	45	75	
29	Nebraska	Thompson-Second	4590	90		10	2	1	35	75	
30	Nebraska	Dockery-Del Rey	820	90		10	2	1	35	75	
31	Second	Nebraska-SR99	7570	90		10	2	1	35	75	
32	Second	SR99-Whitson	10160	90		10	2	1	35	75	
33	Second	Whitson-McCall	10160	90		10	2	1	35	75	
34	Highland/SR43	Mtn. View-Nebraska	10150	90		10	3.9	10.1	45	75	
35	Highland/SR43	Nebraska-Rose	11440	90		10	3.9	10.1	45	75	
36	Highland/SR43	Rose-Floral	12760	90		10	3.9	10.1	45	75	
37	Highland	Floral-Dinuba	9740	90		10	3	2	45	75	
38	Thompson	Mtn. View-Nebraska	2370	90		10	2	1	45	75	
39	Rose	DeWolf-Highland	3060	90		10	2	1	45	75	
40	Del Rey	Nebraska-Floral		90		10	2	1	45	75	
41	Del Rey	Floral-Dinuba	720	90		10	2	1	45	75	
42	Del Rey	Dinuba-Manning	670	90		10	2	1	45	75	

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Project #: 07-040

Contour Levels (dB) | 55 | 60 | 65 | 70 | |

Description: Selma Noise Element-Existing Traffic
Ldn/Cnel: Ldn
Site Type: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	Truck % Med	Truck % Hvy	Speed mph	Dist ft	Offset dB
43	Mtn. View	DeWolf-Highland	1830	90		10	3	2	45	75	
44	Mtn. View	Highland-McCall	2630	90		10	3	2	45	75	
45	Mtn. View	McCall-SR99	3670	90		10	3	2	45	75	
46	Mtn. View	SR99-Golden State	10320	90		10	3	2	45	75	
47	Mtn. View	Golden State-Bethel	10550	90		10	3	2	45	75	
48	SR99	s/o Jct SR43	60000	73		27	4.7	17.3	65	200	
49	SR99	n/o Jct SR43	81000	73		27	4.5	16.5	65	200	

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Calculation Sheets

May 18, 2009

Project #:	07-040	**Contour Levels (dB)**	55	60	65	70	
Description:	Selma Noise Element-2035 Traffic						
Ldn/Cnel:	Ldn						
Site Type:	Soft						

Segment	**Roadway Name**	**Segment Description**	**ADT**	**Day %**	**Eve %**	**Night %**	**Truck % Med**	**Truck % Hvy**	**Speed mph**	**Dist ft**	**Offset dB**
1	Manning	SR99-DeWolf	24590	90		10	3	2	45	75	
2	Manning	DeWolf-McCall	29210	90		10	3	2	45	75	
3	Manning	McCall-Del Rey	29060	90		10	3	2	45	75	
4	Manning	Del Rey-Indianola	25070	90		10	3	2	45	75	
5	Dinuba	Temperance-DeWolf	6170	90		10	2	1	45	75	
6	Dinuba	DeWolf-SR99	25450	90		10	2	1	35	75	
7	Dinuba	SR99-Golden State	14250	90		10	2	1	35	75	
8	Dinuba	Golden State-Highland	15300	90		10	2	1	45	75	
9	Dinuba	Highland-McCall	14950	90		10	2	1	45	75	
10	Dinuba	McCall-Dockery	15240	90		10	2	1	45	75	
11	Floral	DeWolf-Highland	13150	90		10	2	1	45	75	
12	Floral	Highland-Whitson	37120	90		10	2	1	35	75	
13	Floral	Whitson-McCall	30580	90		10	2	1	35	75	
14	Floral	McCall-Orange	21950	90		10	2	1	35	75	
15	Floral	Orange-Del Rey	17130	90		10	2	1	45	75	
16	Floral	Del Rey-Amber	14970	90		10	2	1	45	75	
17	Whitson/GS	Mtn. View-Second	38340	90		10	3	2	45	75	
18	Whitson/GS	Second-Thompson	27050	90		10	3	2	45	75	
19	Whitson/GS	Thompson-Floral	20670	90		10	3	2	45	75	
20	Whitson/GS	Floral-Highland	15310	90		10	3	2	45	75	
21	Whitson/GS	Highland-Dinuba	27640	90		10	3	2	45	75	

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Project #: 07-040
Description: Selma Noise Element-2035 Traffic
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB): 55 | 60 | 65 | 70

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	Truck % Med	Truck % Hvy	Speed mph	Dist ft	Offset dB
22	Whitson/GS	Dinuba-Manning	30990	90		10	3	2	45	75	
23	McCall	Mtn. View-Second	14880	90		10	2	1	45	75	
24	McCall	Second-Floral	12650	90		10	2	1	35	75	
25	McCall	Floral-Dinuba	18320	90		10	2	1	35	75	
26	McCall	Dinuba-Manning	15250	90		10	2	1	45	75	
27	Nebraska	DeWolf-Highland	12900	90		10	2	1	45	75	
28	Nebraska	Highland-Thompson	13280	90		10	2	1	45	75	
29	Nebraska	Thompson-Second	16210	90		10	2	1	35	75	
30	Nebraska	Dockery-Del Rey	8050	90		10	2	1	35	75	
31	Second	Nebraska-SR99	18200	90		10	2	1	35	75	
32	Second	SR99-Whitson	22610	90		10	2	1	35	75	
33	Second	Whitson-McCall	21420	90		10	2	1	35	75	
34	Highland/SR43	Mtn. View-Nebraska	22660	90		10	3.9	10.1	45	75	
35	Highland/SR43	Nebraska-Rose	21120	90		10	3.9	10.1	45	75	
36	Highland/SR43	Rose-Floral	26440	90		10	3.9	10.1	45	75	
37	Highland	Floral-Dinuba	24210	90		10	3	2	45	75	
38	Thompson	Mtn. View-Nebraska	7460	90		10	2	1	45	75	
39	Rose	DeWolf-Highland	10430	90		10	2	1	45	75	
40	Del Rey	Nebraska-Floral	8920	90		10	2	1	45	75	
41	Del Rey	Floral-Dinuba	9990	90		10	2	1	45	75	
42	Del Rey	Dinuba-Manning	4240	90		10	2	1	45	75	

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FHWA-RD-77-108
Calculation Sheets
May 18, 2009

Project #: 07-040

Contour Levels (dB) | 55 | 60 | 65 | 70 |

Description: Selma Noise Element-2035 Traffic
Ldn/Cnel: Ldn
Site Type: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	Truck % Med	Truck % Hvy	Speed mph	Dist ft	Offset dB
43	Mtn. View	DeWolf-Highland	11660	90		10	3	2	45	75	
44	Mtn. View	Highland-McCall	14410	90		10	3	2	45	75	
45	Mtn. View	McCall-SR99	25290	90		10	3	2	45	75	
46	Mtn. View	SR99-Golden State	44310	90		10	3	2	45	75	
47	Mtn. View	Golden State-Bethel	32460	90		10	3	2	45	75	
48	SR99	s/o Jct SR43	81600	73		27	4.7	17.3	65	200	
49	SR99	n/o Jct SR43	110160	73		27	4.5	16.5	65	200	

APPENDIX J

Traffic Analysis

Selma General Plan Update

<u>Client:</u>
Quad Knopf, Inc.
5110 West Cypress Avenue
Visalia, California 93277

<u>Date:</u>
May 7, 2009

<u>Job Number:</u>
07-043.01

PETERS ENGINEERING GROUP
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Mr. Josh McDonnell
Quad Knopf, Inc.
5110 West Cypress Avenue
Visalia, California 93278

May 7, 2009

Subject: Traffic Analysis
Selma General Plan Update
Selma, California

Dear Mr. McDonnell:

We are pleased to submit this Traffic Analysis report for the 2035 Selma General Plan Update. This report was prepared in accordance with the requirements of the City of Selma and identifies deficiencies in the existing and/or planned transportation system with recommendations for improvements and identification of constrained conditions.

Thank you for the opportunity to perform this traffic analysis and to provide you with this report. Please feel free to contact our office if you have any questions or comments regarding this report or if we can be of further assistance.

Sincerely,

PETERS ENGINEERING GROUP

John Rowland, PE, TE

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1.0 - INTRODUCTION

This report presents the results of traffic analyses performed for the proposed Selma General Plan Update.

1.1 - Purpose

The traffic analyses were prepared to investigate anticipated traffic conditions with implementation of the proposed General Plan Update. This analysis focuses on the projected roadway and intersection operations in the year 2035 and investigates the adequacy of the proposed Circulation Plan, primarily as it pertains to vehicle traffic on the planned roadways and intersections.

1.2 - Project Description

The proposed Project is an update of the City of Selma General Plan. The City of Selma is located in south-central Fresno County, California in the central San Joaquin Valley. The location of Selma, California is presented in Figure 1.1, Site Vicinity Map, following the text of this report. The proposed 2035 General Plan Update will cover the planning period from 2009 to the year 2035, and will be utilized to guide the growth and development of the area within the adopted Planning Area boundary.

The proposed Land Use and Circulation Map included in the General Plan Update identifies the locations of the various land uses allowed by the General Plan Update and identifies the location of the physical circulation system planned throughout the city. The map is presented in Figure 1.2, Land Use and Circulation Map.

The goal of the proposed Circulation Element is to design and maintain a fully integrated local network that provides for safe and convenient circulation using a variety of transportation modes. The following objectives are presented in the proposed Circulation Element:

A. Maintain a roadway level of service (LOS) of D or better for intersections and road segments for Minor Collectors, Collectors, Arterials, Major Arterials, and Highways; where other jurisdictions control and manage roadways, their respective level of service standards shall prevail on applicable segments. In order to avoid using Local streets for excessive through traffic, an LOS of B is established for Local streets.

B. Develop a circulation network of local roads, collectors, and arterials that will meet projected traffic needs.

C. Enhance the availability and accessibility of alternative modes of transportation, such as walking, bicycling, carpools, buses, and rail.

D. Design streets that promote safe and pleasant conditions for residents, pedestrians, bicyclists, and motorists on neighborhood streets, while preserving access for emergency vehicles, buses, and other users. In order to promote safe streets, traffic calming measures shall be used.

E. Eliminate truck conflicts with commercial, industrial, and residential areas in the community.

The Land Use and Circulation Map designates roadways as state highways (including freeways), expressways, major arterials, arterials, or collectors. Streets not designated on the map would be considered minor collectors or local roads. The various street cross sections are illustrated in Figure 1.3, Typical Arterial Cross Sections, and Figure 1.4, Typical Collector Cross Sections.

The proposed Circulation Map generally maintains the existing grid layout of roadways with alternating arterials and collectors at half-mile spacing. The map proposes a new interchange on State Route (SR) 99 at Dinuba Avenue. The map also proposes realigning SR 43 from the existing Highland Avenue alignment to the DeWolf Avenue alignment north of the Stillman Avenue alignment, with a diagonal segment connecting back to the Highland Avenue alignment between Nebraska and Saginaw Avenues. SR 43 would then connect with SR 99 via the new Dinuba Avenue interchange.

Tables 1.1 through 1.3 present the proposed street designations, the planned number of lanes, and the existing number of lanes. It should be noted that in some cases where the existing number of lanes equals the planned number of lanes, the road may not be currently developed to the full planned cross section.

Table 1.1
East-West Street Designations

Road	Segments	Designation	Number of Lanes	
			Planned	Existing
Manning Avenue	Armstrong to SR 99	Arterial	4	2
Manning Avenue	SR 99 to Bethel	Expressway	4	4
Springfield Avenue	Armstrong to Locan	Collector	2	2
Springfield Avenue	Leonard to Highland	Collector	2	Not existing
Springfield Avenue	Thompson to Bethel	Collector	2	Not existing
Dinuba Avenue	Armstrong to DeWolf	Arterial	4	2
Dinuba Avenue	Across SR 99	Arterial	4	Not existing
Dinuba Avenue	SR 99 to Bethel	Arterial	4	2
Huntsman Avenue	Armstrong to DeWolf	Collector	2	2
Nelson Boulevard	Highland to Thompson	Collector	2	2
Nelson Boulevard	McCall to Orange	Collector	2	2
Floral Avenue	Armstrong to Leonard	Arterial	4	2
Floral Avenue	Leonard to Wright	Arterial	4	4
Floral Avenue	Wright to Bethel	Arterial	4	2
Rose Avenue	Armstrong to Thompson	Collector	4	2
Rose Avenue	McCall to Country Rose	Collector	4	4
Rose Avenue	Country Rose to Bethel	Collector	4	2
Nebraska Avenue	Armstrong to 2^{nd}	Arterial	4	2
Nebraska Avenue	Golden State to Bethel	Arterial	4	2
Saginaw Avenue	DeWolf to Highland	Collector	2	2
Saginaw Avenue	Highland to SR 99	Collector	2	Not existing
Saginaw Avenue	Golden State to Bethel	Collector	2	2
Mtn. View Avenue	DeWolf to Golden State	Arterial	4	2
Mtn. View Avenue	Golden State to Bethel	Arterial	4	4
Caruthers Avenue	DeWolf to Highland	Collector	2	2
Caruthers Avenue	Highland to Dockery	Collector	2	Not existing

Table 1.2
North-South Street Designations

Road	Segments	Designation	Number of Lanes	
			Planned	Existing
Armstrong Avenue	Manning to Rose	Collector	2	Not existing
Temperance Avenue	Manning to Huntsman	Arterial	4	2
Temperance Avenue	Floral to Nebraska	Arterial	4	2
Locan Avenue	Springfield to Huntsman	Collector	2	Not existing
Locan Avenue	Floral to Nebraska	Collector	2	Not existing
DeWolf Avenue	Manning to Golden State	Arterial	4	2
DeWolf Avenue	Golden State to SR 99	Arterial	4	2
DeWolf Avenue	SR 99 to Caruthers	Arterial	4	2
Leonard Avenue	Manning to Dinuba	Collector	2	2
Leonard Avenue	Floral to Nebraska	Collector	2	Not existing
Highland Avenue	Golden State to Floral	Major Arterial	6	2
Highland Avenue	Floral to Nebraska/Saginaw	Major Arterial	6	4
Highland Avenue (SR 43)	Nebraska/Saginaw to Caruthers	State Highway	4	2
Thompson/Wright Avenue	Manning to Dinuba	Collector	2	Not existing
Thompson Avenue	Dinuba to Oak	Collector	2	4
Thompson Avenue	Oak to Floral	Collector	2	3
Thompson Avenue	Floral to Rose	Collector	2	2
Thompson Avenue	Nebraska to Caruthers	Collector	2	2
McCall Avenue	Parlier to Hicks	Arterial	4	2
McCall Avenue	Hicks to Floral	Arterial	4	4
McCall Avenue	Floral to Arrants	Arterial	4	2
McCall Avenue	Arrants to Rose	Arterial	4	4
McCall Avenue	Rose to High/Mill	Arterial	4	4
Dockery Avenue	Manning to Dinuba	Collector	2	Not existing
Dockery Avenue	Dinuba to Nelson	Collector	2	2
Dockery Avenue	SR 99 to Caruthers	Collector	2	2
Del Rey Avenue	Manning to Mill Ditch	Arterial	4	2
Amber Avenue	Dinuba to Floral	Arterial	4	Not existing
Amber Avenue	Floral to Nebraska	Arterial	4	2
Amber Avenue	Nebraska to Mtn. View	Arterial	4	Not existing
Bethel Avenue	South to Mtn. View	Arterial	4	2

Table 1.3
Diagonal Street Designations

Road	Segments	Designation	Number of Lanes	
			Planned	Existing
SR 99	Manning to Caruthers	State Highway	6	6
Golden State Blvd.	Manning to Highland	Major Arterial	6	4
Whitson Street	Highland to Nebraska	Major Arterial	6	4
Golden State Blvd.	Nebraska to Mtn. View	Major Arterial	6	4
SR 43	DeWolf to Highland	State Highway	4	Not Existing
Saginaw-Dockery Diagonal	Saginaw to Dockery	Collector	2	Not Existing
Del Rey-Amber Diagonal	Del Rey to Amber	Arterial	4	Not Existing
2nd Street	Nebraska to E. Front	Arterial	4	4
2nd Street	E. Front to McCall	Arterial	4	2

1.3 - List of Abbreviations

The following is a list of abbreviations that may be used in the text of this report.

NB – Northbound
SB – Southbound
EB – Eastbound
WB – Westbound
LOS – Level of service
OWS – One-way stop control
AWS – All-way stop control
HCM – Highway Capacity Manual
PHF – Peak Hour Factor
sec – seconds
SR – State Route
COG – Council of Fresno County Governments
CMUTCD – California Manual on Uniform Traffic Control Devices

2.0 - TRAFFIC ANALYSES

2.1 - Study Area

The study area includes the proposed planning area presented in the Land Use and Circulation Map. The study locations for purposes of this traffic analysis are the roadways listed in Tables 1.1 through 1.3.

The operation of intersections can create a significant amount of congestions on roadways that otherwise may have the required number of lanes for adequate road segment operations. Therefore, certain key intersections, including intersections at freeway interchanges, are also included in the analyses. This report includes analysis of the following intersections:

1. Manning and DeWolf Avenues
2. Manning and McCall Avenues
3. Manning and Del Rey Avenues
4. Dinuba and Temperance Avenues
5. Dinuba and DeWolf Avenues
6. Dinuba Avenue and Golden State Boulevard
7. Dinuba and Highland Avenues
8. Dinuba and McCall Avenues
9. Dinuba and Dockery Avenues
10. Dinuba and Orange Avenues (west)
11. Dinuba and Orange Avenues (east)
12. Dinuba and Del Rey Avenues
13. Floral and DeWolf Avenues
14. Floral Avenue and SR 99 Southbound Ramps
15. Floral and Highland Avenues
16. Floral Avenue and SR 99 Northbound Ramps
17. Floral Avenue and Whitson Street
18. Floral and McCall Avenues
19. Floral and Orange Avenues
20. Floral and Del Rey Avenues
21. SR 99 Southbound Ramps and Highland Avenue
22. Rose and Highland Avenues
23. Rose and Dockery Avenues
24. Nebraska and Highland Avenues
25. Nebraska and Thompson Avenues
26. 2nd Street and SR 99 Southbound Ramps
27. 2nd Street and SR 99 Northbound Ramps
28. 2nd Street and Whitson Street
29. Nebraska and Dockery Avenues
30. Nebraska and Del Rey Avenues
31. Mountain View and Highland Avenues
32. Mountain View and Thompson Avenues
33. Mountain View and McCall Avenues
34. Mountain View Avenue and SR 99 Southbound Off Ramp
35. Mountain View Avenue and SR 99 Southbound On Ramp

36. Mountain View Avenue and SR 99 Northbound On Ramp
37. Mountain View Avenue and SR 99 Northbound Off Ramp
38. Mountain View Avenue and Golden State Boulevard
39. Dinuba Avenue and SR 99 Southbound Ramps (proposed future interchange)
40. Dinuba Avenue and SR 99 Northbound Ramps (proposed future interchange).

The locations of the study intersections are presented in Figure 2.1, Study Intersection Location Map.

2.2 - Study Scenarios

The analyses were performed in general conformance with the Caltrans *Guide for the Preparation of Traffic Impact Studies* dated December 2002. The study time periods include the weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The peak hours were analyzed for the following scenarios:

- Existing Conditions; and
- Year 2035 Conditions with Proposed General Plan Update.

2.3 - Level of Service

The Transportation Research Board *Highway Capacity Manual*, 2000, (HCM) defines level of service (LOS) as a qualitative measure describing operational characteristics within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS characteristics for unsignalized and signalized intersections are presented in Tables 2.1 and 2.2, respectively. LOS characteristics for road segments are presented in Table 2.3.

Table 2.1
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Little or no delay.	0-10
B	Short delays.	>10-15
C	Average delays.	>15-25
D	Long delays.	>25-35
E	Very long delays.	>35-50
F	Extremely long delays.	>50

Reference: *Highway Capacity Manual*, Transportation Research Board

Table 2.2
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Extremely favorable progression. Most vehicles arrive during green phase. Many vehicles do not stop.	≤10
B	Good progression.	>10-20
C	Fair progression. Significant number of vehicles stopped. Some queues do not clear.	>20-35
D	Noticeable congestion. Many vehicles stop. Individual cycle failures are noticeable. Queues often do not clear.	>35-55
E	Poor progression. Individual cycle failures are frequent. Queues frequently do not clear.	>55-80
F	Poor progression. Oversaturation. Many individual cycle failures and queues not cleared.	>80

Reference: *Highway Capacity Manual*, Transportation Research Board

Table 2.3
Level of Service Characteristics for Roadways

Level of Service	Description
A	Primarily free flow operations
B	Reasonably unimpeded operations, ability to maneuver only slightly restricted
C	Stable operations, ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	Significant delays, flow quite unstable
F	Extremely slow speeds

Reference: 1998 *Highway Capacity Manual*, Transportation Research Board

The proposed Circulation Element will require that LOS D or better be maintained on all streets under the jurisdiction of the City of Selma, with the exception that local streets shall operate at LOS B or better.

State highways and freeways shall be subject to LOS criteria established by Caltrans. The Caltrans *Guide for the Preparation of Traffic Impact Studies* dated December 2002 indicates that Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D. In practice, this typically is interpreted as a minimum acceptable LOS C, with LOS D being unacceptable except in urban areas where LOS C is not feasible. For example, the Caltrans *State Route 43 Transportation Concept Report* dated December 2006 identifies LOS D as acceptable on SR 43 in Selma.

Queues at intersections are an important consideration in the planning of the circulation system. Intersections operating at acceptable LOS may include some movements, often left turns, that experience delays resulting in queues longer than the storage capacity of the lane. When left-turn queues exceed the available storage capacity, the adjacent through lane is impeded and congestion may result. Therefore, the consideration of queuing should be included in the planning process, and additional lanes should be planned where queues are expected to be excessive, even if LOS criteria are not exceeded.

2.4 - Intersection Analysis Methodology

The levels of service and 95th-percentile queues at the study intersections were determined using the computer program Synchro 6 (Build 614), which is based on the HCM procedures for calculating levels of service. Queue lengths are reported only for signalized intersections.

For signalized intersections and all-way-stop-controlled intersections, the overall intersection LOS and the average delay per vehicle are presented. For one-way and two-way stop-controlled intersections an overall intersection LOS is not defined in the HCM. Therefore, for one-way and two-way stop-controlled intersections the LOS and average delay per vehicle for the movement with the greatest delay is reported.

Peak-hour factors (PHF) for the existing-conditions analyses were determined based on the existing traffic volumes. The HCM suggests that a PHF of 0.92 in urban areas and 0.88 in rural areas may be used in the absence of field data. For purposes of the year 2035 analyses performed for this study, in which field data is not available and traffic volumes are projected, a PHF of 0.92 is used unless the existing PHF is already greater than 0.92. In such cases the greater PHF is used.

2.5 - Road Segment Analysis Methodology

Road segment analyses were based on the Florida Department of Transportation Generalized Q/LOS Tables. The Florida road segment tables were developed based on procedures outlined in the HCM and are widely utilized in the central San Joaquin Valley as an acceptable method for analysis of road segments.

Table 4-4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (Non-State Roadways, Major City/County Roadways) was utilized in the analysis. The table is attached in Appendix A. Table 2.4 presents the specific volume thresholds used in the analyses.

Table 2.4
Volume Thresholds for Roadway Levels of Service

Lanes	Median	A	B	C	D	E	F
2	Undivided - No LT lanes	-	-	≤696	697 – 1,112	1,113 – 1,184	>1,184
2	Undivided with LT lanes	-	-	≤870	871 – 1,390	1,391 – 1,480	>1,480
2	Divided with LT lanes	-	-	≤913	914 – 1,459	1,460 – 1,554	>1,554
4	Undivided - No LT lanes	-	-	≤1,522	1,523 – 2,212	2,213 – 2,340	>2,340
4	Undivided with LT lanes	-	-	≤1,928	1,929 – 2,802	2,803 – 2,964	>2,964
4	Divided with LT lanes	-	-	≤2,030	2,031 – 2,950	2,951 – 3,120	>3,120
6	Divided with LT lanes	-	-	≤3,170	3,171 – 4,450	4,451 – 4,690	>4,690

Reference: Florida Department of Transportation Table 4-4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (Non-State Roadways, Major City/County Roadways)

3.0 - EXISTING CONDITIONS

3.1 - Existing Roadway Network

The existing lane configurations and intersection control at the study intersections are illustrated in Figure 3.1, Existing Lane Configurations and Intersection Control.

3.2 - Existing Traffic Volumes

Existing traffic volumes were determined by performing manual turning movement counts at each of the study intersections. The traffic count data sheets are attached in Appendix B. Existing peak hour turning movement volumes at the study intersections are presented in Figure 3.2, Existing Peak Hour Traffic Volumes.

3.3 - Existing Intersection Level of Service

The results of the existing-conditions intersection LOS analyses are summarized in Table 3.1. The intersection analysis sheets are presented in Appendix C.

3.4 - Existing Conditions Road Segment Analyses

The results of the existing-conditions road segment analyses are summarized in the Road Segment Analysis Table presented in Appendix D. The Road Segment Analysis Table combines the existing-conditions analyses and the year 2035 analyses.

Table 3.1
Intersection Analysis Summary – Existing Conditions

Intersection	Control	A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Manning / DeWolf	TWS	17.4	C	24.2	C
Manning / McCall	Signal	18.0	B	21.7	C
Manning / Del Rey	OWS	13.1	B	19.8	C
Dinuba / Temperance	TWS	9.2	A	9.2	A
Dinuba / DeWolf	-	-	-	-	-
Dinuba / Golden State	TWS	22.7	C	**54.0**	**F**
Dinuba / Highland	OWS	11.3	B	15.0	C
Dinuba / McCall	AWS	15.3	C	18.4	C
Dinuba / Dockery	TWS	11.0	B	10.5	B
Dinuba / Orange (west)	OWS	11.6	B	12.7	B
Dinuba / Orange (east)	OWS	10.3	B	9.7	A
Dinuba / Del Rey	OWS	10.7	B	11.1	B
Floral / DeWolf	TWS	10.0	B	10.8	B
Floral / SR 99 SB	Signal	22.9	C	17.7	B
Floral / Highland	Signal	15.4	B	23.6	C
Floral / SR 99 NB	Signal	6.5	A	7.5	A
Floral / Whitson	Signal	19.0	B	20.1	C
Floral / McCall	Signal	23.4	C	21.7	C
Floral / Orange	AWS	8.7	A	11.7	B
Floral / Del Rey	OWS	11.0	B	12.3	B
SR 99 SB / Highland	Signal	11.3	B	12.8	B
Rose / Highland	TWS	23.7	C	**50.4**	**F**
Rose / Dockery	AWS	7.3	A	7.2	A
Nebraska / Highland	Signal	9.1	A	12.0	B
Nebraska / Thompson	AWS	8.8	A	9.6	A
2nd / SR 99 SB	OWS	22.9	C	**37.4**	**E**
2nd / SR 99 NB	OWS	22.1	C	20.0	C
2nd / Whitson	Signal	20.7	C	19.5	B
Nebraska / Dockery	AWS	7.1	A	7.4	A
Nebraska / Del Rey	-	-	-	-	-
Mtn. View / Highland	Signal	13.9	B	14.6	B
Mtn. View / Thompson	TWS	10.4	B	11.7	B
Mtn. View / McCall	AWS	8.0	A	9.2	A
Mtn. View / SR 99 SB Off	TWS	22.3	C	**50.9**	**F**
Mtn. View / SR 99 SB On	OWS	1.7	A	2.0	A
Mtn. View / SR 99 NB On	OWS	1.5	A	2.1	A
Mtn. View / SR 99 NB Off	OWS	13.9	B	25.8	D
Mtn. View / Golden State	Signal	20.7	C	21.1	C
Dinuba / SR 99 SB	-	-	-	-	-
Dinuba / SR 99 NB	-	-	-	-	-

3.5 - Existing Deficiencies

The following study intersections are currently operating at substandard levels of service:

- Dinuba Avenue and Golden State Boulevard;
- Rose and Highland Avenues;
- 2nd Street and SR 99 Southbound Ramps;
- Mountain View Avenue and SR 99 Southbound Ramps.

The following road segment currently operates at substandard levels of service:

- 2nd Street between Whitson Street and McCall Avenue.

4.0 - ANALYSIS OF PROPOSED 2035 GENERAL PLAN CONDITIONS

4.1 - Traffic Modeling

The Council of Fresno County Governments (COG) maintains a travel model that is typically used to forecast traffic volumes in Fresno County. The proposed Land Use and Circulation Map along with other pertinent Project information were provided to COG and the proposed 2035 conditions were incorporated into the model by COG. The modeling assumed build out of the proposed residential land uses at a density yielding 70,000 residents in the year 2035. The employment capacity of the planned land uses was maximized, and no development was assumed within the reserve areas.

4.2 - Year 2035 Traffic Volumes

Year 2035 traffic-volume forecasts were obtained using the COG travel model and the COG Increment Method, which is described in a document available from the COG entitled *"Model Steering Committee Recommended Procedures for Using Traffic Projections from the Fresno COG Travel Model dated December 2002."* The Increment Method forecasts future traffic volumes by determining the growth projected by the model between the base year and the horizon year. This growth is then added to the existing traffic volumes.

Future turning movements were estimated based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled *"Highway Traffic Data for Urbanized Area Project Planning and Design."* The Year 2035 traffic volumes are presented in Figure 4.1, Year 2035 Peak-Hour Traffic Volumes.

4.3 - Physical Constraints

The following road segments appear to have existing physical constraints, such as existing curb, gutter, sidewalk, and adjacent development, which may limit the feasibility of constructing the full width of the planned roadway section:

- Floral Avenue between Wright and Dockery Avenues;
- Nebraska Avenue between Highland Avenue and 2nd Street;
- Nebraska Avenue between Golden State Boulevard and Dockery Avenue;
- Highland Avenue between Golden State Boulevard and the SR 43 Diagonal;
- McCall Avenue between Floral Avenue and Arrants Street;
- McCall Avenue between Whitson Street and approximately Blaine Avenue;
- Whitson Street between Highland and Nebraska Avenues;
- 2nd Street between Nebraska and McCall Avenues.

The number of lanes assumed in the analyses for these road segments is presented in the Road Segment Analysis Table in Appendix D.

The following intersections appear to have existing physical constraints, such as existing curb, gutter, sidewalk, and adjacent development, which may limit the feasibility of constructing the full width of the planned roadway section, construction of left-turn lanes, or installation of traffic signals:

- Floral Avenue and SR 99 Southbound Ramps;
- Floral and Highland Avenues;
- Floral Avenue and SR 99 Northbound Ramps;
- Floral Avenue and Whitson Street;
- Floral and McCall Avenues;
- Floral and Orange Avenues;
- SR 99 Southbound Ramps and Highland Avenue;
- Rose and Dockery Avenues;
- Nebraska and Thompson Avenues;
- 2nd Street and SR 99 Southbound Ramps;
- 2nd Street and SR 99 Northbound Ramps;
- 2nd Street and Whitson Street; and
- Nebraska and Dockery Avenues.

The intersection configuration at these locations was typically maintained as the existing configuration with the addition of traffic signals. Traffic signals were not assumed at the intersection of Rose and Dockery Avenues and at the intersection of Nebraska and Dockery Avenues due to the limitations of the existing configuration.

4.4 - Intersection Analyses

The results of the year 2035 intersection LOS analyses are summarized in Table 4.1. It is assumed that intersections of two streets both designated as a collector or greater will eventually require signalization. Therefore, the analyses presented herein include the assumption that the study intersections are signalized to verify the adequacy of the planned ultimate conditions. Deficiencies are identified in bold type. The intersection analysis sheets are presented in Appendix C.

Table 4.1
Intersection Analysis Summary – Year 2035 Conditions

Intersection	Control	A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Manning / DeWolf	Signal	20.1	C	34.6	C
Manning / McCall	Signal	21.0	C	32.5	C
Manning / Del Rey	Signal	11.3	B	11.6	B
Dinuba / Temperance	Signal	21.9	C	25.9	C
Dinuba / DeWolf	Signal	10.4	B	22.0	C
Dinuba / Golden State	Signal	18.5	B	26.6	C
Dinuba / Highland	Signal	10.2	B	16.1	B
Dinuba / McCall	Signal	20.5	C	22.7	C
Dinuba / Dockery	Signal	22.8	C	24.2	C
Dinuba / Orange	Signal	14.6	B	17.6	B
Dinuba / Del Rey	Signal	16.9	B	21.0	C
Floral / DeWolf	Signal	20.1	C	22.2	C
Floral / SR 99 SB	Signal	*****	**F**	**159.6**	**F**
Floral / Highland	Signal	36.6	D	**180.3**	**F**
Floral / SR 99 NB	Signal	12.6	B	48.3	D
Floral / Whitson	Signal	27.3	C	**137.7**	**F**
Floral / McCall	Signal	46.8	D	**164.4**	**F**
Floral / Orange	Signal	9.5	A	19.4	B
Floral / Amber	Signal	18.2	B	18.4	B
SR 99 SB / Highland	Signal	19.1	B	48.7	D
Rose / Highland	Signal	20.5	C	32.8	C
Rose / Dockery	AWS	10.4	B	11.6	B
Nebraska / Highland	Signal	17.0	B	19.5	B
Nebraska / Thompson	Signal	9.7	A	**78.4**	**E**
2nd / SR 99 SB	Signal	15.3	B	17.4	B
2nd / SR 99 NB	Signal	9.2	A	11.2	B
2nd / Whitson	Signal	**63.0**	**E**	**179.8**	**F**
Nebraska / Dockery	AWS	13.5	B	21.5	C
Nebraska / Amber	Signal	21.0	C	18.3	B
Mtn. View / Highland	Signal	18.6	B	23.1	C
Mtn. View / Thompson	Signal	18.8	B	24.2	C
Mtn. View / McCall	Signal	20.5	C	27.2	C
Mtn. View / SR 99 SB	Signal	35.6	D	**88.9**	**F**
Mtn. View / SR 99 NB	Signal	16.4	B	**74.4**	**E**
Mtn. View / Golden State	Signal	26.4	C	**102.9**	**F**
Dinuba / SR 99 SB	Signal	10.4	B	10.9	B
Dinuba / SR 99 NB	Signal	11.6	B	10.6	B

* Excessive delays not calculated.

4.5 - Road Segment Analyses

The results of the year 2035 road segment analyses are summarized in the Road Segment Analysis Table presented in Appendix D. The Road Segment Analysis Table combines the existing-conditions analyses and the year 2035 analyses.

4.6 - Deficiencies in Proposed Circulation Plan

The following study intersections are expected to operate at substandard levels of service in the year 2035:

- Floral Avenue and SR 99 Southbound Ramps;
- Floral and Highland Avenues;
- Floral Avenue and Whitson Street;
- Floral and McCall Avenues;
- Nebraska and Thompson Avenues;
- 2^{nd} and Whitson Streets;
- Mountain View Avenue and SR 99 Southbound Ramps;
- Mountain View Avenue and SR 99 Northbound Ramps;
- Mountain View Avenue and Golden State Boulevard.

The following road segments are expected to operate at substandard levels of service in the year 2035:

- Floral Avenue between Leonard and Dockery Avenues;
- Nebraska Avenue between Highland Avenue and 2^{nd} Street;
- Mountain View Avenue between Dockery and Bethel Avenues;
- McCall Avenue between Floral Avenue and Arrants Street;
- McCall Avenue between Whitson Street and approximately Blaine Avenue;
- Whitson Street between Thompson and Nebraska Avenues;
- 2^{nd} Street between Nebraska and McCall Avenues.

5.0 - DISCUSSION OF PROPOSED 2035 GENERAL PLAN CONDITIONS

5.1 - Intersections

It is recommended that the City of Selma establish standard lane configurations at intersections. Figures 5.1 through 5.3 present intersection lane diagrams for major arterials, arterials, and collectors, respectively. Alternatives for installing dual left-turn lanes generally accommodated within the planned right of way are presented. In new growth areas, these lane configurations and eventual signalization are expected to result in acceptable levels of service. The analyses indicate that dual left-turn lanes should be considered at the locations listed below. It should be noted that dual lefts on one approach usually need to be mirrored on the opposite approach to align the adjacent through lanes. It is also noted that intersections at interchanges are discussed below and are not included in this list.

- Manning and DeWolf Avenues (westbound and northbound)
- Manning and McCall Avenues (all approaches)
- Dinuba and DeWolf Avenues (location depends upon interchange configuration)
- Dinuba Avenue and Golden State Boulevard (all approaches)
- Dinuba and McCall Avenues (all approaches)
- Floral and Highland Avenues (eastbound and westbound)
- Floral Avenue and Whitson Street (northbound)
- Nebraska and Highland Avenues (all approaches)
- Mountain View and Highland Avenues (all approaches)
- Mountain View and McCall Avenues (all approaches)
- Mountain View Avenue and Golden State Boulevard (all approaches, or grade separation - see discussion below).

The intersection of Mountain View Avenue and Golden State Boulevard is adjacent to existing railroad tracks. Figure 5.4 presents Precise Plan Lines (PPL) in the vicinity of the intersection developed by the County of Fresno. The PPL accommodates an overhead structure allowing Mountain View Avenue to be elevated with a bridge passing over Golden State Boulevard and the railroad tracks. However, the PPL is not expected to accommodate the arterial designation of Mountain View Avenue currently proposed. To maintain connectivity between Mountain View Avenue and Golden State Boulevard, the PPL illustrates a connector road on the north side of Mountain View Avenue between SR 99 and Golden State Boulevard, connecting to the west side of Golden State Boulevard. It is likely that this configuration will result in the connector road intersection being located too near the interchange with insufficient storage capacity for queues. The alternative of constructing the connector road on the east side of the grade separation would require a railroad crossing and defeats some of the benefit of the grade separation.

The planned regional commercial land uses north of Mountain View Avenue between SR 99 and Golden State Boulevard are likely to require convenient access to SR 99. Further detailed studies will be required to determine a grade separation structure with convenient access, such as a single-point urban interchange (Type L-13) or similar structure. Figure 5.5, Conceptual Grade Separation, Intersection of Mountain View Avenue and Golden State Boulevard, presents a concept that may be applicable to this location.

Several intersections are expected to operate at substandard levels of service with implementation of the proposed General Plan (see Section 4.6), primarily because the intersections and the adjacent properties are already developed. The improvement of these intersections can be pursued by the City, but funding may not be readily available. Therefore, these locations may be considered to be constrained as described later in this report.

5.2 - Road Segments

A majority of the planned roadways are expected to operate at acceptable levels of service. However, the following road segments are expected to require additional lanes and it is recommended that the designation be upgraded to "Major Arterial":

- Floral Avenue between Leonard and Dockery Avenues;
- Mountain View Avenue between Dockery and Bethel Avenues.

Several road segments are expected to operate at substandard levels of service with implementation of the proposed General Plan (see Section 4.6), primarily because the roads and the adjacent properties are already developed. The widening of these road segments can be pursued by the City, but funding may not be readily available. Therefore, these locations may be considered to be constrained as described later in this report.

- Nebraska Avenue between Highland Avenue and 2nd Street;
- McCall Avenue between Floral Avenue and Arrants Street;
- McCall Avenue between Whitson Street and approximately Blaine Avenue;
- Whitson Street between Thompson and Nebraska Avenues;
- 2nd Street between Nebraska and McCall Avenues.

5.3 - Freeway Interchanges

Dinuba Avenue and State Route 99

The proposed interchange is a new connection to SR 99 and is spaced approximately 1.3 miles north of the existing Floral Avenue interchange and 1.3 miles south of the existing Manning Avenue interchange. The proposed interchange and the proposed modification of the SR 43 alignment will provide an alternative to the Floral Avenue interchange. It is anticipated that an L-9 interchange configuration will provide acceptable operations. The special considerations in the design of this interchange will include realigning Dinuba Avenue and DeWolf Avenue to minimize the number of bridges that are to be constructed and to maximize the distance between the interchange and adjacent intersections. Also to be considered is the desirability of connecting SR 43 directly to the interchange, rather than connecting it to Dinuba Avenue west of the interchange as presented in the Circulation Plan. A conceptual interchange layout is presented in Figure 5.6, Conceptual Interchange Layout, Dinuba Avenue and State Route 99.

The proposed interchange will require a substantial amount of additional study to gain approval from Caltrans and to determine the actual interchange design. More detailed studies are beyond the scope of this study and will require coordination between City staff and Caltrans staff.

Floral Avenue / Highland Avenue and State Route 99

The Floral Avenue / Highland Avenue interchange with SR 99 was the subject of an interchange analysis report dated July 16, 2008 by Peters Engineering Group. The report presented several interchange alternatives to increase capacity and to accommodate development in the vicinity of the interchange. The results were discussed with Caltrans staff and the configuration illustrated in the attached Figure 5.7, Conceptual Interchange Layout, Floral Avenue/Highland Avenue and State Route 99, are considered to be a feasible improvement. Additional intersection analyses utilizing the 2035 General Plan traffic volumes are included in Appendix E and indicate that the intersection of Floral Avenue and the southbound SR 99 ramps is expected to operate at substandard LOS. The intersection of Floral and Highland Avenues is also expected to operate at substandard LOS.

To operate at acceptable LOS, the interchange would require a major reconstruction that would likely affect access to adjacent properties and may require additional right of way.

2nd Street and State Route 99

The intersection analyses indicate that the interchange is expected to require signalization to operate at acceptable levels of service. It is not anticipated that significant physical modifications will be required.

Mountain View Avenue and State Route 99

The Mountain View Avenue interchange with SR 99 is located adjacent to planned commercial areas and is expected to experience a significant increase in traffic volumes with implementation of the proposed General Plan. Caltrans District 6 staff recently have indicated that full cloverleaf interchanges are not preferable due to weaving issues, and that an L-9 interchange is the most likely to be constructed at this location. A conceptual interchange layout is presented in Figure 5.8, Conceptual Interchange Layout, Mountain View Avenue and State Route 99. The interchange design will need to include consideration of the adjacent intersection of Mountain View Avenue and Golden State Boulevard, including potential grade separations and connector roads.

5.4 - Need for Future Studies

The traffic analyses performed for this study and presented herein are high-level studies for planning purposes that do not contain sufficient detail to determine project-specific impacts and circulation needs as development progresses. Traffic studies should be performed to satisfy the requirements of the California Environmental Quality Act (CEQA) for all developments in the City of Selma. As a guide, traffic studies should be performed for all proposed General Plan Amendments, proposed specific plans, projects expected to generate more than 100 total trips per hour, and at the discretion of the City Engineer. Future traffic studies should generally conform to the Caltrans *Guide for the Preparation of Traffic Impact Studies* and any guidelines established by the City. The studies should be performed to determine opening-day impacts of proposed projects and as confirmation or revision of the General Plan. The studies should address queue lengths and (at a minimum) peak-hour traffic signals warrants in addition to LOS and provide appropriate mitigations. At the discretion of the City Engineer, a complete warrant study in accordance with the most recent edition of the California Manual on Uniform Traffic Control Devices may be required to evaluate the need for traffic signals.

As described above, future studies will be required for improvements related to interchanges on SR 99. Further studies are likely to be required for the proposed modification of the SR 43 alignment. Caltrans may require conceptual approval reports, project study reports, and project reports.

It is recommended that an impact fee be developed to fund the various improvements to be implemented with the proposed General Plan. An impact fee study may be required.

6.0 - CONSTRAINED CONDITIONS

The traffic analyses identified locations that are constrained. At these locations, operations meeting the City's standard LOS D are not expected to be feasible without major reconstruction and possibly the acquisition of additional right of way in developed areas. The following locations are considered to be constrained, with the associated level of service presented in parentheses:

Intersections

- Floral Avenue and SR 99 Southbound Ramps (LOS E even with improvements);
- Floral and Highland Avenues (LOS F even with improvements);
- Floral Avenue and Whitson Street (LOS F);
- Floral and McCall Avenues (LOS F);
- Nebraska and Thompson Avenues (LOS E);
- 2^{nd} and Whitson Streets (LOS F).

Road Segments

- Floral Avenue between Leonard and Dockery Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";
- Mountain View Avenue between Dockery and Bethel Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";
- Nebraska Avenue between Highland Avenue and 2^{nd} Street (LOS F);
- McCall Avenue between Floral Avenue and Arrants Street (LOS F);
- McCall Avenue between Whitson Street and approximately Blaine Avenue (LOS F);
- Whitson Street between Thompson and Nebraska Avenues (LOS F);
- 2^{nd} Street between Nebraska and McCall Avenues (LOS F).

At these locations the City standard LOS D shall not apply and a statement of overriding considerations should be made to allow the substandard LOS at these locations. If funding is available, the City may reconstruct these locations to achieve the target LOS.

7.0 - CONCLUSIONS AND RECOMMENDATIONS

Generally-accepted traffic engineering principles and methods were employed to analyze the existing traffic conditions and those expected to occur with implementation of the proposed General Plan Update. The conclusion of this study is that the proposed Circulation Map is generally expected to provide for efficient movement of traffic through the City of Selma. Some modifications to the plan are expected to be required as follows:

- Floral Avenue between Leonard and Dockery Avenues should be upgraded to a “Major Arterial”;
- Mountain View Avenue between Dockery and Bethel Avenues should be upgraded to a “Major Arterial;
- The alignments of Dinuba Avenue and DeWolf Avenue should be modified adjacent to the proposed Dinuba Avenue interchange in accordance with the conceptual interchange layout drawing presented herein.

It is recommended that the City of Selma establish standard lane configurations at intersections, similar to those presented in Figures 5.1 through 5.3. Dual left-turn lanes should be considered at the following locations:

- Manning and DeWolf Avenues (westbound and northbound)
- Manning and McCall Avenues (all approaches)
- Dinuba and DeWolf Avenues (location depends upon interchange configuration)
- Dinuba Avenue and Golden State Boulevard (all approaches)
- Dinuba and McCall Avenues (all approaches)
- Floral and Highland Avenues (eastbound and westbound)
- Floral Avenue and Whitson Street (northbound)
- Nebraska and Highland Avenues (all approaches)
- Mountain View and Highland Avenues (all approaches)
- Mountain View and McCall Avenues (all approaches)
- Mountain View Avenue and Golden State Boulevard (all approaches, or grade separation - see discussion below).

The intersection of Mountain View Avenue and Golden State Boulevard is expected to require special treatment and further study for construction of a grade separation for the existing railroad tracks.

Freeway interchanges in the City of Selma are expected to require upgrades to accommodate the implementation of the General Plan. Conceptual upgrades are discussed herein; however, more detailed studies at each location will be required.

Several constrained intersections and road segments are expected to operate at substandard levels of service with implementation of the proposed General Plan, primarily because the intersections and the adjacent properties are already developed. The improvement of these intersections can be pursued by the City, but funding may not be readily available. The following locations are constrained and a statement of overriding considerations should be made to allow the substandard LOS at these locations:

Intersections

- Floral Avenue and SR 99 Southbound Ramps (LOS E even with improvements);
- Floral and Highland Avenues (LOS F even with improvements);
- Floral Avenue and Whitson Street (LOS F);
- Floral and McCall Avenues (LOS F);
- Nebraska and Thompson Avenues (LOS E);
- 2nd and Whitson Streets (LOS F).

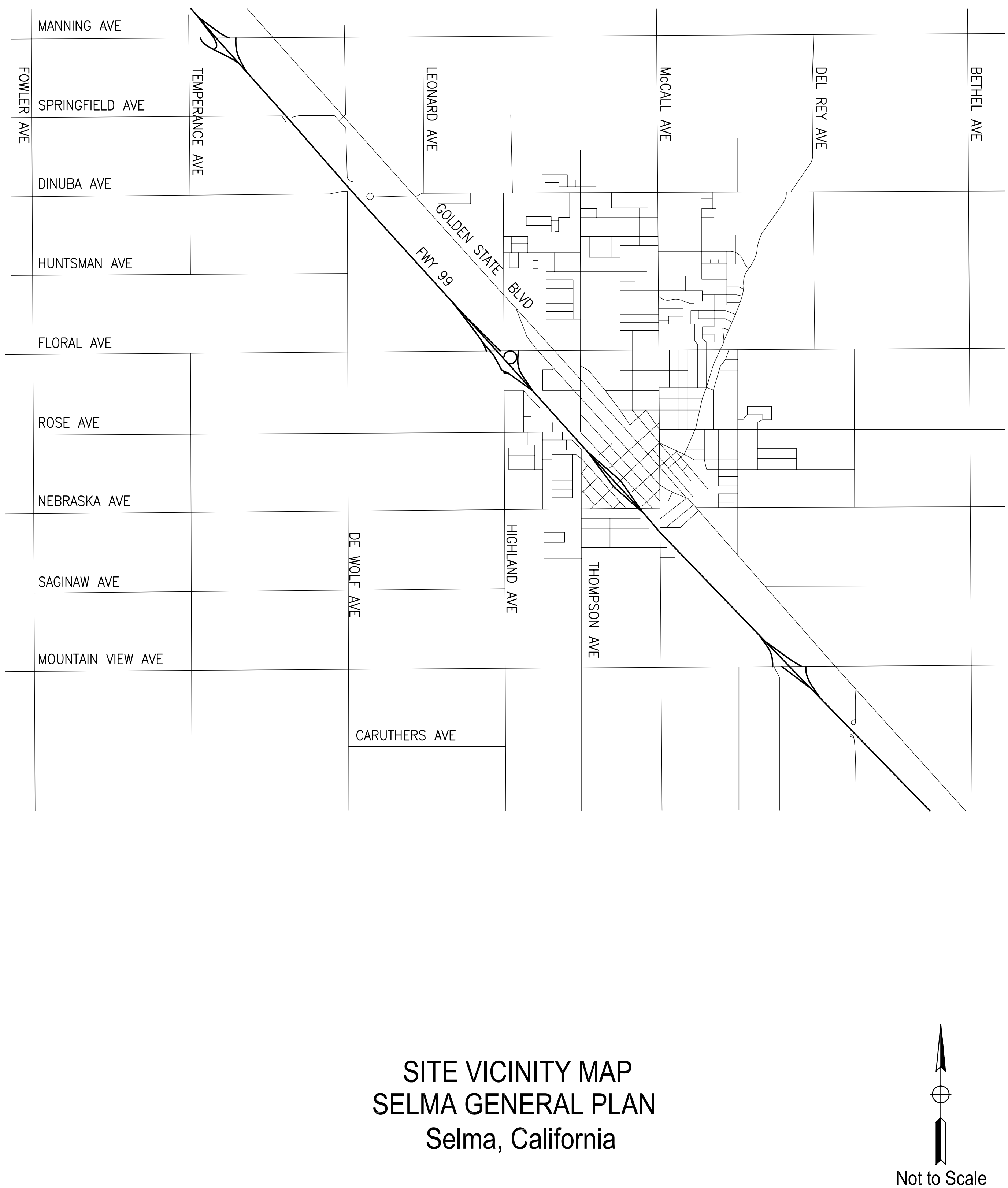
Road Segments

- Floral Avenue between Leonard and Dockery Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";
- Mountain View Avenue between Dockery and Bethel Avenues (LOS F if constructed as an "Arterial," not constrained if converted to a "Major Arterial";
- Nebraska Avenue between Highland Avenue and 2nd Street (LOS F);
- McCall Avenue between Floral Avenue and Arrants Street (LOS F);
- McCall Avenue between Whitson Street and approximately Blaine Avenue (LOS F);
- Whitson Street between Thompson and Nebraska Avenues (LOS F);
- 2nd Street between Nebraska and McCall Avenues (LOS F).

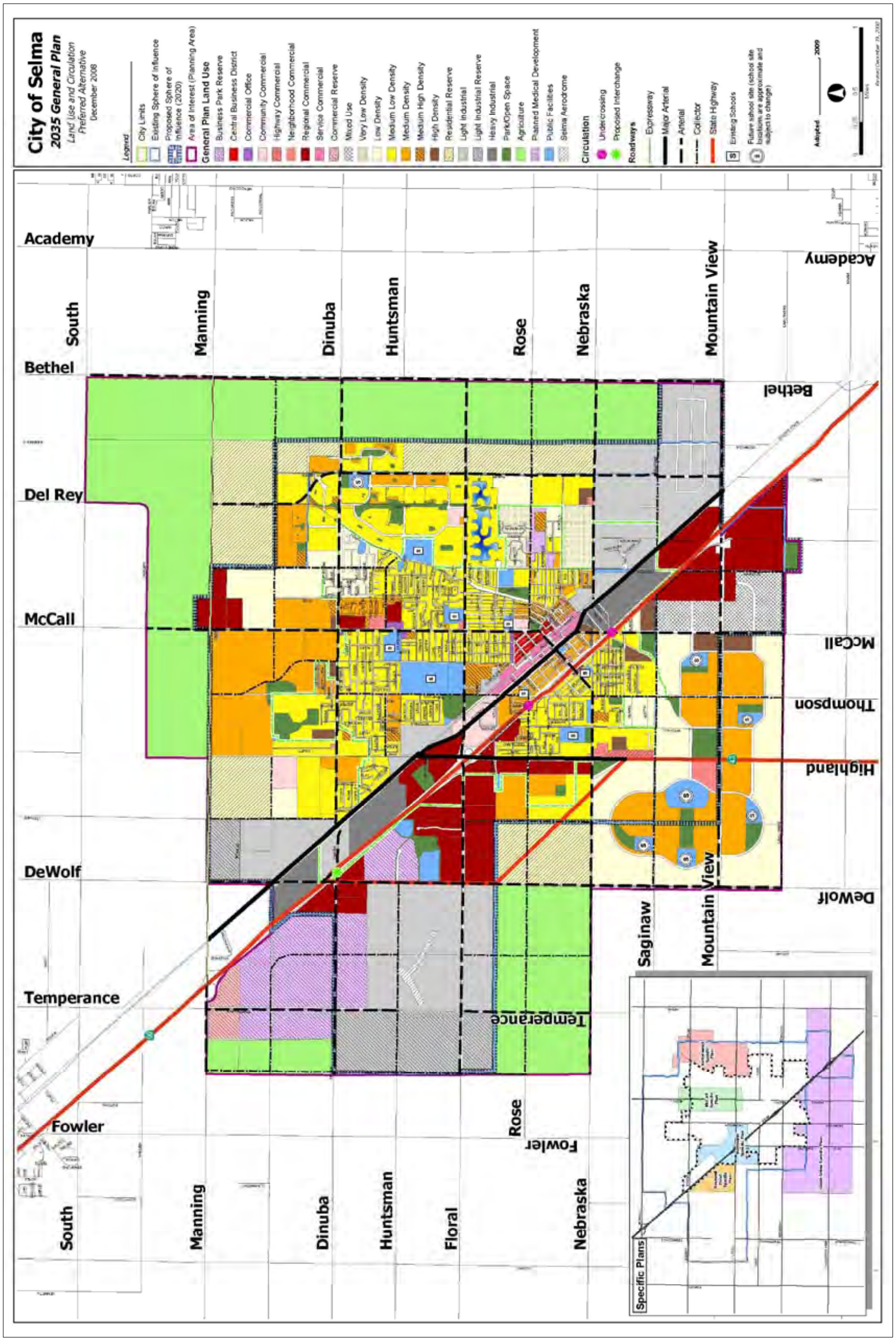
The traffic analyses performed for this study and presented herein are high-level studies for planning purposes that do not contain sufficient detail to determine project-specific impacts and circulation needs as development progresses. Traffic studies should be performed to satisfy the requirements of the California Environmental Quality Act (CEQA) for all developments in the City of Selma. Traffic studies should be performed for all proposed General Plan Amendments, proposed specific plans, projects expected to generate more than 100 total trips per hour, and at the discretion of the City Engineer. Future traffic studies should generally conform to the Caltrans *Guide for the Preparation of Traffic Impact Studies* and any guidelines established by the City. The studies should be performed to determine opening-day impacts of proposed projects and as confirmation or revision of the General Plan. The studies should address queue lengths and (at a minimum) peak-hour traffic signals warrants in addition to LOS and provide appropriate mitigations. At the discretion of the City Engineer, a complete warrant study in accordance with the most recent edition of the California Manual on Uniform Traffic Control Devices may be required to evaluate the need for traffic signals.

It is recommended that an impact fee be developed to fund the various improvements to be implemented with the proposed General Plan. An impact fee study may be required.

FIGURES

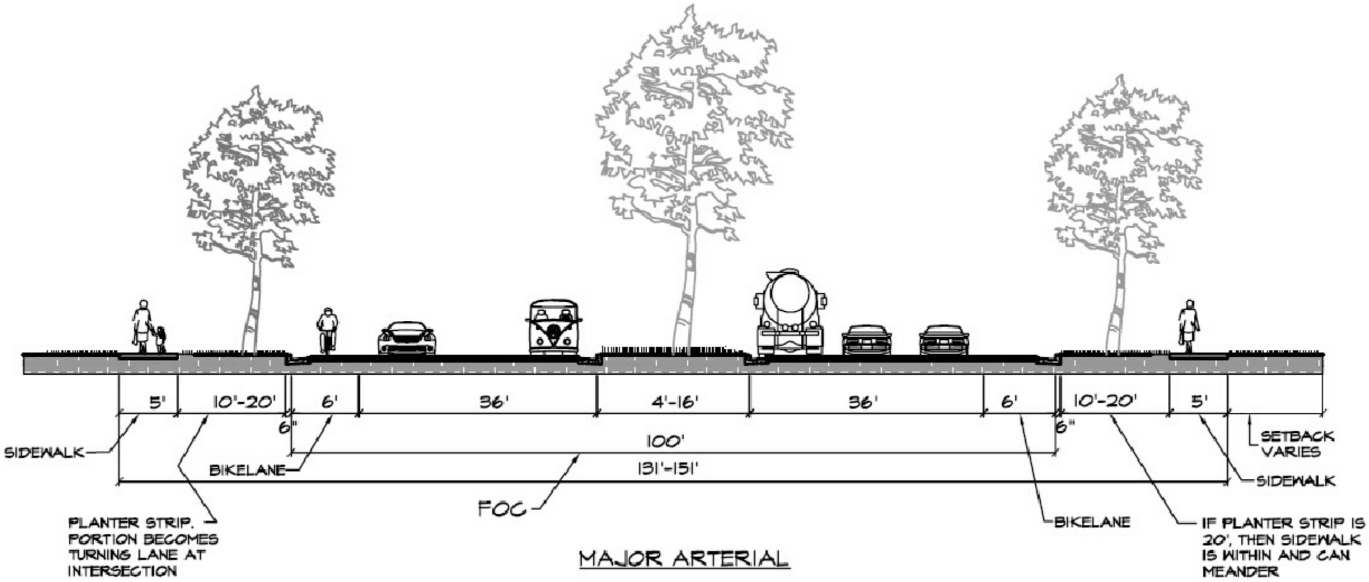


SITE VICINITY MAP
SELMA GENERAL PLAN
Selma, California

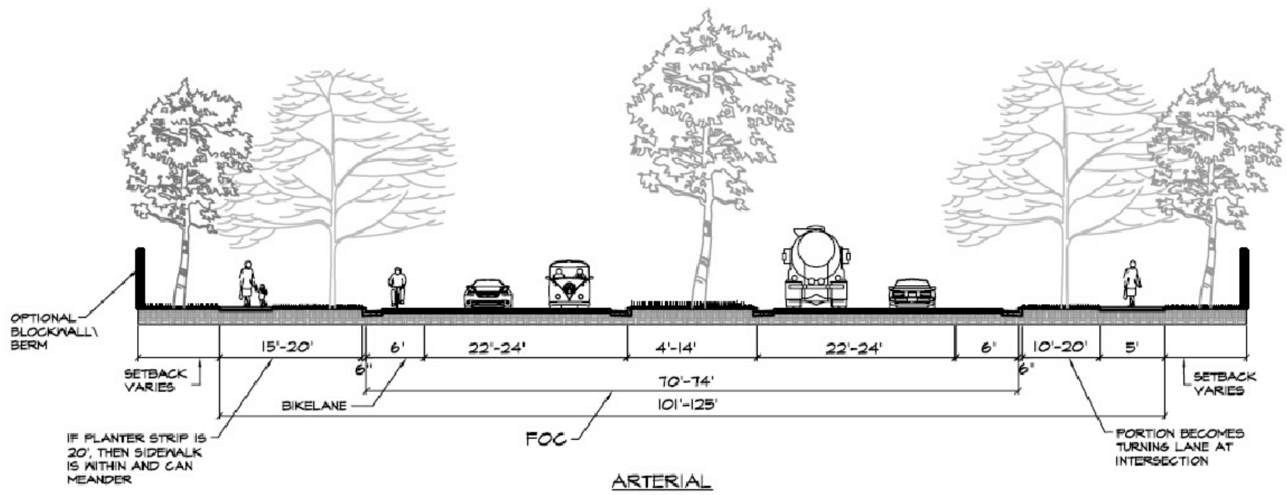


LAND USE AND CIRCULATION MAP
SELMA GENERAL PLAN
Selma, California

Not to Scale

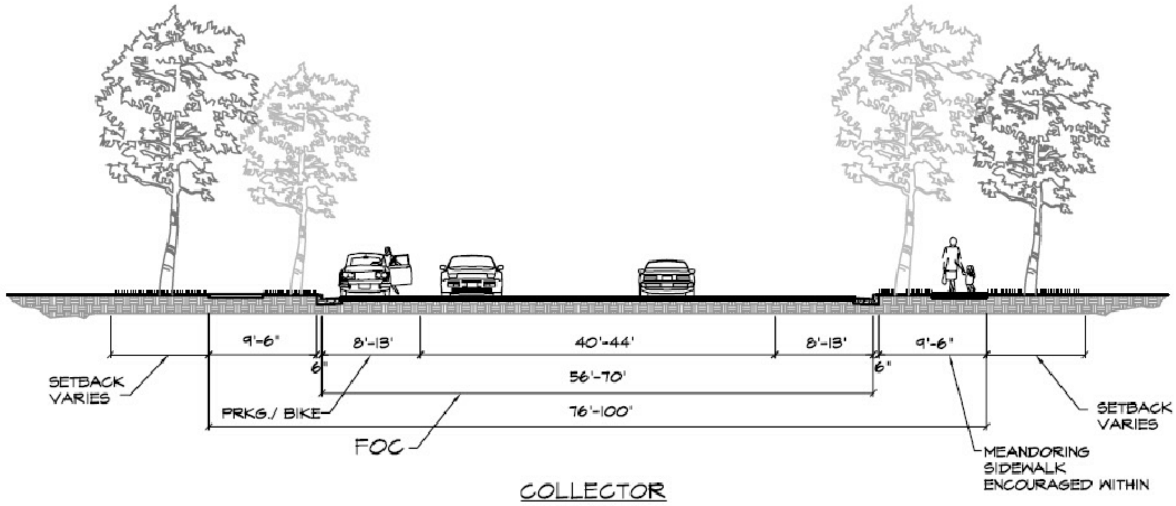


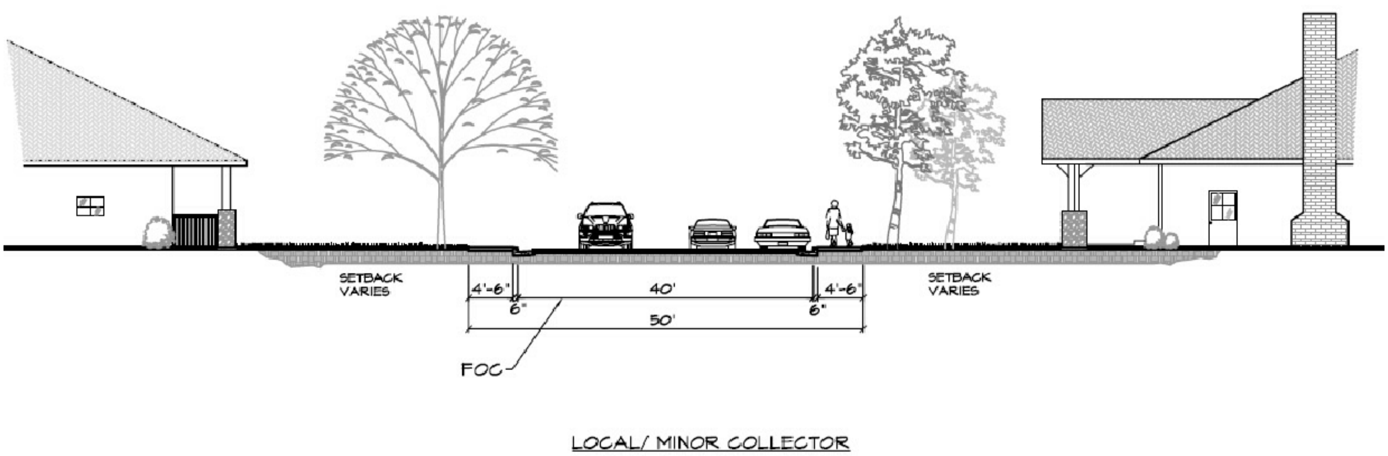
MAJOR ARTERIAL



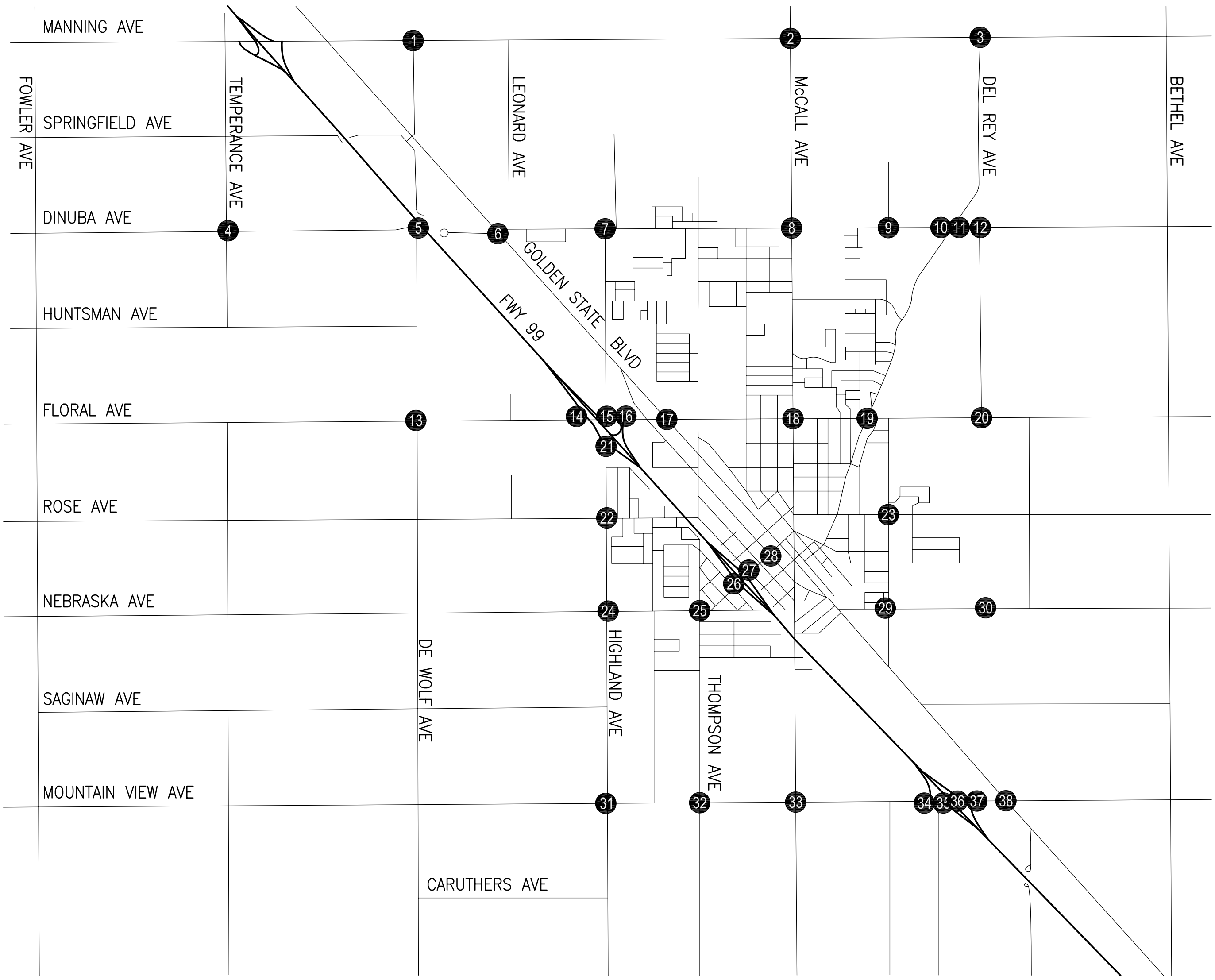
ARTERIAL

TYPICAL ARTERIAL CROSS SECTIONS
GENERAL PLAN UPDATE
Selma, California





TYPICAL COLLECTOR CROSS SECTIONS
GENERAL PLAN UPDATE
Selma, California

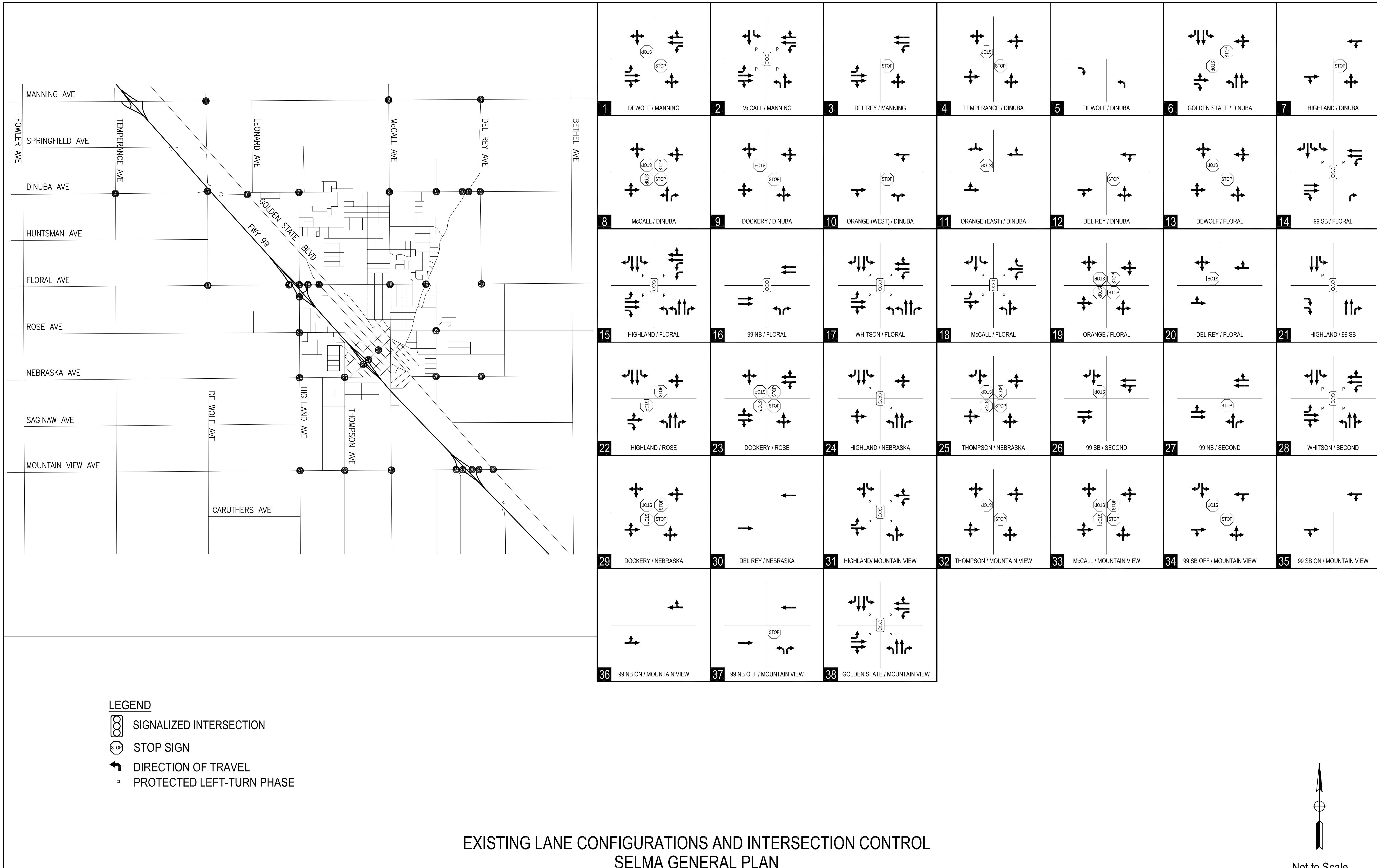


LEGEND

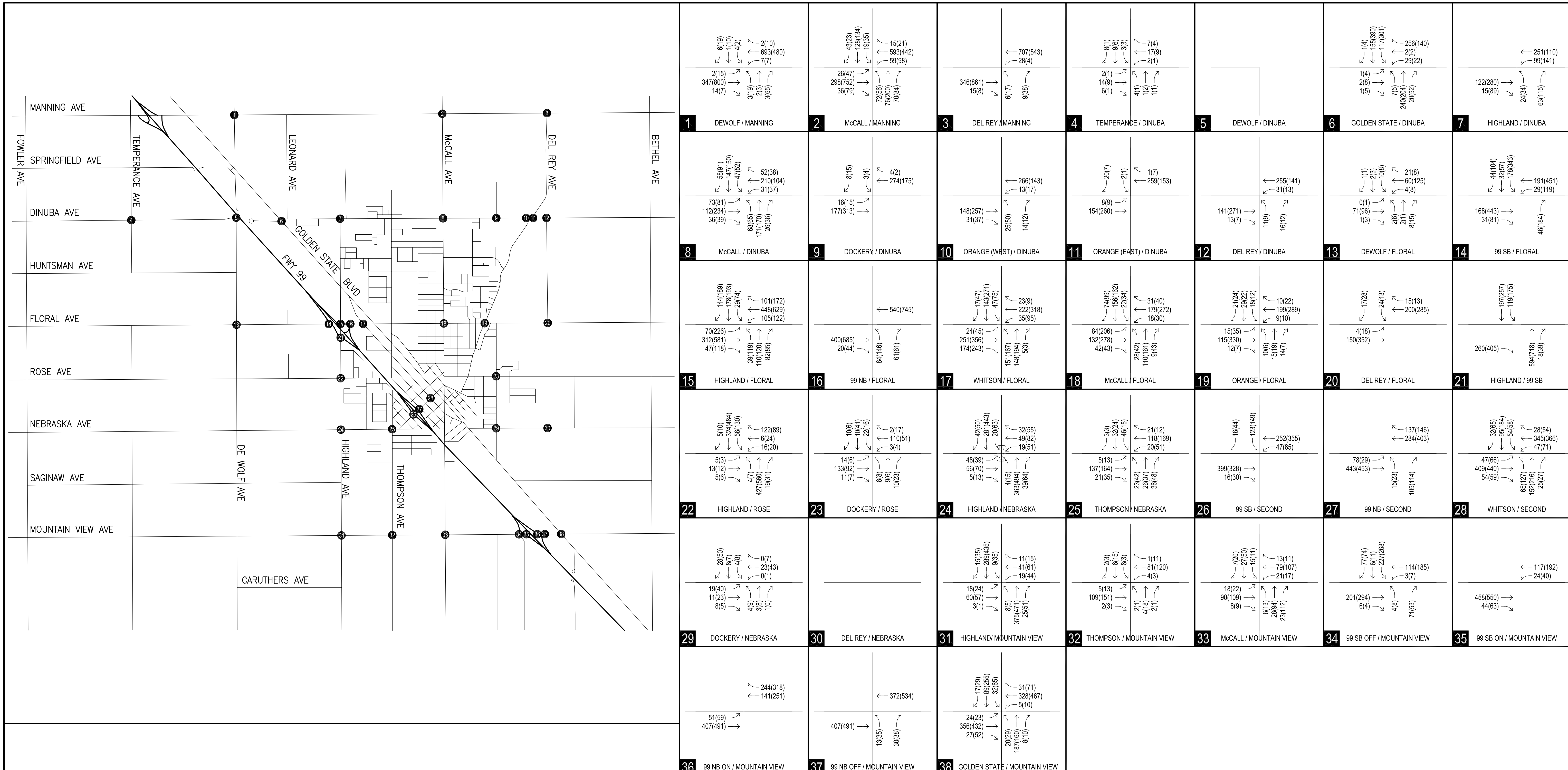
X = Intersection Location

STUDY INTERSECTION LOCATION MAP
SELMA GENERAL PLAN
Selma, California

Not to Scale



EXISTING LANE CONFIGURATIONS AND INTERSECTION CONTROL
SELMA GENERAL PLAN
Fresno County, California

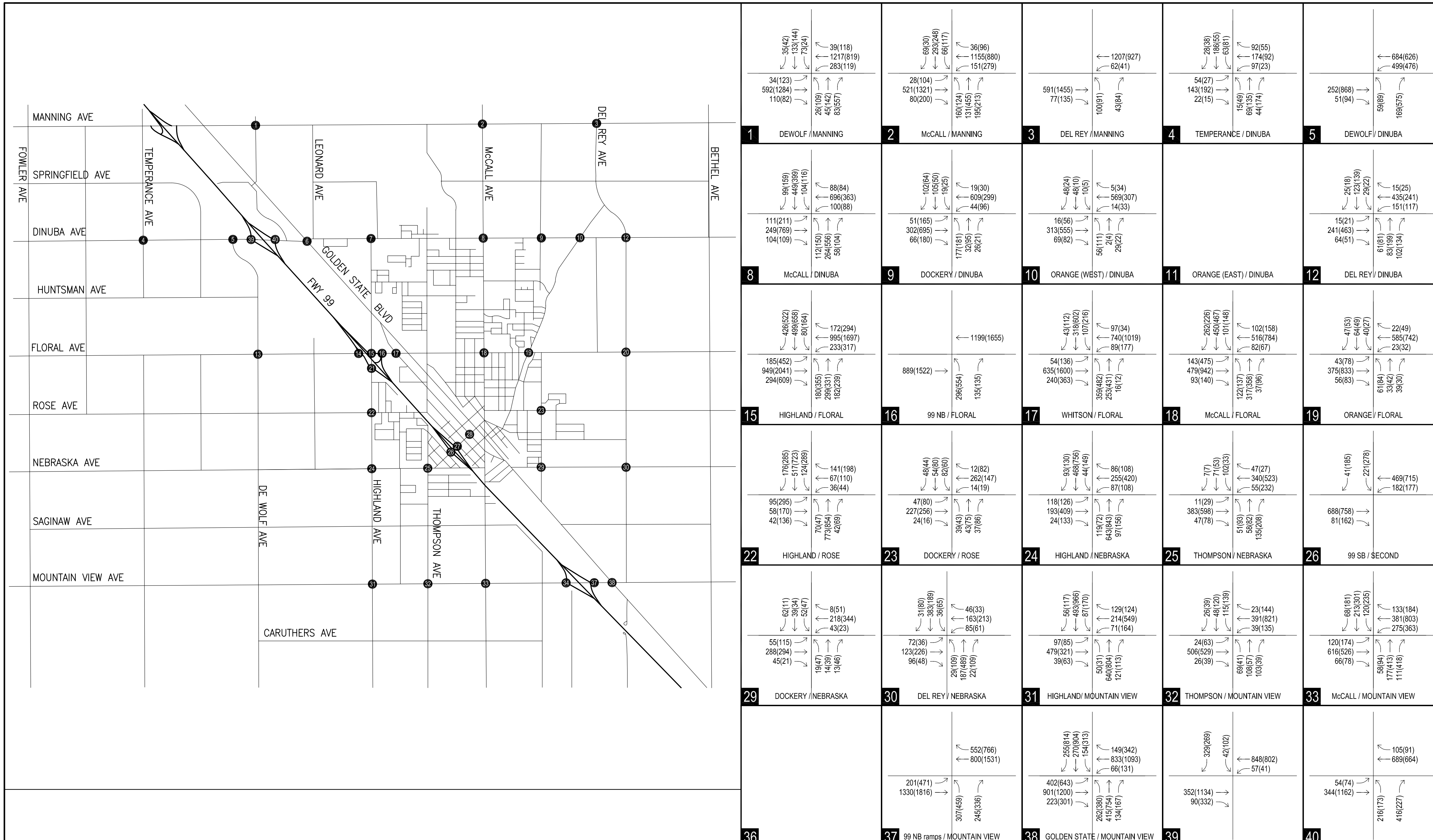


LEGEND

XX-AM Peak Hour Volumes
(YY)-PM Peak Hour Volumes

Not to Scale

EXISTING PEAK HOUR TRAFFIC VOLUMES
SELMA GENERAL PLAN
Fresno County, California



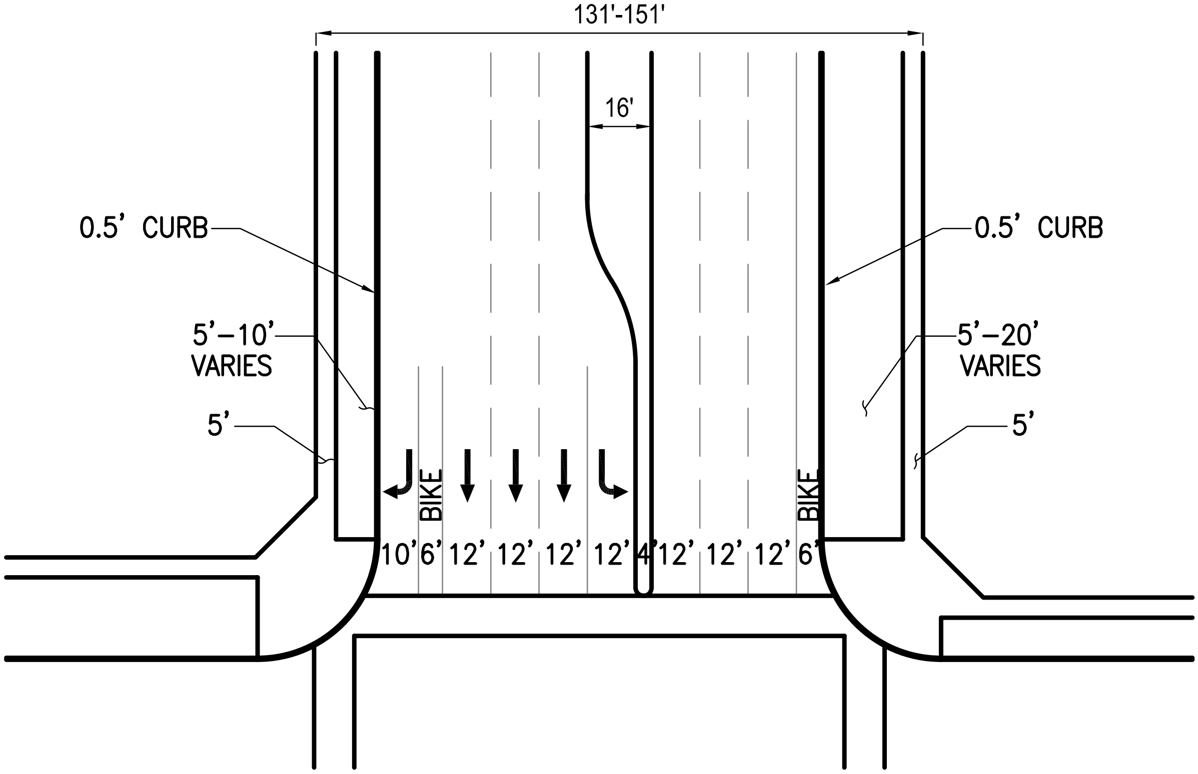
LEGEND

XX-AM Peak Hour Volumes

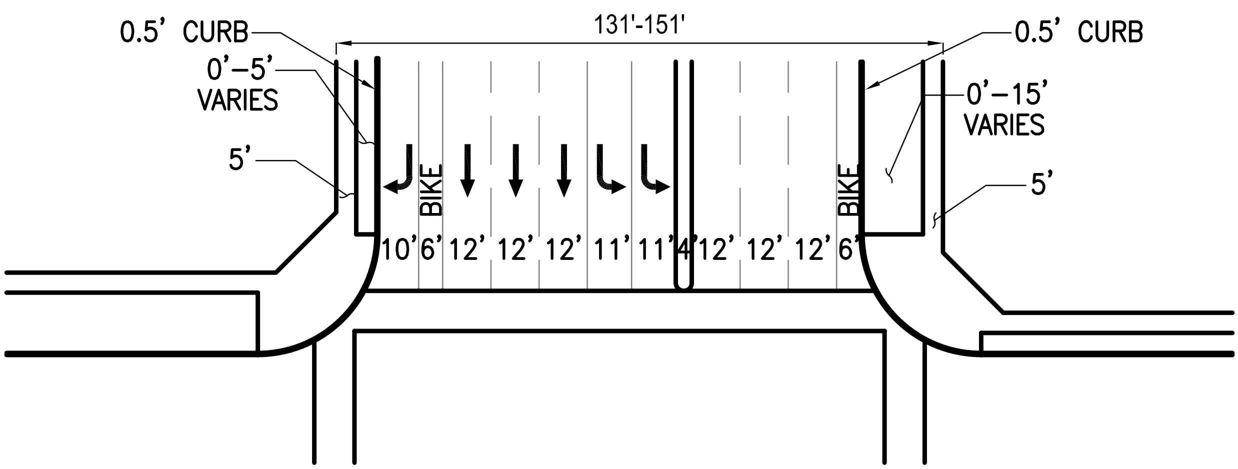
(YY)-PM Peak Hour Volumes

Not to Scale

YEAR 2035 PEAK HOUR TRAFFIC VOLUMES
SELMA GENERAL PLAN
Fresno County, California



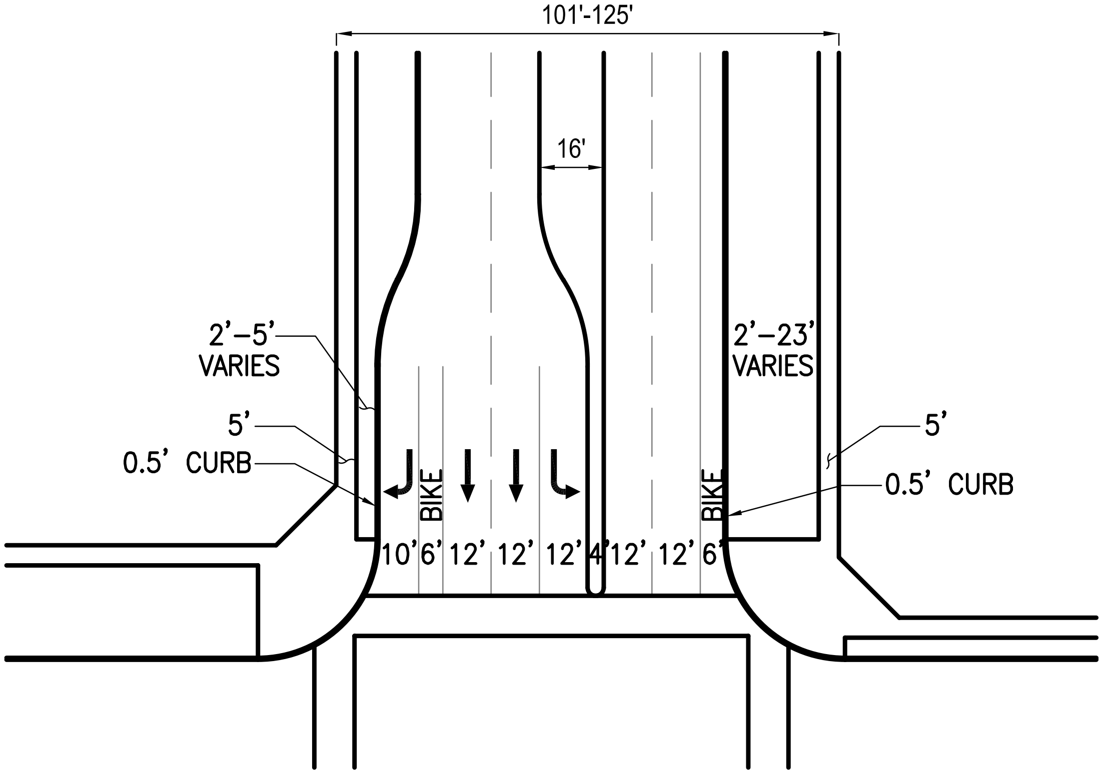
SINGLE LEFT - TURN LANE



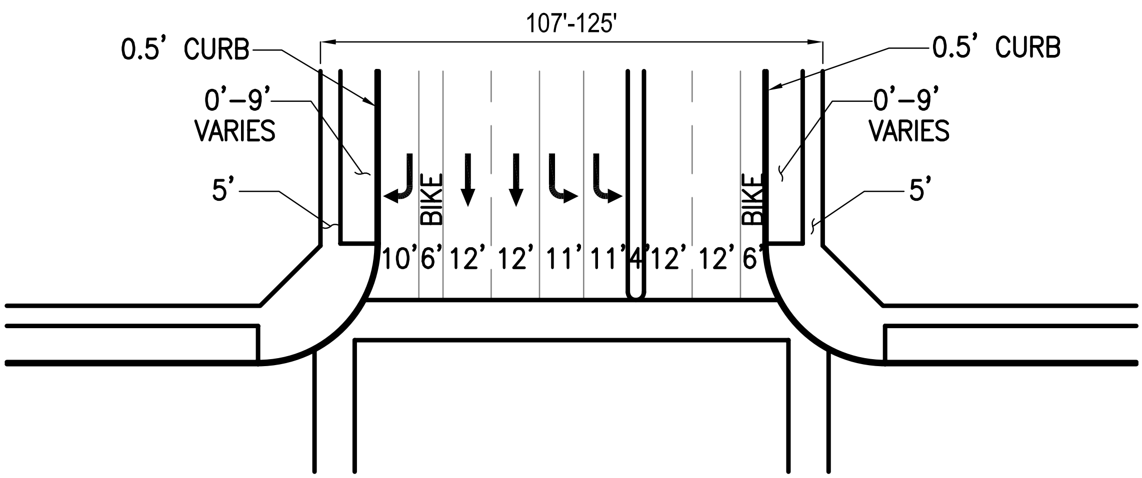
DUAL LEFT - TURN LANE

LANE CONFIGURATIONS AT INTERSECTIONS - MAJOR ARTERIALS
GENERAL PLAN UPDATE
Selma, California

Not to Scale

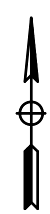


SINGLE LEFT - TURN LANE

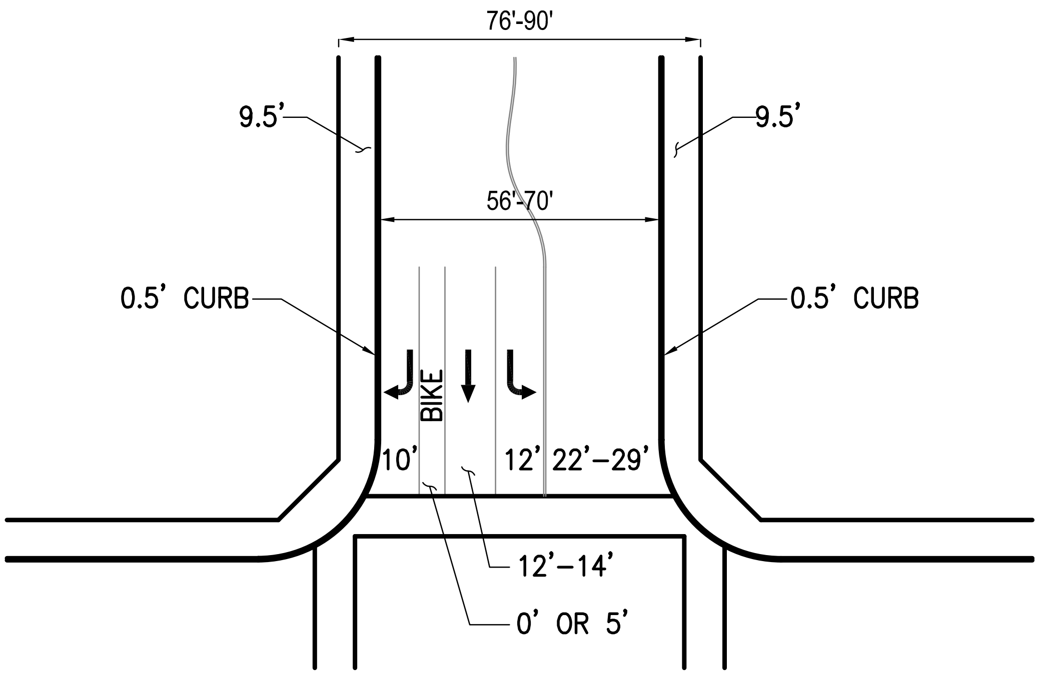


DUAL LEFT - TURN LANE

LANE CONFIGURATIONS AT INTERSECTIONS - ARTERIALS
GENERAL PLAN UPDATE
Selma, California

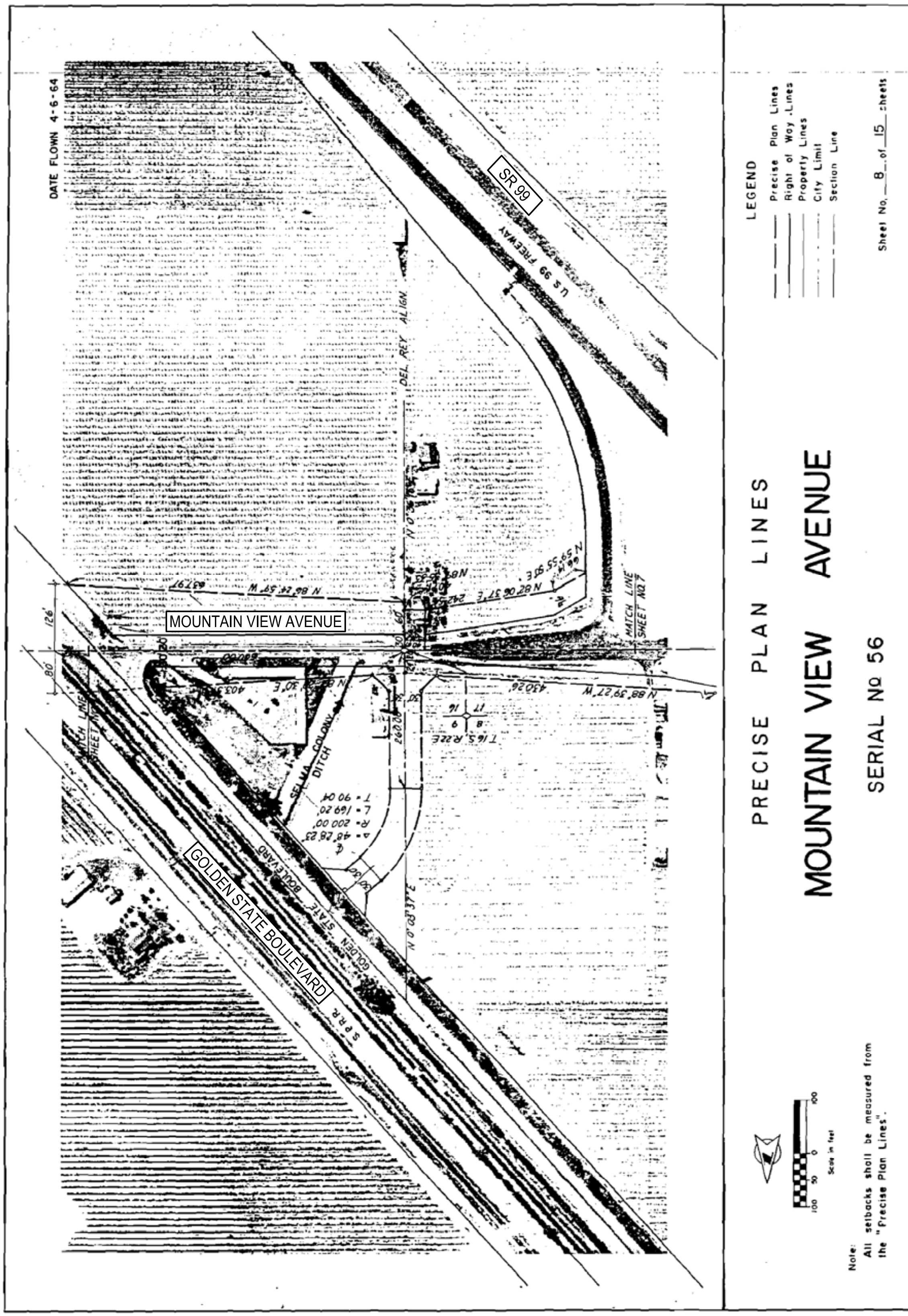


Not to Scale



Not to Scale

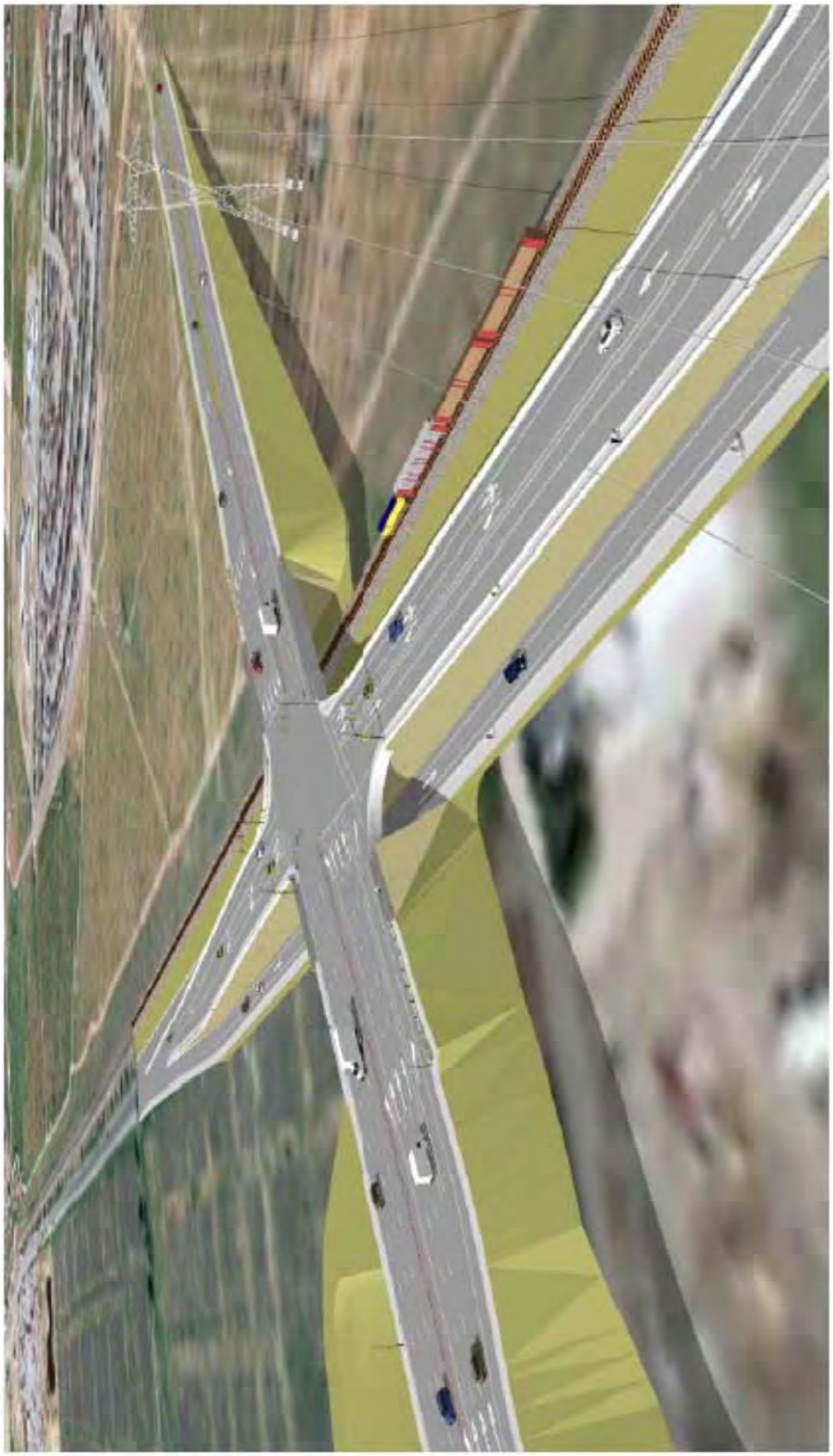
LANE CONFIGURATIONS AT INTERSECTIONS - COLLECTORS
GENERAL PLAN UPDATE
Selma, California



PRECISE PLAN LINE - MOUNTAIN VIEW AVENUE EAST OF SR 99
SELMA GENERAL PLAN
Selma, California

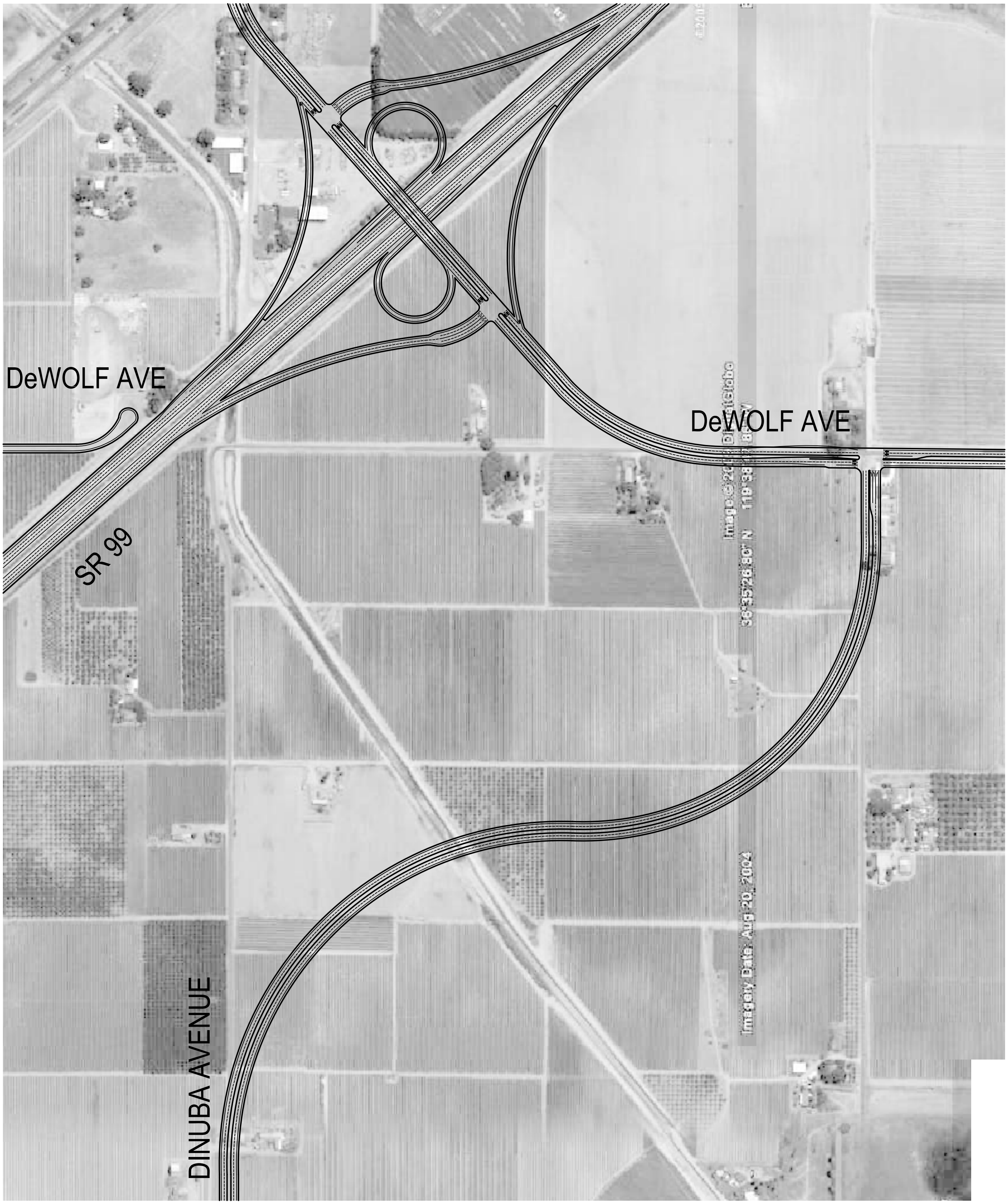
Not to Scale

UPRR / Mountain View / Golden State Crossing



CONCEPTUAL GRADE SEPARATION
INTERSECTION OF MOUNTAIN VIEW AVENUE AND GOLDEN STATE BOULEVARD
SELMA GENERAL PLAN
Selma, California

Not to Scale



CONCEPTUAL INTERCHANGE LAYOUT
DINUBA AVENUE AND STATE ROUTE 99
GENERAL PLAN UPDATE
Selma, California

Not to Scale

CONCEPTUAL INTERCHANGE LAYOUT
FLORAL AVENUE / HIGHLAND AVENUE AND STATE ROUTE 99
GENERAL PLAN UPDATE
Selma, California

Not to Scale

CONCEPTUAL INTERCHANGE LAYOUT
MOUNTAIN VIEW AVENUE AND STATE ROUTE 99
GENERAL PLAN UPDATE
Selma, California

Not to Scale

APPENDIX A

FLORIDA TABLES FOR ROAD SEGMENT ANALYSES

TABLE 4 - 4

GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S URBANIZED AREAS*

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	210	730	1,450	2,060	2,620
4	Divided	1,940	3,140	4,540	5,870	6,670
6	Divided	2,900	4,700	6,800	8,810	10,010

STATE TWO-WAY ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	400	1,310	1,560	1,610
4	Divided	460	2,780	3,300	3,390	***
6	Divided	700	4,240	4,950	5,080	***
8	Divided	890	5,510	6,280	6,440	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	180	1,070	1,460	1,550
4	Divided	**	390	2,470	3,110	3,270
6	Divided	**	620	3,830	4,680	4,920
8	Divided	**	800	5,060	6,060	6,360

Class III (more than 4.5 signalized intersections per mile and not within primary city central business district of an urbanized area over 750,000)

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	**	500	1,200	1,470
4	Divided	**	**	1,180	2,750	3,120
6	Divided	**	**	1,850	4,240	4,690
8	Divided	**	**	2,450	5,580	6,060

Class IV (more than 4.5 signalized intersections per mile and within primary city central business district of an urbanized area over 750,000)

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	**	490	1,310	1,420
4	Divided	**	**	1,170	2,880	3,010
6	Divided	**	**	1,810	4,350	4,520
8	Divided	**	**	2,460	5,690	5,910

NON-STATE ROADWAYS

Major City/County Roadways

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	**	870	1,390	1,480
4	Divided	**	**	2,030	2,950	3,120
6	Divided	**	**	3,170	4,450	4,690

Other Signalized Roadways
(signalized intersection analysis)

Lanes	Divided	A	B	C	D	E
		Level of Service				
2	Undivided	**	**	450	950	1,200
4	Divided	**	**	1,050	2,070	2,400

Source: Florida Department of Transportation 05/17/07
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450
http://www.dot.state.fl.us/planning/systems/sm/los/default.htm

FREEWAYS

Interchange spacing ≥ 2 mi. apart

Lanes	A	B	C	D	E
	Level of Service				
4	2,310	3,840	5,350	6,510	7,240
6	3,580	5,930	8,270	10,050	11,180
8	4,840	8,020	11,180	13,600	15,130
10	6,110	10,110	14,110	17,160	19,050
12	7,360	12,200	17,020	20,710	23,000

Interchange spacing < 2 mi. apart

Lanes	A	B	C	D	E
	Level of Service				
4	2,050	3,350	4,840	6,250	7,110
6	3,240	5,250	7,600	9,840	11,180
8	4,420	7,160	10,360	13,420	15,240
10	5,600	9,070	13,130	16,980	19,310
12	6,780	10,980	15,890	20,560	23,360

BICYCLE MODE

(**Note**: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder Bicycle Lane Coverage	A	B	C	D	E
	Level of Service				
0-49%	**	**	310	1,310	>1,310
50-84%	**	240	390	>390	***
85-100%	300	680	>680	***	***

PEDESTRIAN MODE

(**Note:** Level of service for the pedestrian mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of pedestrians using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	A	B	C	D	E
	Level of Service				
0-49%	**	**	**	600	1,480
50-84%	**	**	**	940	1,800
85-100%	**	210	1,080	>1,080	***

BUS MODE (Scheduled Fixed Route)

(Buses per hour)

(**Note:** Buses per hour shown are only for the **peak hour** in the **single direction** of higher traffic flow)

Sidewalk Coverage	A	B	C	D	E
	Level of Service				
0-84%	**	>5	≥4	≥3	≥2
85-100%	>6	>4	≥3	≥2	≥1

ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS

(alter corresponding volume by the indicated percent)

Lanes	Median	Left Turns Lanes	Adjustment Factors
2	Divided	Yes	+5%
2	Undivided	No	-20%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

ONE-WAY FACILITIES

Multiply the corresponding two-directional volumes in this table by 0.6.

*Values shown are presented as hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated Although presented as peak hour two-way volumes, they actually represent peak hour peak direction conditions with an applicable D factor applied This table does not constitute a standard and should be used only for general planning applications The computer models from which this table is derived should be used for more specific planning applications The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes
**Cannot be achieved using table input value defaults
***Not applicable for that level of service letter grade For automobile/truck modes, volumes greater than level of service D become F because intersection capacities have been reached For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults

APPENDIX B

TRAFFIC COUNT DATA SHEETS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Rose | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dockery | DAY: THURSDAY | PROJECT# 07-8129-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	0	3	5	1	1	2	22	3	0	18	3	60
7:15 AM	1	1	2	7	6	1	2	19	6	1	19	3	68
7:30 AM	3	4	2	2	9	1	0	20	4	0	11	0	56
7:45 AM	2	2	2	4	3	2	0	21	1	5	19	2	63
8:00 AM	3	2	2	1	0	0	3	30	2	1	27	0	71
8:15 AM	0	3	4	8	4	2	3	32	2	1	32	1	92
8:30 AM	2	3	2	7	4	1	1	40	4	1	28	1	94
8:45 AM	3	1	2	6	2	7	7	31	3	0	23	0	85
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	16	16	19	40	29	15	18	215	25	9	177	10	589

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	8	9	10	22	10	10	14	133	11	3	110	2	342
PEAK HR. FACTOR:		0.964			0.700			0.878			0.846		0.910

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Rose | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dockery | DAY: THURSDAY | PROJECT# 07-8129-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	2	4	5	3	12	1	2	13	2	2	12	2	60
4:15 PM	4	5	9	1	10	1	2	11	3	1	13	2	62
4:30 PM	1	2	7	2	10	3	1	20	2	0	11	3	62
4:45 PM	4	2	6	3	11	1	2	21	3	4	15	5	77
5:00 PM	1	0	4	7	10	1	3	24	0	0	16	1	67
5:15 PM	2	2	6	4	10	1	0	27	2	0	9	8	71
5:30 PM	1	3	5	5	5	2	1	21	2	2	5	1	53
5:45 PM	3	1	3	4	7	4	4	18	1	2	11	0	58
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	18	19	45	29	75	14	15	155	15	11	92	22	510

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	8	6	23	16	41	6	6	92	7	4	51	17	277
PEAK HR. FACTOR:		0.771			0.875			0.905			0.750		0.899

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dockery | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Nebraska | DAY: THURSDAY | PROJECT# 07-8129-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	1	0	0	0	4	3	3	1	0	5	0	18
7:15 AM	0	0	1	2	2	9	3	1	4	0	3	0	25
7:30 AM	2	1	0	2	3	8	8	3	2	0	6	0	35
7:45 AM	1	1	0	0	3	7	5	4	1	0	9	0	31
8:00 AM	2	0	0	0	0	4	5	0	2	0	1	1	15
8:15 AM	0	1	0	0	1	6	6	1	1	1	3	1	21
8:30 AM	0	2	0	0	4	5	4	1	1	0	6	1	24
8:45 AM	3	0	0	1	0	3	5	5	3	0	3	0	23
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	9	6	1	5	13	46	39	18	15	1	36	3	192

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	4	3	1	4	8	28	19	11	8	0	23	0	109
PEAK HR. FACTOR:		0.667			0.769			0.731			0.639		0.779

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dockery   DATE: 07/12/2007   LOCATION: City of Selma

E-W STREET: Nebraska   DAY: THURSDAY   PROJECT# 07-8129-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	3	1	0	4	1	13	10	4	2	1	12	1	52
4:15 PM	2	3	0	1	1	14	15	7	1	0	13	1	58
4:30 PM	1	1	0	1	2	11	5	4	2	0	10	4	41
4:45 PM	3	3	0	2	3	12	10	8	0	0	8	1	50
5:00 PM	0	1	1	2	0	9	4	9	2	0	3	0	31
5:15 PM	0	0	1	1	1	8	11	4	2	0	5	1	34
5:30 PM	1	1	1	2	1	9	8	5	1	0	2	1	32
5:45 PM	0	1	2	1	1	8	4	6	1	0	4	1	29
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	10	11	5	14	10	84	67	47	11	1	57	10	327

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	9	8	0	8	7	50	40	23	5	1	43	7	201
PEAK HR. FACTOR:		0.708			0.903			0.739			0.911		0.866

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dockery | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0.5	0	0.5	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM				1		1	2	24			51	1	80
7:15 AM				0		2	6	41			54	1	104
7:30 AM				0		2	5	37			74	0	118
7:45 AM				0		3	6	42			76	1	128
8:00 AM				2		3	5	52			62	3	127
8:15 AM				1		0	0	46			62	0	109
8:30 AM				0		6	3	41			50	1	101
8:45 AM				2		3	2	35			46	1	89
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	6	0	20	29	318	0	0	475	8	856

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	0	0	0	3	0	8	16	177	0	0	274	4	482
PEAK HR. FACTOR:		0.000			0.550			0.846			0.903		0.941

CONTROL: 1-WAY STOP (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dockery | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0.5	0	0.5	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM				0	0	5	4	45			36	0	90
4:15 PM				0	1	3	2	42			32	0	80
4:30 PM				0	1	2	3	60			50	0	116
4:45 PM				0	0	6	2	64			21	0	93
5:00 PM				0	0	3	2	63			47	0	115
5:15 PM				2	0	5	5	83			42	0	137
5:30 PM				0	0	5	5	81			47	2	140
5:45 PM				2	0	2	3	86			39	0	132
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	4	2	31	26	524	0	0	314	2	903

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	0	0	4	0	15	15	313	0	0	175	2	524
PEAK HR. FACTOR:		0.000			0.679			0.921			0.903		0.936

CONTROL: 1-WAY STOP (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Orange	DATE: 07/11/2007	LOCATION: City of Selma	
E-W STREET: Floral	DAY: WEDNESDAY	PROJECT# 07-8129-017	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	4	1	5	5	3	6	26	3	1	37	1	94
7:15 AM	2	3	2	7	5	7	1	30	1	5	30	1	94
7:30 AM	4	2	3	5	9	5	3	22	4	4	38	3	102
7:45 AM	3	3	5	7	8	5	6	22	2	2	48	2	113
8:00 AM	1	4	5	2	3	6	5	31	1	1	62	3	124
8:15 AM	2	6	1	4	9	5	1	40	5	2	51	2	128
8:30 AM	3	3	2	3	1	4	2	33	4	6	34	1	96
8:45 AM	1	4	4	9	5	9	8	28	3	5	20	3	99
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	18	29	23	42	45	44	32	232	23	26	320	16	850

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	10	15	14	18	29	21	15	115	12	9	199	10	467
PEAK HR. FACTOR:		0.886			0.850			0.772			0.826		0.912

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Orange	DATE:	07/11/2007	LOCATION:	City of Selma
E-W STREET:	Floral	DAY:	WEDNESDAY	PROJECT#	07-8129-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	2	2	1	5	9	5	3	86	5	5	69	4	196
4:15 PM	3	3	3	3	2	5	3	84	1	3	65	7	182
4:30 PM	2	7	1	3	2	7	10	90	1	4	64	5	196
4:45 PM	1	2	2	2	4	9	5	85	2	3	76	6	197
5:00 PM	1	6	3	5	5	3	9	94	1	1	70	6	204
5:15 PM	2	4	1	2	11	5	11	61	3	2	79	5	186
5:30 PM	1	7	2	3	8	9	6	59	4	1	70	4	174
5:45 PM	0	6	1	1	7	6	9	51	6	3	85	5	180
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	12	37	14	24	48	49	56	610	23	22	578	42	1515

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	6	19	7	12	22	24	35	330	7	10	289	22	783
PEAK HR. FACTOR:		0.800			0.806			0.894			0.933		0.960

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Orange | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0	0.5	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	8	0	3	2	6	6	2	22	1	2	38	1	91
7:15 AM	0	4	0	1	3	3	5	29	8	1	55	0	109
7:30 AM	3	1	4	0	1	1	1	27	12	0	76	0	126
7:45 AM	6	0	5	1	3	3	3	28	12	1	73	0	135
8:00 AM	8	0	2	0	4	4	2	49	1	2	55	0	127
8:15 AM	8	0	2	1	2	2	1	37	6	0	52	1	112
8:30 AM	5	1	0	0	2	2	3	41	2	2	45	2	105
8:45 AM	11	1	2	1	1	4	1	19	13	3	36	1	93
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	49	7	18	6	22	25	18	252	55	11	430	5	898

AM Peak Hr Begins at: 730 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES =	25	1	13	2	10	10	7	141	31	3	256	1	500
PEAK HR. FACTOR:		0.886			0.688			0.861			0.855		0.926

CONTROL: 1-WAY STOP (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Orange | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0	0.5	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	6	0	2	5	3	0	5	37	6	6	31	1	102
4:15 PM	8	0	4	2	2	5	2	34	5	2	25	0	89
4:30 PM	14	2	3	0	1	4	8	44	8	2	39	1	126
4:45 PM	10	2	2	1	4	7	11	49	10	2	25	3	126
5:00 PM	12	1	4	1	1	3	2	39	5	4	36	3	111
5:15 PM	14	0	3	0	0	0	1	71	11	4	33	1	138
5:30 PM	12	1	0	0	0	0	3	68	12	4	40	2	142
5:45 PM	12	0	3	0	1	2	1	72	9	3	29	1	133
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	88	6	21	9	12	21	33	414	66	27	258	12	967

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	50	2	10	1	2	5	7	250	37	15	138	7	524
PEAK HR. FACTOR:		0.912			0.400			0.886			0.870		0.923

CONTROL: 1-WAY STOP (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey DATE: 07/12/2007 LOCATION: City of Selma

E-W STREET: Nebraska DAY: THURSDAY PROJECT# 07-8129-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM								3			5		8
7:15 AM								4			3		7
7:30 AM								5			6		11
7:45 AM								4			9		13
8:00 AM								1			2		3
8:15 AM								1			5		6
8:30 AM								1			7		8
8:45 AM								6			3		9
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	0	0	0	0	25	0	0	40	0	65

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	16	0	0	23	0	39
PEAK HR. FACTOR:		0.000			0.000			0.800			0.639		0.750

CONTROL: NO SIGNAL

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Nebraska | DAY: THURSDAY | PROJECT# 07-8129-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM								8			14		22
4:15 PM								8			14		22
4:30 PM								5			14		19
4:45 PM								10			9		19
5:00 PM								12			3		15
5:15 PM								6			6		12
5:30 PM								8			3		11
5:45 PM								9			5		14
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	66	0	0	68	0	134

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	0	0	0	0	0	0	0	31	0	0	51	0	82
PEAK HR. FACTOR:		0.000			0.000			0.775			0.911		0.932

CONTROL: NO SIGNAL

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson   DATE: 07/11/2007   LOCATION: City of Selma

E-W STREET: Nebraska   DAY: WEDNESDAY   PROJECT# 07-8129-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0.5	0.5	1	1	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	8	5	12	2	5	1	2	36	9	11	26	4	121
7:15 AM	9	7	10	1	3	2	2	28	10	13	34	5	124
7:30 AM	7	6	8	1	2	3	3	31	8	10	23	2	104
7:45 AM	5	3	8	3	3	1	4	35	8	9	27	1	107
8:00 AM	10	5	9	5	4	2	4	37	11	11	35	3	136
8:15 AM	11	4	11	4	5	0	1	34	7	12	31	3	123
8:30 AM	8	7	9	2	6	1	0	22	9	10	29	1	104
8:45 AM	9	4	10	2	2	1	1	29	12	8	33	4	115
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	67	41	77	20	30	11	17	252	74	84	238	23	934

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	38	20	39	13	17	4	6	122	39	41	128	11	478
PEAK HR. FACTOR:		0.933			0.773			0.803			0.918		0.879

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson DATE: 07/11/2007 LOCATION: City of Selma

E-W STREET: Nebraska DAY: WEDNESDAY PROJECT# 07-8129-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0.5	0.5	1	1	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	13	8	8	1	4	0	3	39	11	12	37	6	142
4:15 PM	11	9	14	3	4	2	5	40	8	14	34	2	146
4:30 PM	10	3	9	5	3	1	3	31	9	10	43	5	132
4:45 PM	11	4	16	1	3	1	1	34	11	8	46	3	139
5:00 PM	12	3	8	2	6	2	1	31	17	9	35	1	127
5:15 PM	13	1	10	2	3	2	2	33	12	8	31	2	119
5:30 PM	8	1	13	3	4	0	1	46	10	17	34	8	145
5:45 PM	6	6	9	4	3	0	0	36	15	15	42	4	140
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	84	35	87	21	30	8	16	290	93	93	302	31	1090

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	45	24	47	10	14	4	12	144	39	44	160	16	559
PEAK HR. FACTOR:		0.853			0.778			0.920			0.948		0.957

CONTROL: 4-WAY STOP SIGN

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey | DATE: 07/11/2007 | LOCATION: City of Selma

E-W STREET: Floral | DAY: WEDNESDAY | PROJECT# 07-8129-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM				2		1	0	32			38	2	75
7:15 AM				3		4	1	37			31	3	79
7:30 AM				6		2	5	25			43	4	85
7:45 AM				7		5	2	32			48	5	99
8:00 AM				3		4	1	37			62	2	109
8:15 AM				8		6	1	42			50	4	111
8:30 AM				6		2	0	39			40	4	91
8:45 AM				2		1	1	41			26	3	74
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	37	0	25	11	285	0	0	338	27	723

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	0	0	0	24	0	17	4	150	0	0	200	15	410
PEAK HR. FACTOR:		0.000			0.732			0.895			0.840		0.923

CONTROL: 1-WAY STOP SIGN (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey | DATE: 07/11/2007 | LOCATION: City of Selma

E-W STREET: Floral | DAY: WEDNESDAY | PROJECT# 07-8129-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM				4		5	3	88			75	3	178
4:15 PM				2		7	3	87			66	2	167
4:30 PM				8		9	8	83			69	3	180
4:45 PM				1		7	3	85			78	2	176
5:00 PM				2		5	4	97			72	6	186
5:15 PM				0		3	2	62			85	1	153
5:30 PM				1		7	3	64			68	2	145
5:45 PM				2		0	1	53			91	0	147
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	20	0	43	27	619	0	0	604	19	1332

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	0	0	0	13	0	28	18	352	0	0	285	13	709
PEAK HR. FACTOR:		0.000			0.603			0.916			0.931		0.953

CONTROL: 1-WAY STOP SIGN (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Floral | DAY: TUESDAY | PROJECT# 07-8129-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3	16	4	5	19	11	16	22	3	4	32	6	141
7:15 AM	4	20	2	7	24	11	18	23	9	4	33	2	157
7:30 AM	8	22	3	4	30	15	20	22	6	5	40	3	178
7:45 AM	11	28	1	6	42	15	21	26	10	5	45	7	217
8:00 AM	6	24	2	5	39	19	15	32	5	4	57	7	215
8:15 AM	6	26	4	5	42	20	25	42	11	4	46	8	239
8:30 AM	5	32	2	6	33	20	23	32	16	5	31	9	214
8:45 AM	14	26	3	6	25	14	33	33	19	4	18	6	201
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	57	194	21	44	254	125	171	232	79	35	302	48	1562

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	28	110	9	22	156	74	84	132	42	18	179	31	885
PEAK HR. FACTOR:		0.919			0.940			0.827			0.838		0.926

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call DATE: 07/10/2007 LOCATION: City of Selma

E-W STREET: Floral DAY: TUESDAY PROJECT# 07-8129-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	1	0	1	1	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	8	30	10	8	47	16	53	81	20	10	55	13	351
4:15 PM	17	34	7	8	41	22	42	79	6	7	50	14	327
4:30 PM	12	35	9	15	38	16	34	78	17	11	59	9	333
4:45 PM	14	38	13	7	44	22	60	78	11	7	68	13	375
5:00 PM	10	48	15	14	35	32	45	79	14	9	63	6	370
5:15 PM	8	34	8	6	42	24	49	65	6	11	66	13	332
5:30 PM	10	41	7	7	41	21	52	56	12	3	75	8	333
5:45 PM	8	38	7	8	33	29	53	51	12	4	81	7	331
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	87	298	76	73	321	182	388	567	98	62	517	83	2752

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	42	161	43	34	162	99	206	278	43	30	272	40	1410
PEAK HR. FACTOR:		0.842			0.910			0.884			0.950		0.940

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Whitson DATE: 07/10/2007 LOCATION: City of Selma

E-W STREET: Floral DAY: TUESDAY PROJECT# 07-8129-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	0	2	2	1	1	1.5	0.5	1	1.5	0.5	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	25	30	0	3	31	0	4	45	30	6	40	2	216
7:15 AM	28	34	1	5	30	2	8	47	41	7	36	4	243
7:30 AM	22	44	0	6	26	1	10	43	47	5	50	7	261
7:45 AM	38	42	2	8	55	2	7	49	53	9	61	5	331
8:00 AM	40	37	0	11	23	7	4	67	50	17	61	7	324
8:15 AM	35	30	3	14	26	6	7	68	30	5	50	7	281
8:30 AM	38	39	0	14	39	2	6	67	41	4	50	4	304
8:45 AM	42	30	1	11	27	5	2	75	55	10	32	3	293
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	268	286	7	72	257	25	48	461	347	63	380	39	2253

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	151	148	5	47	143	17	24	251	174	35	222	23	1240
PEAK HR. FACTOR:		0.927			0.796			0.928			0.824		0.937

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Whitson   DATE: 07/10/2007   LOCATION: City of Selma

E-W STREET: Floral   DAY: TUESDAY   PROJECT# 07-8129-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	0	2	2	1	1	1.5	0.5	1	1.5	0.5	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	36	53	9	26	68	16	12	85	47	17	60	2	431
4:15 PM	65	42	7	16	69	12	9	88	40	15	74	3	440
4:30 PM	34	50	9	28	77	17	19	92	48	13	62	8	457
4:45 PM	29	54	11	23	59	11	11	77	35	12	94	1	417
5:00 PM	43	54	2	27	77	11	9	99	55	22	80	2	481
5:15 PM	25	56	0	15	75	10	13	86	67	23	71	4	445
5:30 PM	57	41	0	16	65	12	11	90	60	20	82	1	455
5:45 PM	42	43	1	17	54	14	12	81	61	30	85	2	442
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	331	393	39	168	544	103	96	698	413	152	608	23	3568

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	167	194	3	75	271	47	45	356	243	95	318	9	1823
PEAK HR. FACTOR:		0.919			0.854			0.970			0.902		0.948

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dewolf | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Floral | DAY: THURSDAY | PROJECT# 07-8129-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	1	3	1	0	0	2	13	1	0	8	1	30
7:15 AM	0	0	1	2	1	0	1	13	1	1	4	1	25
7:30 AM	0	1	0	5	2	0	1	16	0	2	4	2	33
7:45 AM	0	1	1	2	1	0	0	20	0	0	15	5	45
8:00 AM	0	0	3	1	0	1	0	16	1	0	12	4	38
8:15 AM	1	0	1	4	1	0	0	14	0	3	15	7	46
8:30 AM	1	1	3	3	0	0	0	21	0	1	18	5	53
8:45 AM	0	0	2	4	0	0	0	16	2	0	15	3	42
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	2	4	14	22	5	1	4	129	5	7	91	28	312

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	2	2	8	10	2	1	0	71	1	4	60	21	182
PEAK HR. FACTOR:		0.600			0.650			0.857			0.850		0.858

CONTROL: 2-WAY STOP (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Dewolf	DATE:	07/12/2007	LOCATION:	City of Selma
E-W STREET:	Floral	DAY:	THURSDAY	PROJECT#	07-8129-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	1	0	2	1	1	2	27	2	4	25	4	69
4:15 PM	1	0	3	1	1	1	0	21	2	3	24	4	61
4:30 PM	2	1	0	2	0	0	1	30	0	0	27	4	67
4:45 PM	0	1	1	1	0	1	0	20	0	4	24	2	54
5:00 PM	3	0	1	2	1	0	0	21	0	1	20	1	50
5:15 PM	1	1	6	2	1	1	0	27	1	1	34	2	77
5:30 PM	1	0	4	1	1	0	0	23	1	4	39	4	78
5:45 PM	1	0	4	3	0	0	1	25	1	2	32	1	70
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	9	4	19	14	5	4	4	194	7	19	225	22	526

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	6	1	15	8	3	1	1	96	3	8	125	8	275
PEAK HR. FACTOR:		0.688			0.750			0.893			0.750		0.881

CONTROL: 2-WAY STOP (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0	0.5	0	0	0	0	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1		1					27	0	3	41		73
7:15 AM	0		4					29	1	6	56		96
7:30 AM	3		6					27	4	5	73		118
7:45 AM	2		6					31	3	9	72		123
8:00 AM	4		1					49	1	7	55		117
8:15 AM	2		3					34	5	10	55		109
8:30 AM	2		5					38	2	4	47		98
8:45 AM	1		3					22	0	1	40		67
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	15	0	29	0	0	0	0	257	16	45	439	0	801

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	11	0	16	0	0	0	0	141	13	31	255	0	467
PEAK HR. FACTOR:		0.750			0.000			0.770			0.883		0.949

CONTROL: 1-WAY STOP SIGN (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey DATE: 07/10/2007 LOCATION: City of Selma

E-W STREET: Dinuba DAY: TUESDAY PROJECT# 07-8129-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0	0.5	0	0	0	0	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1		5					36	3	5	37		87
4:15 PM	3		2					35	3	7	24		74
4:30 PM	3		8					40	5	10	39		105
4:45 PM	6		3					49	4	3	27		92
5:00 PM	4		6					55	3	3	39		110
5:15 PM	1		2					72	2	6	36		119
5:30 PM	2		3					69	1	2	44		121
5:45 PM	2		1					75	1	2	22		103
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	22	0	30	0	0	0	0	431	22	38	268	0	811

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	9	0	12	0	0	0	0	271	7	13	141	0	453
PEAK HR. FACTOR:		0.525			0.000			0.914			0.837		0.936

CONTROL: 1-WAY STOP SIGN (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call | DATE: 07/11/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: WEDNESDAY | PROJECT# 07-8129-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	6	18	2	5	18	8	11	19	1	5	39	8	140
7:15 AM	11	28	3	12	24	16	19	28	5	2	45	8	201
7:30 AM	12	35	9	11	25	17	22	19	2	3	56	16	227
7:45 AM	15	42	5	12	42	12	13	27	12	7	58	12	257
8:00 AM	18	50	8	15	42	14	17	35	7	9	51	11	277
8:15 AM	23	44	4	9	38	15	21	31	15	12	45	13	270
8:30 AM	17	39	6	11	41	15	14	24	8	6	34	10	225
8:45 AM	15	33	3	12	30	16	11	24	5	9	28	12	198
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	117	289	40	87	260	113	128	207	55	53	356	90	1795

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	68	171	26	47	147	58	73	112	36	31	210	52	1031
PEAK HR. FACTOR:		0.872			0.887			0.825			0.951		0.931

CONTROL: 4-WAY STOP

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call DATE: 07/11/2007 LOCATION: City of Selma

E-W STREET: Dinuba DAY: WEDNESDAY PROJECT# 07-8129-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	1	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	14	30	8	13	39	28	27	27	12	7	25	6	236
4:15 PM	15	43	9	10	42	37	26	22	20	6	21	8	259
4:30 PM	20	35	9	15	40	22	33	36	9	8	27	17	271
4:45 PM	10	52	9	16	37	22	18	40	14	10	19	8	255
5:00 PM	15	49	8	13	44	19	26	44	13	12	22	9	274
5:15 PM	19	44	11	11	34	26	21	62	12	9	30	10	289
5:30 PM	17	38	7	16	40	23	19	62	7	10	27	11	277
5:45 PM	14	39	10	12	32	23	15	66	7	6	25	8	257
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	124	330	71	106	308	200	185	359	94	68	196	77	2118

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	65	170	36	52	150	91	81	234	39	37	104	38	1097
PEAK HR. FACTOR:		0.916			0.927			0.932			0.913		0.949

CONTROL: 4-WAY STOP

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: TUESDAY | PROJECT# 07-8129-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	7		9					23	2	15	38		94
7:15 AM	6		14					27	4	16	59		126
7:30 AM	7		12					25	3	14	75		136
7:45 AM	9		11					28	6	30	59		143
8:00 AM	6		19					37	4	32	54		152
8:15 AM	2		21					32	2	23	63		143
8:30 AM	4		20					21	1	21	47		114
8:45 AM	4		19					26	4	19	44		116
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	45	0	125	0	0	0	0	219	26	170	439	0	1024

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	24	0	63	0	0	0	0	122	15	99	251	0	574
PEAK HR. FACTOR:		0.870			0.000			0.835			0.983		0.944

CONTROL: NO SIGNAL

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 07/10/2007 LOCATION: City of Selma

E-W STREET: Dinuba DAY: TUESDAY PROJECT# 07-8129-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	5		20					41	17	34	35		152
4:15 PM	3		24					42	19	31	45		164
4:30 PM	9		22					60	18	33	32		174
4:45 PM	8		23					56	23	29	37		176
5:00 PM	10		26					65	22	43	36		202
5:15 PM	12		21					81	29	34	24		201
5:30 PM	7		36					72	16	28	27		186
5:45 PM	5		32					62	22	36	23		180
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	59	0	204	0	0	0	0	479	166	268	259	0	1435

PM Peak Hr Begins at: 500 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES =	34	0	115	0	0	0	0	280	89	141	110	0	769
PEAK HR. FACTOR:		0.866			0.000			0.839			0.794		0.952

CONTROL: NO SIGNAL

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Golden State | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: THURSDAY | PROJECT# 07-8129-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	1	0	1	1	0	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	41	2	23	41	1	0	0	0	3	0	43	154
7:15 AM	2	53	2	29	33	2	0	0	0	4	0	60	185
7:30 AM	3	62	1	28	26	0	0	0	0	8	0	86	214
7:45 AM	2	80	7	27	58	0	0	1	1	8	0	63	247
8:00 AM	0	44	9	32	33	0	0	0	0	7	1	52	178
8:15 AM	2	54	3	30	38	1	0	1	0	6	1	55	191
8:30 AM	1	45	1	20	40	3	0	1	0	2	2	43	158
8:45 AM	1	36	7	22	38	1	1	1	1	6	0	38	152
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	11	415	32	211	307	8	1	4	2	44	4	440	1479

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	7	240	20	117	155	1	0	2	1	29	2	256	830
PEAK HR. FACTOR:		0.750			0.803			0.375			0.763		0.840

CONTROL: 2 way stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Golden State | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: THURSDAY | PROJECT# 07-8129-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	1	0	1	1	0	1	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	3	52	11	38	98	0	1	0	2	3	1	34	243
4:15 PM	5	35	5	54	62	0	0	0	1	12	0	33	207
4:30 PM	0	64	11	57	102	3	1	1	1	6	1	33	280
4:45 PM	1	46	13	74	84	0	0	2	3	3	0	39	265
5:00 PM	1	45	15	72	101	1	2	1	1	6	0	40	285
5:15 PM	3	49	13	98	103	0	1	4	0	7	1	28	307
5:30 PM	1	40	12	80	66	0	1	3	0	8	0	30	241
5:45 PM	0	45	10	71	69	0	0	2	0	5	0	24	226
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	14	376	90	544	685	4	6	13	8	50	3	261	2054

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	5	204	52	301	390	4	4	8	5	22	2	140	1137
PEAK HR. FACTOR:		0.870			0.864			0.850			0.891		0.926

CONTROL: 2 way stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: De wolf | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: THURSDAY | PROJECT# 07-8129-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	1	0	0	0	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	4								1				5
7:15 AM	2								3				5
7:30 AM	5								7				12
7:45 AM	7								4				11
8:00 AM	5								2				7
8:15 AM	8								7				15
8:30 AM	6								4				10
8:45 AM	2								3				5
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	39	0	0	0	0	0	0	0	31	0	0	0	70

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	25	0	0	0	0	0	0	0	20	0	0	0	45
PEAK HR. FACTOR:		0.781			0.000			0.714			0.000		0.750

CONTROL: 1-WAY STOP SIGN (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: De wolf | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Dinuba | DAY: THURSDAY | PROJECT# 07-8129-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	1	0	0	0	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	5								2				7
4:15 PM	3								4				7
4:30 PM	4								3				7
4:45 PM	1								1				2
5:00 PM	5								4				9
5:15 PM	1								2				3
5:30 PM	2								0				2
5:45 PM	1								1				2
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	22	0	0	0	0	0	0	0	17	0	0	0	39

PM Peak Hr Begins at: 415 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES =	13	0	0	0	0	0	0	0	12	0	0	0	25
PEAK HR. FACTOR:		0.650			0.000			0.750			0.000		0.694

CONTROL: 1-WAY STOP SIGN (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Temperance DATE: 07/11/2007 LOCATION: City of Selma

E-W STREET: Dinuba DAY: WEDNESDAY PROJECT# 07-8129-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	1	0	0	0	2	0	1	0	0	0	0	4
7:15 AM	0	1	0	0	2	0	3	3	1	1	1	0	12
7:30 AM	0	0	1	1	3	0	0	5	2	0	3	2	17
7:45 AM	2	0	0	1	1	0	0	4	1	1	2	4	16
8:00 AM	1	1	0	0	5	4	0	2	1	0	4	1	19
8:15 AM	0	0	0	1	2	1	0	6	2	1	6	1	20
8:30 AM	1	0	0	1	1	3	2	2	2	0	5	1	18
8:45 AM	0	0	0	1	1	2	1	2	1	0	1	1	10
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	4	3	1	5	15	12	6	25	10	3	22	10	116

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	4	1	0	3	9	8	2	14	6	2	17	7	73
PEAK HR. FACTOR:		0.625			0.556			0.688			0.813		0.913

CONTROL: 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	Temperance	DATE:	07/11/2007	LOCATION:	City of Selma
E-W STREET:	Dinuba	DAY:	WEDNESDAY	PROJECT#	07-8129-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	1		1	0	1	0	1	1		5	0	10
4:15 PM	0	1		0	2	0	0	4	0		1	2	10
4:30 PM	1	1		0	0	0	0	3	0		3	1	9
4:45 PM	0	0		0	1	1	0	1	0		1	0	4
5:00 PM	0	0		3	3	0	0	1	0		4	1	12
5:15 PM	0	0		1	2	0	0	1	0		1	1	6
5:30 PM	0	0		4	0	1	0	0	0		1	1	7
5:45 PM	0	0		0	1	0	1	0	0		0	0	2
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	1	3	0	9	9	3	1	11	1	0	16	6	60

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	1	2	0	3	6	1	0	9	0	0	9	4	35
PEAK HR. FACTOR:		0.375			0.417			0.563			0.650		0.729

CONTROL: 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey | DATE: 07/12/2007 | LOCATION: City of Selma

E-W STREET: Manning | DAY: THURSDAY | PROJECT# 07-8129-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	0	2	0	2	1	0	76	6	12	175	0	275
7:15 AM	3	1	5	1	0	2	0	84	4	9	151	0	260
7:30 AM	0	0	1	0	0	0	0	96	2	3	168	1	271
7:45 AM	2	0	1	1	2	1	1	90	3	4	213	0	318
8:00 AM	1	0	2	1	0	2	1	91	5	5	149	0	257
8:15 AM	1	0	1	0	1	0	0	97	4	7	141	0	252
8:30 AM	2	0	3	1	1	1	0	88	3	3	127	0	229
8:45 AM	1	0	4	0	0	3	0	76	3	1	104	1	193
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	11	1	19	4	6	10	2	698	30	44	1228	2	2055

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	6	1	9	2	4	4	1	346	15	28	707	1	1124
PEAK HR. FACTOR:		0.444			0.625			0.923			0.848		0.884

CONTROL: 2-WAY STOP SIGN (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Del Rey — DATE: 07/12/2007 — LOCATION: City of Selma

E-W STREET: Manning — DAY: THURSDAY — PROJECT# 07-8129-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	3	1	2	0	1	1	0	162	2	5	107	0	284
4:15 PM	1	0	1	0	0	2	0	197	2	3	121	0	327
4:30 PM	5	0	6	1	0	1	0	199	1	0	120	3	336
4:45 PM	5	0	11	2	0	0	0	190	6	2	131	2	349
5:00 PM	7	0	16	0	0	1	0	231	2	1	136	0	394
5:15 PM	1	1	5	1	0	0	0	228	0	0	145	0	381
5:30 PM	4	0	6	0	0	1	0	212	0	1	131	0	355
5:45 PM	1	0	5	0	1	0	1	171	1	0	114	1	295
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	27	2	52	4	2	6	1	1590	14	12	1005	6	2721

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	17	1	38	3	0	2	0	861	8	4	543	2	1479
PEAK HR. FACTOR:		0.609			0.625			0.932			0.947		0.938

CONTROL: 2-WAY STOP SIGN (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call   DATE: 07/11/2007   LOCATION: City of Selma

E-W STREET: Manning   DAY: WEDNESDAY   PROJECT# 07-8129-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	10	21	17	4	14	5	4	60	5	9	165	2	316
7:15 AM	23	14	16	2	20	10	4	68	13	17	137	5	329
7:30 AM	20	23	25	8	19	13	3	75	10	19	147	2	364
7:45 AM	11	19	15	3	40	8	7	68	10	16	188	6	391
8:00 AM	18	16	19	4	37	9	8	70	7	13	136	2	339
8:15 AM	23	18	11	4	32	13	8	85	9	11	122	5	341
8:30 AM	19	24	17	2	39	10	2	79	13	15	111	4	335
8:45 AM	16	23	12	2	30	9	6	64	7	17	90	1	277
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	140	158	132	29	231	77	42	569	74	117	1096	27	2692

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	72	76	70	19	128	43	26	298	36	59	593	15	1435
PEAK HR. FACTOR:		0.801			0.931			0.882			0.794		0.918

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Mc Call | DATE: 07/11/2007 | LOCATION: City of Selma

E-W STREET: Manning | DAY: WEDNESDAY | PROJECT# 07-8129-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	10	26	23	9	34	5	4	134	15	31	76	3	370
4:15 PM	11	31	30	9	43	8	8	161	20	38	83	3	445
4:30 PM	12	45	25	8	41	7	8	168	19	28	92	4	457
4:45 PM	13	52	19	7	38	6	9	170	17	22	109	4	466
5:00 PM	14	65	25	8	28	8	14	197	23	26	113	5	526
5:15 PM	17	48	22	8	36	5	11	199	20	23	114	8	511
5:30 PM	12	35	18	12	32	4	13	186	19	27	106	4	468
5:45 PM	13	30	20	9	24	2	10	146	14	21	92	6	387
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	102	332	182	70	276	45	77	1361	147	216	785	37	3630

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	56	200	84	35	134	23	47	752	79	98	442	21	1971
PEAK HR. FACTOR:		0.817			0.941			0.938			0.967		0.937

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dewolf | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Manning | DAY: TUESDAY | PROJECT# 07-8129-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	0	0	0	0	1	3	64	1	1	179	0	251
7:15 AM	0	0	1	0	1	0	2	76	3	2	166	0	251
7:30 AM	0	0	1	0	0	2	0	88	2	1	181	1	276
7:45 AM	1	1	1	2	0	1	0	79	4	3	201	1	294
8:00 AM	0	0	0	1	1	2	1	85	3	1	157	0	251
8:15 AM	2	1	1	1	0	1	1	95	5	2	154	0	263
8:30 AM	3	2	1	3	1	2	4	89	2	4	134	1	246
8:45 AM	0	0	0	0	0	1	3	77	1	1	112	0	195
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	8	4	5	7	3	10	14	653	21	15	1284	3	2027

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	3	2	3	4	1	6	2	347	14	7	693	2	1084
PEAK HR. FACTOR:		0.500			0.688			0.899			0.856		0.922

CONTROL: 2-WAY STOP (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Dewolf | DATE: 07/10/2007 | LOCATION: City of Selma

E-W STREET: Manning | DAY: TUESDAY | PROJECT# 07-8129-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	3	1	10	0	2	3	3	141	4	1	83	0	251
4:15 PM	2	3	13	2	0	2	1	166	0	1	95	1	286
4:30 PM	2	1	16	2	1	4	5	171	0	5	105	2	314
4:45 PM	3	0	11	0	1	6	2	188	3	2	119	2	337
5:00 PM	7	2	15	1	2	6	7	211	1	2	126	3	383
5:15 PM	5	1	21	0	3	3	4	207	2	3	121	4	374
5:30 PM	4	0	18	1	4	4	2	194	1	0	114	1	343
5:45 PM	4	0	14	3	5	3	2	152	0	1	101	3	288
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	30	8	118	9	18	31	26	1430	11	15	864	16	2576

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	19	3	65	2	10	19	15	800	7	7	480	10	1437
PEAK HR. FACTOR:		0.806			0.861			0.938			0.948		0.938

CONTROL: 2-WAY STOP (NS)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Golden State | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Mountain View | DAY: WEDNESDAY | PROJECT# 08-8069-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	15	2	7	12	9	4	93	7	0	77	6	234
7:15 AM	8	23	2	4	21	5	3	89	5	0	83	4	247
7:30 AM	2	34	2	13	18	7	6	115	6	0	83	6	292
7:45 AM	5	78	3	10	28	3	6	91	7	0	84	12	327
8:00 AM	5	52	1	5	22	2	9	61	9	5	78	9	258
8:15 AM	1	41	2	7	18	2	9	61	5	1	79	11	237
8:30 AM	4	28	2	3	19	12	2	39	5	1	80	5	200
8:45 AM	7	26	1	2	24	6	4	42	9	1	70	11	203
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	34	297	15	51	162	46	43	591	53	8	634	64	1998

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	20	187	8	32	89	17	24	356	27	5	328	31	1124
PEAK HR. FACTOR:		0.625			0.841			0.801			0.948		0.859

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Golden State DATE: 03/12/2008 LOCATION: City of Selma

E-W STREET: Mountain View DAY: WEDNESDAY PROJECT# 08-8069-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	7	49	1	17	41	4	4	110	11	2	83	0	329
4:15 PM	5	32	3	14	71	7	3	102	13	1	71	0	322
4:30 PM	6	55	2	17	44	5	8	111	21	3	96	18	386
4:45 PM	9	47	2	15	79	5	5	130	12	1	88	15	408
5:00 PM	4	31	2	18	64	14	5	104	15	3	105	13	378
5:15 PM	7	50	3	20	46	6	5	105	14	1	114	16	387
5:30 PM	9	32	3	12	66	4	8	93	11	5	160	27	430
5:45 PM	6	19	1	14	47	15	6	92	21	1	75	17	314
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	53	315	17	127	458	60	44	847	118	17	792	106	2954

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	29	160	10	65	255	29	23	432	52	10	467	71	1603
PEAK HR. FACTOR:		0.829			0.881			0.862			0.714		0.932

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR 99 NB on-ramp | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Mountain View | DAY: WEDNESDAY | PROJECT# 08-8069-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0		10				19	94			33	52	208
7:15 AM	0		5				12	89			30	64	200
7:30 AM	5		5				7	115			29	60	221
7:45 AM	7		10				13	109			36	68	243
8:00 AM	5		7				10	68			25	66	181
8:15 AM	6		6				9	64			26	56	167
8:30 AM	5		3				12	46			36	56	158
8:45 AM	5		7				7	49			34	53	155
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	33	0	53	0	0	0	89	634	0	0	249	475	1533

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	12	0	30	0	0	0	51	407	0	0	128	244	872
PEAK HR. FACTOR:		0.618			0.000			0.939			0.894		0.897

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR 99 NB on-ramp DATE: 03/12/2008 LOCATION: City of Selma

E-W STREET: Mountain View DAY: WEDNESDAY PROJECT# 08-8069-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	2		3				17	109			36	54	221
4:15 PM	4		3				13	125			29	41	215
4:30 PM	8		8				15	119			47	63	260
4:45 PM	4		12				18	158			49	61	302
5:00 PM	12		8				13	115			52	71	271
5:15 PM	7		8				10	118			41	85	269
5:30 PM	12		10				18	100			74	101	315
5:45 PM	10		7				5	115			48	47	232
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	59	0	59	0	0	0	109	959	0	0	376	523	2085

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	35	0	38	0	0	0	59	491	0	0	216	318	1157
PEAK HR. FACTOR:		0.830			0.000			0.781			0.763		0.918

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR 99 SB on-ramp   DATE: 03/12/2008   LOCATION: City of Selma

E-W STREET: Mountain View   DAY: WEDNESDAY   PROJECT# 08-8069-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3		7	46	1	10		27	3	0	29		126
7:15 AM	0		14	49	3	26		31	2	0	27		152
7:30 AM	0		11	62	1	23		59	2	1	28		187
7:45 AM	2		16	77	1	19		55	2	1	35		208
8:00 AM	2		15	39	1	9		29	0	1	24		120
8:15 AM	1		12	36	1	15		12	1	1	19		98
8:30 AM	1		5	35	0	11		20	0	1	38		111
8:45 AM	1		9	44	0	11		13	3	5	28		114
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	10	0	89	388	8	124	0	246	13	10	228	0	1116

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	5	0	48	234	6	78	0	172	9	2	119	0	673
PEAK HR. FACTOR:		0.736			0.820			0.742			0.840		0.809

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR 99 SB on-ramp   DATE: 03/12/2008   LOCATION: City of Selma

E-W STREET: Mountain View   DAY: WEDNESDAY   PROJECT# 08-8069-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	2		7	81	4	20		58	0	2	26		200
4:15 PM	2		13	75	0	9		44	2	2	25		172
4:30 PM	1		9	68	4	20		61	0	1	47		211
4:45 PM	5		14	59	2	15		91	3	2	45		236
5:00 PM	1		8	69	2	17		54	1	3	53		208
5:15 PM	1		13	72	3	22		39	0	1	40		191
5:30 PM	1		18	68	2	13		31	0	7	64		204
5:45 PM	1		12	73	3	15		31	2	4	44		185
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	14	0	94	565	20	131	0	409	8	22	344	0	1607

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	8	0	44	268	11	74	0	245	4	7	185	0	846
PEAK HR. FACTOR:		0.684			0.910			0.662			0.857		0.896

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: McCall | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Mountain View | DAY: WEDNESDAY | PROJECT# 08-8069-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	6	9	1	2	1	2	15	2	8	15	0	61
7:15 AM	0	6	2	0	1	2	2	13	0	11	16	2	55
7:30 AM	3	9	10	3	7	3	1	28	2	6	26	1	99
7:45 AM	1	11	6	8	9	2	9	26	2	9	18	2	103
8:00 AM	2	3	2	2	6	1	3	26	2	4	20	3	74
8:15 AM	0	5	5	2	5	1	5	10	2	2	15	7	59
8:30 AM	0	4	6	1	4	3	1	13	3	5	18	1	59
8:45 AM	0	8	4	3	5	1	3	17	0	7	14	0	62
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	6	52	44	20	39	14	26	148	13	52	142	16	572

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	6	28	23	15	27	7	18	90	8	21	79	13	335
PEAK HR. FACTOR:		0.648			0.645			0.784			0.856		0.813

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET:	McCall	DATE:	03/12/2008	LOCATION:	City of Selma
E-W STREET:	Mountain View	DAY:	WEDNESDAY	PROJECT#	08-8069-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	2	19	16	5	8	5	3	27	2	8	16	8	119
4:15 PM	1	9	5	6	8	3	3	27	2	11	17	6	98
4:30 PM	2	24	26	2	14	8	6	28	2	3	30	6	151
4:45 PM	8	40	59	1	18	3	10	28	2	4	22	0	195
5:00 PM	1	18	13	6	8	4	4	28	2	5	32	4	125
5:15 PM	2	12	14	2	10	5	2	25	3	5	23	1	104
5:30 PM	1	13	12	4	15	3	5	25	3	5	32	7	125
5:45 PM	3	7	7	4	10	3	4	18	3	5	18	3	85
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	20	142	152	30	91	34	37	206	19	46	190	35	1002

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	13	94	112	11	50	20	22	109	9	17	107	11	575
PEAK HR. FACTOR:		0.512			0.844			0.875			0.823		0.737

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson DATE: 03/12/2008 LOCATION: City of Selma

E-W STREET: Mountain View DAY: WEDNESDAY PROJECT# 08-8069-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	1	1	0	0	25	1	1	12	3	44
7:15 AM	0	0	0	1	0	0	0	12	0	2	13	5	33
7:30 AM	0	2	0	1	2	0	0	34	1	1	14	1	56
7:45 AM	1	2	1	1	3	1	2	36	0	2	20	0	69
8:00 AM	1	0	1	2	0	1	2	15	1	1	27	0	51
8:15 AM	0	0	0	4	1	0	1	24	0	0	20	0	50
8:30 AM	2	0	0	1	1	1	2	16	0	0	18	2	43
8:45 AM	0	0	1	0	0	1	0	13	0	0	20	1	36
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	4	4	3	11	8	4	7	175	3	7	144	12	382

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	2	4	2	8	6	2	5	109	2	4	81	1	226
PEAK HR. FACTOR:		0.500			0.800			0.763			0.768		0.819

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson　　DATE: 03/12/2008　　LOCATION: City of Selma

E-W STREET: Mountain View　　DAY: WEDNESDAY　　PROJECT# 08-8069-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	1	3	0	3	27	1	1	23	0	59
4:15 PM	0	5	1	1	2	0	4	36	1	1	31	1	83
4:30 PM	0	1	0	1	4	1	6	45	0	0	23	3	84
4:45 PM	0	6	0	0	6	1	3	42	0	1	25	4	88
5:00 PM	1	6	0	1	3	1	0	28	2	1	41	3	87
5:15 PM	1	3	0	0	4	5	4	34	0	1	24	2	78
5:30 PM	0	3	1	2	2	4	1	20	0	1	23	3	60
5:45 PM	0	2	1	2	3	3	3	20	0	6	27	2	69
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	2	26	3	8	27	15	24	252	4	12	217	18	608

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	1	18	1	3	15	3	13	151	3	3	120	11	342
PEAK HR. FACTOR:		0.714			0.750			0.819			0.744		0.972

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Mountain View | DAY: WEDNESDAY | PROJECT# 08-8069-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	71	9	5	79	1	0	8	0	6	4	0	184
7:15 AM	1	114	5	2	73	3	7	6	0	5	6	2	224
7:30 AM	1	110	10	2	69	3	6	21	0	6	6	2	236
7:45 AM	2	76	6	5	61	2	4	21	1	5	10	1	194
8:00 AM	4	75	4	0	86	7	1	12	2	3	19	6	219
8:15 AM	0	86	9	2	80	1	5	10	1	9	10	4	217
8:30 AM	0	80	3	4	62	4	4	9	0	10	11	4	191
8:45 AM	0	67	4	2	59	2	2	7	0	7	8	4	162
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	9	679	50	22	569	23	29	94	4	51	74	23	1627

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	8	375	25	9	289	15	18	60	3	19	41	11	873
PEAK HR. FACTOR:		0.843			0.841			0.750			0.634		0.925

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland　　DATE: 03/12/2008　　LOCATION: City of Selma

E-W STREET: Mountain View　　DAY: WEDNESDAY　　PROJECT# 08-8069-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	89	5	10	87	10	8	13	1	13	9	0	245
4:15 PM	0	117	10	8	95	2	7	24	0	8	14	3	288
4:30 PM	1	141	18	10	100	8	5	22	0	13	13	0	331
4:45 PM	3	153	12	5	112	3	7	16	0	9	17	1	338
5:00 PM	1	94	11	12	92	14	4	5	1	13	23	6	276
5:15 PM	0	83	10	8	131	10	8	14	0	9	8	8	289
5:30 PM	0	116	9	3	105	6	8	8	3	11	13	5	287
5:45 PM	0	82	8	4	94	6	5	13	0	7	9	11	239
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	5	875	83	60	816	59	52	115	5	83	106	34	2293

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	5	471	51	35	435	35	24	57	1	44	61	15	1234
PEAK HR. FACTOR:		0.784			0.847			0.759			0.714		0.913

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Whitson | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Second St | DAY: WEDNESDAY | PROJECT# 08-8069-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	15	21	3	4	20	4	5	60	4	3	40	1	180
7:15 AM	11	25	2	6	18	9	8	67	12	1	66	5	230
7:30 AM	16	33	5	10	32	3	9	85	15	8	77	4	297
7:45 AM	16	38	5	15	30	7	16	144	18	11	95	1	396
8:00 AM	16	34	9	14	11	10	12	117	13	15	92	15	358
8:15 AM	16	43	3	12	27	9	11	82	12	9	68	6	298
8:30 AM	17	37	8	13	27	6	8	66	11	12	90	6	301
8:45 AM	11	22	8	17	30	7	10	74	15	5	52	6	257
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	118	253	43	91	195	55	79	695	100	64	580	44	2317

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	65	152	25	54	95	32	47	409	54	47	345	28	1353
PEAK HR. FACTOR:		0.976			0.870			0.716			0.861		0.854

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Whitson　　DATE: 03/12/2008　　LOCATION: City of Selma

E-W STREET: Second St　　DAY: WEDNESDAY　　PROJECT# 08-8069-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	29	55	7	11	36	22	14	102	20	17	97	12	422
4:15 PM	30	49	6	15	52	16	14	105	12	18	98	20	435
4:30 PM	41	61	6	20	52	18	19	109	13	20	83	9	451
4:45 PM	27	51	8	12	44	9	19	124	14	16	88	13	425
5:00 PM	27	41	7	13	54	8	11	93	10	26	95	24	409
5:15 PM	17	26	3	19	64	12	15	110	20	13	107	7	413
5:30 PM	9	42	3	17	56	15	11	108	5	20	88	10	384
5:45 PM	18	41	5	15	43	12	17	88	13	8	63	14	337
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	198	366	45	122	401	112	120	839	107	138	719	109	3276

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	127	216	27	58	184	65	66	440	59	71	366	54	1733

PEAK HR. FACTOR:	0.856	0.853	0.900	0.903	0.961

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 NB Ramps DATE: 03/12/2008 LOCATION: City of Selma

E-W STREET: Second St DAY: WEDNESDAY PROJECT# 08-8069-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3		13				9	58			29	29	141
7:15 AM	2		17				17	68			43	45	192
7:30 AM	2		24				32	88			52	47	245
7:45 AM	4		37				20	143			83	37	324
8:00 AM	6		29				11	117			84	23	270
8:15 AM	3		15				15	95			65	30	223
8:30 AM	4		11				10	74			66	28	193
8:45 AM	3		20				8	79			38	23	171
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	27	0	166	0	0	0	122	722	0	0	460	262	1759

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	15	0	105	0	0	0	78	443	0	0	284	137	1062
PEAK HR. FACTOR:		0.732			0.000			0.799			0.877		0.819

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 NB Ramps DATE: 03/12/2008 LOCATION: City of Selma

E-W STREET: Second St DAY: WEDNESDAY PROJECT# 08-8069-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	14	0	20				10	105			100	22	271
4:15 PM	9	0	27				6	100			101	46	289
4:30 PM	5	0	38				8	105			106	43	305
4:45 PM	5	0	23				7	141			98	27	301
5:00 PM	8	0	30				7	86			99	38	268
5:15 PM	5	0	23				7	121			100	38	294
5:30 PM	8	0	25				8	100			90	24	255
5:45 PM	10	1	23				7	98			73	25	237
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	64	1	209	0	0	0	60	856	0	0	767	263	2220

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	23	0	114	0	0	0	29	453	0	0	403	146	1168
PEAK HR. FACTOR:		0.797			0.000			0.814			0.921		0.957

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 SB Ramps   DATE: 03/12/2008   LOCATION: City of Selma

E-W STREET: Second St   DAY: WEDNESDAY   PROJECT# 08-8069-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM				24		3		43	1	13	20		104
7:15 AM				19		3		66	4	13	32		137
7:30 AM				26		8		94	4	10	44		186
7:45 AM				42		2		122	7	17	70		260
8:00 AM				31		4		97	3	12	78		225
8:15 AM				24		2		86	2	8	60		182
8:30 AM				26		12		58	5	14	56		171
8:45 AM				28		0		58	5	7	34		132
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	220	0	34	0	624	31	94	394	0	1397

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	0	0	0	123	0	16	0	399	16	47	252	0	853
PEAK HR. FACTOR:		0.000			0.790			0.804			0.831		0.820

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 SB Ramps | DATE: 03/12/2008 | LOCATION: City of Selma

E-W STREET: Second St | DAY: WEDNESDAY | PROJECT# 08-8069-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM				27		12		86	8	22	92		247
4:15 PM				33		14		72	7	22	88		236
4:30 PM				31		10		76	6	19	92		234
4:45 PM				58		8		94	9	22	83		274
5:00 PM				23		9		68	6	13	90		209
5:15 PM				41		16		87	6	25	80		255
5:30 PM				28		21		80	6	14	86		235
5:45 PM				29		12		75	6	16	67		205
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	270	0	102	0	638	54	153	678	0	1895

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	0	0	0	149	0	44	0	328	30	85	355	0	991
PEAK HR. FACTOR:		0.000			0.731			0.869			0.965		0.904

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Nebraska | DAY: THURSDAY | PROJECT# 08-8069-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3	5	2	2	3	0	0	18	3	3	6	1	46
7:15 AM	4	5	6	7	3	2	0	21	2	3	7	4	64
7:30 AM	8	12	5	10	5	1	1	35	6	4	20	4	111
7:45 AM	6	10	13	18	8	0	2	30	4	9	33	8	141
8:00 AM	7	3	8	16	11	2	1	40	2	3	39	6	138
8:15 AM	2	1	10	2	8	0	1	32	9	4	26	3	98
8:30 AM	4	4	8	2	2	0	1	15	2	10	24	1	73
8:45 AM	3	3	4	5	0	1	0	30	1	5	12	3	67
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	37	43	56	62	40	6	6	221	29	41	167	30	738

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	23	26	36	46	32	3	5	137	21	20	118	21	488
PEAK HR. FACTOR:		0.733			0.698			0.948			0.795		0.865

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Thompson | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Nebraska | DAY: THURSDAY | PROJECT# 08-8069-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	6	5	6	6	3	4	0	25	4	13	39	2	113
4:15 PM	15	10	7	3	8	1	2	44	4	9	49	1	153
4:30 PM	7	6	13	3	5	0	3	37	5	18	43	5	145
4:45 PM	9	12	12	8	9	1	4	43	9	10	29	0	146
5:00 PM	11	9	16	1	2	1	4	40	17	14	48	6	169
5:15 PM	5	12	8	7	6	4	1	33	6	16	31	2	131
5:30 PM	13	10	11	3	5	0	3	33	7	13	36	6	140
5:45 PM	16	11	9	2	6	3	5	35	9	16	34	2	148
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	82	75	82	33	44	14	22	290	61	109	309	24	1145

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	42	37	48	15	24	3	13	164	35	51	169	12	613
PEAK HR. FACTOR:		0.882			0.583			0.869			0.853		0.907

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 03/13/2008 LOCATION: City of Selma

E-W STREET: Nebraska DAY: THURSDAY PROJECT# 08-8069-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	76	6	5	87	4	4	10	2	2	4	10	211
7:15 AM	2	111	9	5	73	8	7	9	2	4	3	7	240
7:30 AM	0	101	6	6	64	9	8	9	1	5	14	7	230
7:45 AM	1	83	12	3	67	10	14	19	1	2	17	9	238
8:00 AM	1	68	12	6	77	15	19	19	1	8	15	9	250
8:15 AM	3	86	11	6	71	6	14	13	2	7	15	5	239
8:30 AM	3	86	2	7	67	9	11	7	3	10	6	11	222
8:45 AM	3	70	12	6	62	5	11	13	0	7	9	7	205
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	14	681	70	44	568	66	88	99	12	45	83	65	1835

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	4	363	39	20	281	42	48	56	5	19	49	32	958
PEAK HR. FACTOR:		0.832			0.875			0.699			0.781		0.958

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland   DATE: 03/13/2008   LOCATION: City of Selma

E-W STREET: Nebraska   DAY: THURSDAY   PROJECT# 08-8069-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1	103	6	14	98	5	7	14	2	14	17	11	292
4:15 PM	0	119	11	10	110	10	10	20	1	8	23	23	345
4:30 PM	3	142	19	10	111	9	10	17	5	14	19	13	372
4:45 PM	4	150	16	15	105	12	9	17	2	9	19	16	374
5:00 PM	3	101	16	22	88	14	7	19	5	15	27	16	333
5:15 PM	5	101	13	16	139	15	13	17	1	13	17	10	360
5:30 PM	0	119	10	11	99	15	16	10	3	14	18	17	332
5:45 PM	5	94	12	15	75	17	19	15	2	13	26	15	308
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	21	929	103	113	825	97	91	129	21	100	166	121	2716

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	15	494	64	63	443	50	39	70	13	51	82	55	1439
PEAK HR. FACTOR:		0.843			0.818			0.953			0.810		0.962

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland   DATE: 03/13/2008   LOCATION: City of Selma

E-W STREET: Rose   DAY: THURSDAY   PROJECT# 08-8069-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	87	1	8	89	1	1	1	1	2	1	17	209
7:15 AM	3	118	2	10	78	0	0	1	2	4	1	30	249
7:30 AM	1	119	5	14	78	2	4	8	0	4	1	34	270
7:45 AM	0	90	7	15	73	2	0	3	3	6	1	36	236
8:00 AM	0	100	5	17	95	1	1	1	0	2	3	22	247
8:15 AM	0	103	5	10	80	4	0	1	0	1	3	23	230
8:30 AM	2	89	8	9	78	1	2	0	0	4	2	28	223
8:45 AM	2	84	3	17	71	2	1	1	0	3	1	9	194
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	8	790	36	100	642	13	9	16	6	26	13	199	1858

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	4	427	19	56	324	5	5	13	5	16	6	122	1002
PEAK HR. FACTOR:		0.900			0.852			0.479			0.837		0.928

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Rose | DAY: THURSDAY | PROJECT# 08-8069-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1	123	10	29	110	2	3	0	1	1	3	28	311
4:15 PM	0	130	6	19	125	5	1	5	1	2	3	13	310
4:30 PM	1	130	3	29	134	3	0	2	2	4	7	27	342
4:45 PM	3	190	12	31	108	3	1	3	2	4	4	21	382
5:00 PM	1	124	5	32	95	3	1	4	1	4	4	19	293
5:15 PM	2	116	11	38	147	1	1	3	1	8	9	22	359
5:30 PM	3	146	12	35	100	3	2	3	1	5	1	23	334
5:45 PM	0	92	6	33	80	3	0	8	1	2	3	20	248
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	11	1051	65	246	899	23	9	28	10	30	34	173	2579

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	7	560	31	130	484	10	3	12	6	20	24	89	1376
PEAK HR. FACTOR:		0.729			0.839			0.875			0.853		0.901

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 03/13/2008 LOCATION: City of Selma

E-W STREET: SR-99 SB On/Off Ramp DAY: THURSDAY PROJECT# 08-8069-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM		111	9	26	33				70				249
7:15 AM		162	3	20	45				59				289
7:30 AM		145	1	39	41				68				294
7:45 AM		161	7	33	53				68				322
8:00 AM		126	7	27	58				65				283
8:15 AM		97	4	21	61				67				250
8:30 AM		109	7	25	59				104				304
8:45 AM		111	7	31	42				67				258
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1022	45	222	392	0	0	0	568	0	0	0	2249

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	594	18	119	197	0	0	0	260	0	0	0	1188
PEAK HR. FACTOR:		0.911			0.919			0.956			0.000		0.922

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 03/13/2008 LOCATION: City of Selma

E-W STREET: SR-99 SB On/Off Ramp DAY: THURSDAY PROJECT# 08-8069-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:													
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM		165	5	31	62				98				361
4:15 PM		163	6	29	72				93				363
4:30 PM		189	7	38	81				76				391
4:45 PM		207	7	42	56				89				401
5:00 PM		177	10	50	65				86				388
5:15 PM		149	15	34	74				130				402
5:30 PM		185	7	49	62				100				403
5:45 PM		124	15	36	57				78				310
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	1359	72	309	529	0	0	0	750	0	0	0	3019

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES =	0	718	39	175	257	0	0	0	405	0	0	0	1594
PEAK HR. FACTOR:		0.884			0.939			0.779			0.000		0.989

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 NB off-ramp | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Floral Ave | DAY: THURSDAY | PROJECT# 08-8069-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	0	0	0	2	0	0	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	10	0	9	0		8	5	44	8		95	5	184
7:15 AM	18	0	5	3		6	1	70	5		94	5	207
7:30 AM	13	0	17	6		10	0	97	6		131	7	287
7:45 AM	35	0	19	2		10	0	124	9		124	7	330
8:00 AM	24	1	16	10		7	0	89	1		139	5	292
8:15 AM	12	0	9	9		11	4	90	4		146	8	293
8:30 AM	23	0	11	7		12	1	72	1		117	7	251
8:45 AM	21	1	13	3		15	3	83	4		82	8	233
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	156	2	99	40	0	79	14	669	38	0	928	52	2077

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	84	1	61	27	0	38	4	400	20	0	540	27	1202
PEAK HR. FACTOR:		0.676			0.813			0.797			0.920		0.911

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 NB off-ramp | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Floral Ave | DAY: THURSDAY | PROJECT# 08-8069-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	0	0	0	2	0	0	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	23	1	20	6		15	0	179	17		156	5	422
4:15 PM	33	2	14	6		18	4	171	10		183	11	452
4:30 PM	39	1	17	3		11	2	165	13		181	4	436
4:45 PM	39	0	13	1		3	3	162	12		176	10	419
5:00 PM	35	0	17	7		9	4	187	9		205	2	475
5:15 PM	39	0	12	7		10	3	215	14		120	3	423
5:30 PM	31	0	27	8		4	1	163	8		161	2	405
5:45 PM	30	1	19	6		10	2	182	4		150	5	409
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	269	5	139	44	0	80	19	1424	87	0	1332	42	3441

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	146	3	61	17	0	41	13	685	44	0	745	27	1782
PEAK HR. FACTOR:		0.921			0.604			0.928			0.932		0.938

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 03/13/2008 LOCATION: City of Selma

E-W STREET: Floral Ave DAY: THURSDAY PROJECT# 08-8069-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	1	2	2	1	2	1	2	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	6	17	14	2	36	31	15	41	5	18	82	9	276
7:15 AM	11	27	20	2	36	29	15	55	7	21	78	23	324
7:30 AM	9	30	19	6	31	47	20	78	19	30	104	19	412
7:45 AM	9	31	23	8	49	33	18	103	9	26	114	27	450
8:00 AM	10	29	21	8	47	29	17	63	10	27	119	24	404
8:15 AM	11	20	19	7	51	35	15	68	9	22	111	31	399
8:30 AM	9	28	14	6	48	41	14	56	11	24	103	25	379
8:45 AM	10	24	11	8	34	37	17	70	12	25	74	19	341
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	75	206	141	47	332	282	131	534	82	193	785	177	2985

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	39	110	82	29	178	144	70	312	47	105	448	101	1665
PEAK HR. FACTOR:		0.917			0.944			0.825			0.962		0.925

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Highland DATE: 03/13/2008 LOCATION: City of Selma

E-W STREET: Floral Ave DAY: THURSDAY PROJECT# 08-8069-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	1	2	2	1	2	1	2	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	18	25	22	19	51	49	59	155	15	28	134	31	606
4:15 PM	33	29	17	14	46	46	55	153	24	29	167	40	653
4:30 PM	32	25	22	25	46	50	57	133	34	40	143	47	654
4:45 PM	32	34	16	12	46	54	67	149	29	22	151	40	652
5:00 PM	22	32	30	23	55	39	47	146	31	31	168	45	669
5:15 PM	19	23	21	19	40	42	62	193	28	40	106	27	620
5:30 PM	20	34	25	10	35	42	46	137	34	42	124	28	577
5:45 PM	15	18	28	16	31	65	35	144	34	28	141	24	579
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	191	220	181	138	350	387	428	1210	229	260	1134	282	5010

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	119	120	85	74	193	189	226	581	118	122	629	172	2628
PEAK HR. FACTOR:		0.964			0.942			0.944			0.946		0.982

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 SB off-ramp | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Floral Ave | DAY: THURSDAY | PROJECT# 08-8069-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	2	1	1	0	2	1	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM			12	33	7	11		16	2	6	31		118
7:15 AM			4	40	4	6		33	2	3	24		116
7:30 AM			13	57	6	8		47	1	7	31		170
7:45 AM			10	71	2	13		49	4	6	35		190
8:00 AM			14	44	11	5		31	10	10	42		167
8:15 AM			11	37	12	14		44	5	5	64		192
8:30 AM			11	26	7	12		44	12	8	50		170
8:45 AM			14	34	2	17		52	9	12	48		188
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	89	342	51	86	0	316	45	57	325	0	1311

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	0	0	46	178	32	44	0	168	31	29	191	0	719
PEAK HR. FACTOR:		0.821			0.738			0.888			0.797		0.936

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: SR-99 SB off-ramp | DATE: 03/13/2008 | LOCATION: City of Selma

E-W STREET: Floral Ave | DAY: THURSDAY | PROJECT# 08-8069-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	2	1	1	0	2	1	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM			46	53	15	18		130	16	21	106		405
4:15 PM			50	66	14	17		117	21	25	125		435
4:30 PM			46	48	9	25		130	14	13	118		403
4:45 PM			36	97	16	27		114	19	26	133		468
5:00 PM			44	59	17	22		119	18	32	119		430
5:15 PM			58	103	16	30		123	20	25	96		471
5:30 PM			46	84	8	25		87	24	36	103		413
5:45 PM			40	68	13	30		100	17	34	103		405
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	366	578	108	194	0	920	149	212	903	0	3430

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	0	184	343	57	104	0	443	81	119	451	0	1782
PEAK HR. FACTOR:		0.793			0.846			0.916			0.896		0.946

CONTROL: Signalized

APPENDIX C

INTERSECTION ANALYSIS SHEETS

Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	347	14	7	693	2	3	2	3	4	1	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	377	15	8	753	2	3	2	3	4	1	7
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	765			402			808	1180	216	987	1186	398
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765			402			808	1180	216	987	1186	398
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	98	99	99
cM capacity (veh/h)	837			1143			258	184	775	192	182	592

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	251	141	8	502	253	9	12
Volume Left	2	0	0	8	0	0	3	4
Volume Right	0	0	15	0	0	2	3	7
cSH	837	1700	1700	1143	1700	1700	304	302
Volume to Capacity	0.00	0.15	0.08	0.01	0.30	0.15	0.03	0.04
Queue Length 95th (ft)	0	0	0	1	0	0	2	3
Control Delay (s)	9.3	0.0	0.0	8.2	0.0	0.0	17.2	17.4
Lane LOS	A			A			C	C
Approach Delay (s)	0.1			0.1			17.2	17.4
Approach LOS							C	C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3471		1770	3524		1770	1714		1762	1784	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3471		1770	3524		1770	1714		1762	1784	
Volume (vph)	26	298	36	59	593	15	72	76	70	19	128	43
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	324	39	64	645	16	78	83	76	21	139	47
RTOR Reduction (vph)	0	10	0	0	2	0	0	37	0	0	15	0
Lane Group Flow (vph)	28	353	0	64	659	0	78	122	0	21	171	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.0	15.9		3.5	17.4		3.9	16.8		0.9	13.8	
Effective Green, g (s)	2.0	16.4		3.5	17.9		3.9	17.3		0.9	14.3	
Actuated g/C Ratio	0.04	0.30		0.06	0.33		0.07	0.32		0.02	0.26	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	65	1052		115	1166		128	548		29	472	
v/s Ratio Prot	0.02	0.10		c0.04	c0.19		c0.04	c0.07		0.01	c0.10	
v/s Ratio Perm												
v/c Ratio	0.43	0.34		0.56	0.57		0.61	0.22		0.72	0.36	
Uniform Delay, d1	25.5	14.6		24.5	14.9		24.4	13.5		26.5	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.5	0.2		5.7	0.6		8.0	0.2		61.8	0.5	
Delay (s)	30.0	14.8		30.3	15.5		32.3	13.7		88.3	16.7	
Level of Service	C	B		C	B		C	B		F	B	
Approach Delay (s)		15.9			16.8			19.8			23.9	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Volume (veh/h)	0	346	15	28	707	6	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	376	16	30	768	7	10
Pedestrians		10			10	10	
Lane Width (ft)		8.0			12.0	12.0	
Walking Speed (ft/s)		4.0			4.0	4.0	
Percent Blockage		1			1	1	
Right turn flare (veh)							
Median type						None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			402		849	216
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0			402		849	216
tC, single (s)	0.0			4.1		6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0			2.2		3.5	3.3
p0 queue free %	0			97		98	99
cM capacity (veh/h)	0			1143		288	775

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	251	142	0	30	384	384	16
Volume Left	0	0	0	30	0	0	7
Volume Right	0	16	0	0	0	0	10
cSH	1700	1700	1700	1143	1700	1700	462
Volume to Capacity	0.15	0.08	0.00	0.03	0.23	0.23	0.04
Queue Length 95th (ft)	0	0	0	2	0	0	3
Control Delay (s)	0.0	0.0	0.0	8.2	0.0	0.0	13.1
Lane LOS				A			B
Approach Delay (s)	0.0			0.3			13.1
Approach LOS							B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	14	6	2	17	7	4	1	1	3	9	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	15	7	2	18	8	4	1	1	3	10	9
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	36			32			83	73	38	71	73	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	36			32			83	73	38	71	73	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	100	99	99
cM capacity (veh/h)	1562			1567			860	801	1016	890	802	1011

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	28	7	22
Volume Left	2	2	4	3
Volume Right	7	8	1	9
cSH	1562	1567	872	889
Volume to Capacity	0.00	0.00	0.01	0.02
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.7	0.6	9.2	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.7	0.6	9.2	9.2
Approach LOS			A	A

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	2	1	29	2	256	7	240	20	117	155	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1	2	1	33	2	291	8	273	23	133	176	1
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	906	773	108	676	763	168	187			305		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	906	773	108	676	763	168	187			305		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	89	99	65	99			89		
cM capacity (veh/h)	133	286	910	299	290	833	1373			1242		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	3	1	326	8	182	114	133	88	88	1
Volume Left	1	0	33	8	0	0	133	0	0	0
Volume Right	0	1	291	0	0	23	0	0	0	1
cSH	207	910	698	1373	1700	1700	1242	1700	1700	1700
Volume to Capacity	0.02	0.00	0.47	0.01	0.11	0.07	0.11	0.05	0.05	0.00
Queue Length 95th (ft)	1	0	62	0	0	0	9	0	0	0
Control Delay (s)	22.7	9.0	14.6	7.6	0.0	0.0	8.2	0.0	0.0	0.0
Lane LOS	C	A	B	A			A			
Approach Delay (s)	19.3		14.6	0.2			3.5			
Approach LOS	C		B							

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	122	15	99	251	24	63
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	130	16	105	267	26	67
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			156		635	158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			156		635	158
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		94	92
cM capacity (veh/h)			1412		403	873

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	146	372	93
Volume Left	0	105	26
Volume Right	16	0	67
cSH	1700	1412	660
Volume to Capacity	0.09	0.07	0.14
Queue Length 95th (ft)	0	6	12
Control Delay (s)	0.0	2.7	11.3
Lane LOS		A	B
Approach Delay (s)	0.0	2.7	11.3
Approach LOS			B

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	73	112	36	31	210	52	68	171	26	47	147	58
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	78	120	39	33	226	56	73	184	28	51	158	62

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	238	315	257	28	271
Volume Left (vph)	78	33	73	0	51
Volume Right (vph)	39	56	0	28	62
Hadj (s)	0.00	-0.05	0.18	-0.67	-0.07
Departure Headway (s)	6.5	6.2	7.0	6.2	6.4
Degree Utilization, x	0.43	0.55	0.50	0.05	0.48
Capacity (veh/h)	493	535	472	531	503
Control Delay (s)	14.2	16.5	15.7	8.3	15.3
Approach Delay (s)	14.2	16.5	15.0		15.3
Approach LOS	B	C	B		C

Intersection Summary			
Delay	15.3		
HCM Level of Service	C		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	16	177	0	0	274	4	0	0	0	3	0	8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	17	188	0	0	291	4	0	0	0	3	0	9
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	306			198			544	538	208	536	536	314
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	306			198			544	538	208	536	536	314
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	99	100	99
cM capacity (veh/h)	1245			1363			427	436	818	438	437	715

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	205	296	0	12
Volume Left	17	0	0	3
Volume Right	0	4	0	9
cSH	1245	1363	1700	609
Volume to Capacity	0.01	0.00	0.00	0.02
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	0.8	0.0	0.0	11.0
Lane LOS	A		A	B
Approach Delay (s)	0.8	0.0	0.0	11.0
Approach LOS			A	B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	148	31	13	266	25	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	161	34	14	289	27	15
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			205		515	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			205		515	198
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	98
cM capacity (veh/h)			1356		506	829

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	195	303	42
Volume Left	0	14	27
Volume Right	34	0	15
cSH	1700	1356	588
Volume to Capacity	0.11	0.01	0.07
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.5	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	11.6
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	8	154	259	1	2	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	167	282	1	2	22
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	293				487	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	293				487	302
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	97
cM capacity (veh/h)	1258				527	725

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	283	24
Volume Left	9	0	2
Volume Right	0	1	22
cSH	1258	1700	701
Volume to Capacity	0.01	0.17	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	0.4	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	141	13	31	255	11	16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	150	14	33	271	12	17
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			174		514	177
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			174		514	177
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	98
cM capacity (veh/h)			1391		500	852

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	164	304	29
Volume Left	0	33	12
Volume Right	14	0	17
cSH	1700	1391	662
Volume to Capacity	0.10	0.02	0.04
Queue Length 95th (ft)	0	2	3
Control Delay (s)	0.0	1.0	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	71	1	4	60	21	2	2	8	10	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	81	1	5	68	24	2	2	9	11	2	1
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	102			92			193	202	101	201	191	100
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102			92			193	202	101	201	191	100
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	98	100	100
cM capacity (veh/h)	1478			1490			740	680	938	725	690	940

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	82	97	14	15
Volume Left	0	5	2	11
Volume Right	1	24	9	1
cSH	1478	1490	847	732
Volume to Capacity	0.00	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.0	0.4	9.3	10.0
Lane LOS		A	A	B
Approach Delay (s)	0.0	0.4	9.3	10.0
Approach LOS			A	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95				1.00	0.97	1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	1.00				0.98	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	0.99	1.00				1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00				0.86	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1538	1758	3539				1583	3433	1863	1538
Flt Permitted		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (perm)		3539	1538	1758	3539				1583	3433	1863	1538
Volume (vph)	0	168	31	29	191	0	0	0	46	178	32	44
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	181	33	31	205	0	0	0	49	191	34	47
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	33	0	0	21
Lane Group Flow (vph)	0	181	6	31	205	0	0	0	16	191	34	26
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot					custom	Prot		Perm
Protected Phases		4		3	8					1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)		8.7	8.7	0.8	13.5				15.4	6.8	26.2	26.2
Effective Green, g (s)		9.2	9.2	0.8	14.0				15.9	6.8	26.7	26.7
Actuated g/C Ratio		0.19	0.19	0.02	0.29				0.33	0.14	0.55	0.55
Clearance Time (s)		4.5	4.5	4.0	4.5				4.5	4.0	4.5	4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0				3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		669	291	29	1017				517	479	1021	843
v/s Ratio Prot		c0.05		c0.02	0.06					c0.06	c0.02	
v/s Ratio Perm			0.00						0.01			0.02
v/c Ratio		0.27	0.02	1.07	0.20				0.03	0.40	0.03	0.03
Uniform Delay, d1		16.9	16.1	24.0	13.1				11.2	19.1	5.1	5.1
Progression Factor		1.00	1.00	1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0	189.0	0.1				0.0	0.5	0.0	0.0
Delay (s)		17.1	16.1	213.0	13.2				11.2	19.6	5.1	5.1
Level of Service		B	B	F	B				B	B	A	A
Approach Delay (s)		16.9			39.5			11.2			15.3	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1556	3433	3423		3433	3539	1556	1770	3539	2739
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1556	3433	3423		3433	3539	1556	1770	3539	2739
Volume (vph)	70	312	47	105	448	101	39	110	82	29	178	144
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	335	51	113	482	109	42	118	88	31	191	155
RTOR Reduction (vph)	0	0	35	0	21	0	0	0	67	0	0	118
Lane Group Flow (vph)	75	335	16	113	570	0	42	118	21	31	191	37
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	4.0	14.8	14.8	3.7	14.5		1.8	10.8	10.8	2.0	11.0	11.0
Effective Green, g (s)	4.0	15.3	15.3	3.7	15.0		1.8	11.3	11.3	2.0	11.5	11.5
Actuated g/C Ratio	0.08	0.32	0.32	0.08	0.31		0.04	0.23	0.23	0.04	0.24	0.24
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	147	1121	493	263	1063		128	828	364	73	843	652
v/s Ratio Prot	c0.04	0.09		0.03	c0.17		0.01	0.03		c0.02	c0.05	
v/s Ratio Perm			0.01						0.01			0.01
v/c Ratio	0.51	0.30	0.03	0.43	0.54		0.33	0.14	0.06	0.42	0.23	0.06
Uniform Delay, d1	21.2	12.5	11.4	21.3	13.8		22.7	14.7	14.4	22.6	14.8	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2	0.0	1.1	0.5		1.5	0.1	0.1	3.9	0.1	0.0
Delay (s)	24.2	12.6	11.4	22.4	14.3		24.2	14.7	14.4	26.5	15.0	14.2
Level of Service	C	B	B	C	B		C	B	B	C	B	B
Approach Delay (s)		14.4			15.6			16.2			15.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	0.95			0.95	1.00	
Frpb, ped/bikes	1.00			1.00	0.99	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.99			1.00	0.94	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	3509			3539	1697	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	3509			3539	1697	
Volume (vph)	400	20	0	540	84	61
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	22	0	587	91	66
RTOR Reduction (vph)	6	0	0	0	44	0
Lane Group Flow (vph)	451	0	0	587	113	0
Confl. Peds. (#/hr)		10	10		10	10
Turn Type						
Protected Phases	4			8	2	
Permitted Phases						
Actuated Green, G (s)	12.1			12.1	9.5	
Effective Green, g (s)	12.6			12.6	10.0	
Actuated g/C Ratio	0.41			0.41	0.33	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1445			1457	555	
v/s Ratio Prot	0.13			c0.17	c0.07	
v/s Ratio Perm						
v/c Ratio	0.31			0.40	0.20	
Uniform Delay, d1	6.1			6.3	7.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.1			0.2	0.2	
Delay (s)	6.2			6.5	7.6	
Level of Service	A			A	A	
Approach Delay (s)	6.2			6.5	7.6	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	30.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1763	3298		1770	3483		3433	3539	1556	1770	3539	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1763	3298		1770	3483		3433	3539	1556	1770	3539	1556
Volume (vph)	24	251	174	35	222	23	151	148	5	47	143	17
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	270	187	38	239	25	162	159	5	51	154	18
RTOR Reduction (vph)	0	139	0	0	9	0	0	0	3	0	0	13
Lane Group Flow (vph)	26	318	0	38	255	0	162	159	2	51	154	5
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.8	12.1		2.1	13.4		5.8	16.0	16.0	2.2	12.4	12.4
Effective Green, g (s)	0.8	12.6		2.1	13.9		5.8	16.5	16.5	2.2	12.9	12.9
Actuated g/C Ratio	0.02	0.26		0.04	0.28		0.12	0.33	0.33	0.04	0.26	0.26
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	29	841		75	980		403	1182	520	79	924	406
v/s Ratio Prot	0.01	c0.10		c0.02	0.07		c0.05	c0.04		0.03	c0.04	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.90	0.38		0.51	0.26		0.40	0.13	0.00	0.65	0.17	0.01
Uniform Delay, d1	24.3	15.2		23.1	13.8		20.2	11.5	11.0	23.2	14.1	13.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	122.2	0.3		5.3	0.1		0.7	0.1	0.0	16.7	0.1	0.0
Delay (s)	146.5	15.5		28.4	13.9		20.9	11.5	11.0	39.9	14.2	13.5
Level of Service	F	B		C	B		C	B	B	D	B	B
Approach Delay (s)		22.5			15.7			16.2			20.0	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1788		1761	1863	1554	1770	1837		1754	1863	1554
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1788		1761	1863	1554	1770	1837		1754	1863	1554
Volume (vph)	84	132	42	18	179	31	28	110	9	22	156	74
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	90	142	45	19	192	33	30	118	10	24	168	80
RTOR Reduction (vph)	0	14	0	0	0	27	0	3	0	0	0	45
Lane Group Flow (vph)	90	173	0	19	192	6	30	125	0	24	168	35
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	4.9	13.7		0.9	9.7	9.7	2.2	26.4		0.9	25.1	25.1
Effective Green, g (s)	4.9	14.2		0.9	10.2	10.2	2.2	26.9		0.9	25.6	25.6
Actuated g/C Ratio	0.08	0.24		0.02	0.17	0.17	0.04	0.46		0.02	0.43	0.43
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	147	431		27	323	269	66	839		27	810	675
v/s Ratio Prot	c0.05	c0.10		0.01	c0.10		c0.02	0.07		0.01	c0.09	
v/s Ratio Perm						0.00						0.02
v/c Ratio	0.61	0.40		0.70	0.59	0.02	0.45	0.15		0.89	0.21	0.05
Uniform Delay, d1	26.1	18.8		28.9	22.4	20.2	27.8	9.3		29.0	10.3	9.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.3	0.6		59.2	2.9	0.0	4.9	0.1		123.9	0.1	0.0
Delay (s)	33.4	19.4		88.1	25.4	20.2	32.7	9.4		152.9	10.5	9.7
Level of Service	C	B		F	C	C	C	A		F	B	A
Approach Delay (s)		23.9			29.6			13.8			22.8	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	115	12	9	199	10	10	15	14	18	29	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	125	13	10	216	11	11	16	15	20	32	23

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	154	237	42	74
Volume Left (vph)	16	10	11	20
Volume Right (vph)	13	11	15	23
Hadj (s)	0.00	0.01	-0.13	-0.10
Departure Headway (s)	4.5	4.4	4.8	4.7
Degree Utilization, x	0.19	0.29	0.06	0.10
Capacity (veh/h)	778	790	687	692
Control Delay (s)	8.5	9.1	8.0	8.3
Approach Delay (s)	8.5	9.1	8.0	8.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	150	200	15	24	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	163	217	16	26	18
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	244				417	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				417	246
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	98
cM capacity (veh/h)	1312				580	780

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	167	234	45
Volume Left	4	0	26
Volume Right	0	16	18
cSH	1312	1700	649
Volume to Capacity	0.00	0.14	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.2	0.0	11.0
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.0
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor			0.88					0.95	1.00	1.00	0.95	
Frpb, ped/bikes			0.98					1.00	0.97	1.00	1.00	
Flpb, ped/bikes			1.00					1.00	1.00	1.00	1.00	
Frt			0.85					1.00	0.85	1.00	1.00	
Flt Protected			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)			2739					3539	1538	1770	3539	
Flt Permitted			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)			2739					3539	1538	1770	3539	
Volume (vph)	0	0	260	0	0	0	0	594	18	119	197	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	283	0	0	0	0	646	20	129	214	0
RTOR Reduction (vph)	0	0	229	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	0	54	0	0	0	0	646	8	129	214	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)			8.6					19.0	19.0	6.4	29.9	
Effective Green, g (s)			9.1					19.5	19.5	6.9	30.4	
Actuated g/C Ratio			0.19					0.41	0.41	0.15	0.64	
Clearance Time (s)			4.5					4.5	4.5	4.5	4.5	
Vehicle Extension (s)			3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)			525					1453	631	257	2265	
v/s Ratio Prot								c0.18		c0.07	0.06	
v/s Ratio Perm			c0.02						0.01			
v/c Ratio			0.10					0.44	0.01	0.50	0.09	
Uniform Delay, d1			15.8					10.1	8.3	18.7	3.3	
Progression Factor			1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2			0.1					0.2	0.0	1.5	0.0	
Delay (s)			15.9					10.3	8.3	20.3	3.3	
Level of Service			B					B	A	C	A	
Approach Delay (s)		15.9			0.0			10.3			9.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	13	5	16	6	122	4	427	19	56	324	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	14	5	17	7	133	4	464	21	61	352	5
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	871	987	196	803	972	252	368			495		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	871	987	196	803	972	252	368			495		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	94	99	93	97	82	100			94		
cM capacity (veh/h)	182	227	799	241	232	735	1178			1056		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	20	5	157	4	232	232	21	61	176	176	5
Volume Left	5	0	17	4	0	0	0	61	0	0	0
Volume Right	0	5	133	0	0	0	21	0	0	0	5
cSH	212	799	557	1178	1700	1700	1700	1056	1700	1700	1700
Volume to Capacity	0.09	0.01	0.28	0.00	0.14	0.14	0.01	0.06	0.10	0.10	0.00
Queue Length 95th (ft)	8	1	29	0	0	0	0	5	0	0	0
Control Delay (s)	23.7	9.5	14.0	8.1	0.0	0.0	0.0	8.6	0.0	0.0	0.0
Lane LOS	C	A	B	A				A			
Approach Delay (s)	20.6		14.0	0.1				1.3			
Approach LOS	C		B								

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	133	11	3	110	2	8	9	10	22	10	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	15	146	12	3	121	2	9	10	11	24	11	11

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	88	85	64	63	30	46
Volume Left (vph)	15	0	3	0	9	24
Volume Right (vph)	0	12	0	2	11	11
Hadj (s)	0.12	-0.07	0.06	0.01	-0.13	0.00
Departure Headway (s)	4.9	4.7	4.9	4.8	4.5	4.6
Degree Utilization, x	0.12	0.11	0.09	0.08	0.04	0.06
Capacity (veh/h)	719	741	712	723	746	727
Control Delay (s)	7.4	7.1	7.1	7.1	7.7	7.9
Approach Delay (s)	7.3		7.1		7.7	7.9
Approach LOS	A		A		A	A

Intersection Summary			
Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00			0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt		0.99			0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1807			1754		1760	3539	1538	1761	3539	1538
Flt Permitted		0.88			0.94		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1622			1659		1760	3539	1538	1761	3539	1538
Volume (vph)	48	56	5	19	49	32	4	363	39	20	281	42
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	51	59	5	20	52	34	4	382	41	21	296	44
RTOR Reduction (vph)	0	3	0	0	29	0	0	0	16	0	0	18
Lane Group Flow (vph)	0	112	0	0	77	0	4	382	25	21	296	26
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		5.9			5.9		0.7	28.2	28.2	0.9	28.4	28.4
Effective Green, g (s)		6.4			6.4		0.7	28.7	28.7	0.9	28.9	28.9
Actuated g/C Ratio		0.13			0.13		0.01	0.60	0.60	0.02	0.60	0.60
Clearance Time (s)		4.5			4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		216			221		26	2116	920	33	2131	926
v/s Ratio Prot							0.00	c0.11		c0.01	0.08	
v/s Ratio Perm		c0.07			0.05				0.02			0.02
v/c Ratio		0.52			0.35		0.15	0.18	0.03	0.64	0.14	0.03
Uniform Delay, d1		19.4			18.9		23.4	4.3	3.9	23.4	4.1	3.9
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.3			0.9		2.7	0.0	0.0	33.9	0.0	0.0
Delay (s)		21.6			19.8		26.1	4.4	4.0	57.2	4.2	3.9
Level of Service		C			B		C	A	A	E	A	A
Approach Delay (s)		21.6			19.8			4.6			7.2	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	137	21	20	118	21	23	26	36	46	32	3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	6	156	24	23	134	24	26	30	41	52	36	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	185	181	97	89	3
Volume Left (vph)	6	23	26	52	0
Volume Right (vph)	24	24	41	0	3
Hadj (s)	-0.04	-0.02	-0.17	0.33	-0.67
Departure Headway (s)	4.6	4.6	4.9	5.8	4.8
Degree Utilization, x	0.24	0.23	0.13	0.14	0.00
Capacity (veh/h)	738	738	683	575	688
Control Delay (s)	9.0	9.0	8.6	8.6	6.6
Approach Delay (s)	9.0	9.0	8.6	8.5	
Approach LOS	A	A	A	A	

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	399	16	47	252	0	0	0	0	123	0	16
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	453	18	53	286	0	0	0	0	140	0	18
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			0.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					1181							
pX, platoon unblocked												
vC, conflicting volume	296			482			751	876	256	640	885	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	296			482			751	876	256	640	885	163
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	100	59	100	98
cM capacity (veh/h)	1251			1077			278	270	737	339	266	839

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	302	169	149	191	140	18
Volume Left	0	0	53	0	140	0
Volume Right	0	18	0	0	0	18
cSH	1700	1700	1077	1700	339	839
Volume to Capacity	0.18	0.10	0.05	0.11	0.41	0.02
Queue Length 95th (ft)	0	0	4	0	49	2
Control Delay (s)	0.0	0.0	3.3	0.0	22.9	9.4
Lane LOS			A		C	A
Approach Delay (s)	0.0		1.5		21.3	
Approach LOS					C	

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	78	443	0	0	284	137	15	0	105	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	89	503	0	0	323	156	17	0	119	0	0	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					807							
pX, platoon unblocked												
vC, conflicting volume	488			513			862	1179	272	969	1101	259
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	488			513			862	1179	272	969	1101	259
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			93	100	83	100	100	100
cM capacity (veh/h)	1071			1040			228	172	714	160	191	733

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	256	336	215	263	17	119
Volume Left	89	0	0	0	17	0
Volume Right	0	0	0	156	0	119
cSH	1071	1700	1700	1700	228	714
Volume to Capacity	0.08	0.20	0.13	0.15	0.07	0.17
Queue Length 95th (ft)	7	0	0	0	6	15
Control Delay (s)	3.5	0.0	0.0	0.0	22.1	11.1
Lane LOS	A				C	B
Approach Delay (s)	1.5		0.0		12.4	
Approach LOS					B	

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3471		1770	3495		1770	3457		1770	3392	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3471		1770	3495		1770	3457		1770	3392	
Volume (vph)	47	409	54	47	345	28	65	152	25	54	95	32
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	53	465	61	53	392	32	74	173	28	61	108	36
RTOR Reduction (vph)	0	11	0	0	7	0	0	16	0	0	27	0
Lane Group Flow (vph)	53	515	0	53	417	0	74	185	0	61	117	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.0	14.2		2.0	14.2		2.2	11.1		2.0	10.9	
Effective Green, g (s)	2.0	14.7		2.0	14.7		2.2	11.6		2.0	11.4	
Actuated g/C Ratio	0.04	0.32		0.04	0.32		0.05	0.25		0.04	0.25	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	76	1102		76	1110		84	866		76	835	
v/s Ratio Prot	c0.03	c0.15		0.03	0.12		c0.04	c0.05		0.03	0.03	
v/s Ratio Perm												
v/c Ratio	0.70	0.47		0.70	0.38		0.88	0.21		0.80	0.14	
Uniform Delay, d1	21.9	12.7		21.9	12.2		21.9	13.7		22.0	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.3	0.3		24.3	0.2		60.3	0.1		43.8	0.1	
Delay (s)	46.1	13.0		46.1	12.5		82.2	13.9		65.8	13.7	
Level of Service	D	B		D	B		F	B		E	B	
Approach Delay (s)		16.0			16.2			32.3			29.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	11	8	0	23	0	4	3	1	4	8	28
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	22	12	9	0	26	0	5	3	1	5	9	32

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	43	26	9	45
Volume Left (vph)	22	0	5	5
Volume Right (vph)	9	0	1	32
Hadj (s)	0.01	0.03	0.06	-0.37
Departure Headway (s)	4.0	4.1	4.1	3.7
Degree Utilization, x	0.05	0.03	0.01	0.05
Capacity (veh/h)	872	864	840	952
Control Delay (s)	7.2	7.2	7.2	6.9
Approach Delay (s)	7.2	7.2	7.2	6.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1848		1770	1797		1770	1842		1770	1846	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1848		1770	1797		1770	1842		1770	1846	
Volume (vph)	18	60	3	19	41	11	8	375	25	9	289	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	65	3	21	45	12	9	408	27	10	314	16
RTOR Reduction (vph)	0	3	0	0	11	0	0	1	0	0	1	0
Lane Group Flow (vph)	20	65	0	21	46	0	9	434	0	10	329	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.1	6.8		1.1	6.8		1.0	43.0		1.0	43.0	
Effective Green, g (s)	1.1	7.3		1.1	7.3		1.0	43.5		1.0	43.5	
Actuated g/C Ratio	0.02	0.11		0.02	0.11		0.01	0.63		0.01	0.63	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	28	196		28	190		26	1163		26	1165	
v/s Ratio Prot	0.01	c0.04		c0.01	0.03		0.01	c0.24		c0.01	0.18	
v/s Ratio Perm												
v/c Ratio	0.71	0.33		0.75	0.24		0.35	0.37		0.38	0.28	
Uniform Delay, d1	33.7	28.5		33.8	28.3		33.6	6.1		33.6	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	60.5	1.0		71.8	0.7		7.9	0.2		9.2	0.1	
Delay (s)	94.3	29.6		105.6	28.9		41.5	6.3		42.9	5.8	
Level of Service	F	C		F	C		D	A		D	A	
Approach Delay (s)		44.3			49.6			7.0			6.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	109	2	4	81	1	2	4	2	8	6	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	118	2	4	88	1	2	4	2	9	7	2
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	99			131			253	248	140	252	249	109
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	99			131			253	248	140	252	249	109
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	100	99	99	100
cM capacity (veh/h)	1481			1443			670	639	893	672	639	929

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	126	93	9	17
Volume Left	5	4	2	9
Volume Right	2	1	2	2
cSH	1481	1443	697	682
Volume to Capacity	0.00	0.00	0.01	0.03
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.3	0.4	10.2	10.4
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.4	10.2	10.4
Approach LOS			B	B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	90	8	21	79	13	6	28	23	15	27	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	20	102	9	24	90	15	7	32	26	17	31	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	132	128	65	56
Volume Left (vph)	20	24	7	17
Volume Right (vph)	9	15	26	8
Hadj (s)	0.02	0.00	-0.19	0.01
Departure Headway (s)	4.3	4.3	4.4	4.6
Degree Utilization, x	0.16	0.15	0.08	0.07
Capacity (veh/h)	799	793	769	731
Control Delay (s)	8.2	8.1	7.7	7.9
Approach Delay (s)	8.2	8.1	7.7	7.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	201	6	3	114	0	4	0	71	227	6	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	218	7	3	124	0	4	0	77	247	7	84
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	134			235			459	372	242	449	375	144
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	134			235			459	372	242	449	375	144
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	90	46	99	91
cM capacity (veh/h)	1439			1321			446	547	784	454	545	888

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	225	127	82	253	84
Volume Left	0	3	4	247	0
Volume Right	7	0	77	0	84
cSH	1439	1321	753	456	888
Volume to Capacity	0.00	0.00	0.11	0.56	0.09
Queue Length 95th (ft)	0	0	9	83	8
Control Delay (s)	0.0	0.2	10.4	22.3	9.5
Lane LOS		A	B	C	A
Approach Delay (s)	0.0	0.2	10.4	19.1	
Approach LOS			B	C	

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	458	44	24	117	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	498	48	26	127	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			556		721	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			556		721	542
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1015		381	536

Direction, Lane #	EB 1	WB 1
Volume Total	546	153
Volume Left	0	26
Volume Right	48	0
cSH	1700	1015
Volume to Capacity	0.32	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	1.7
Lane LOS		A
Approach Delay (s)	0.0	1.7
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	51	407	141	244	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	442	153	265	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1274			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	428				859	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	383				848	251
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	100
cM capacity (veh/h)	1089				289	724

Direction, Lane #	EB 1	WB 1
Volume Total	498	418
Volume Left	55	0
Volume Right	0	265
cSH	1089	1700
Volume to Capacity	0.05	0.25
Queue Length 95th (ft)	4	0
Control Delay (s)	1.5	0.0
Lane LOS	A	
Approach Delay (s)	1.5	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	407	0	0	372	13	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	442	0	0	404	14	33
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				1004		
pX, platoon unblocked					0.89	
vC, conflicting volume			452		867	462
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			452		850	462
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	94
cM capacity (veh/h)			1099		290	589

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	442	404	47
Volume Left	0	0	14
Volume Right	0	0	33
cSH	1700	1700	449
Volume to Capacity	0.26	0.24	0.10
Queue Length 95th (ft)	0	0	9
Control Delay (s)	0.0	0.0	13.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.9
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1765	3498		1765	3488		1759	3539	1557	1764	3539	1540
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1765	3498		1765	3488		1759	3539	1557	1764	3539	1540
Volume (vph)	24	356	27	5	328	31	20	187	8	32	89	17
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	387	29	5	357	34	22	203	9	35	97	18
RTOR Reduction (vph)	0	6	0	0	8	0	0	0	7	0	0	13
Lane Group Flow (vph)	26	410	0	5	383	0	22	203	2	35	97	5
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.7	11.8		0.5	11.6		0.7	10.2	10.2	0.7	10.2	10.2
Effective Green, g (s)	0.7	12.3		0.5	12.1		0.7	10.7	10.7	0.7	10.7	10.7
Actuated g/C Ratio	0.02	0.31		0.01	0.30		0.02	0.27	0.27	0.02	0.27	0.27
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	31	1070		22	1050		31	942	414	31	942	410
v/s Ratio Prot	c0.01	c0.12		0.00	0.11		0.01	c0.06		c0.02	0.03	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.84	0.38		0.23	0.37		0.71	0.22	0.01	1.13	0.10	0.01
Uniform Delay, d1	19.7	11.0		19.7	11.0		19.6	11.5	10.8	19.8	11.1	10.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	95.1	0.2		5.2	0.2		54.2	0.1	0.0	203.2	0.0	0.0
Delay (s)	114.8	11.2		24.9	11.3		73.8	11.6	10.8	223.0	11.2	10.9
Level of Service	F	B		C	B		E	B	B	F	B	B
Approach Delay (s)		17.3			11.4			17.4			60.6	
Approach LOS		B			B			B			E	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	40.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	800	7	7	480	10	19	3	65	2	10	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	870	8	8	522	11	21	3	71	2	11	21
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	543			887			1228	1474	459	1102	1472	286
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	543			887			1228	1474	459	1102	1472	286
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			82	97	87	98	91	97
cM capacity (veh/h)	1014			753			115	120	540	135	120	699

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	580	297	8	348	185	95	34
Volume Left	16	0	0	8	0	0	21	2
Volume Right	0	0	8	0	0	11	71	21
cSH	1014	1700	1700	753	1700	1700	281	248
Volume to Capacity	0.02	0.34	0.17	0.01	0.20	0.11	0.34	0.14
Queue Length 95th (ft)	1	0	0	1	0	0	36	12
Control Delay (s)	8.6	0.0	0.0	9.8	0.0	0.0	24.2	21.8
Lane LOS	A			A			C	C
Approach Delay (s)	0.2			0.1			24.2	21.8
Approach LOS							C	C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3478		1770	3510		1770	1770		1770	1817	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3478		1770	3510		1770	1770		1770	1817	
Volume (vph)	47	752	79	98	442	21	56	200	84	35	134	23
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	817	86	107	480	23	61	217	91	38	146	25
RTOR Reduction (vph)	0	8	0	0	4	0	0	18	0	0	7	0
Lane Group Flow (vph)	51	895	0	107	499	0	61	290	0	38	164	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.6	22.7		6.1	25.2		3.7	16.3		3.5	16.1	
Effective Green, g (s)	3.6	23.2		6.1	25.7		3.7	16.8		3.5	16.6	
Actuated g/C Ratio	0.05	0.35		0.09	0.39		0.06	0.26		0.05	0.25	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	97	1230		165	1375		100	453		94	460	
v/s Ratio Prot	0.03	c0.26		c0.06	0.14		c0.03	c0.16		0.02	0.09	
v/s Ratio Perm												
v/c Ratio	0.53	0.73		0.65	0.36		0.61	0.64		0.40	0.36	
Uniform Delay, d1	30.2	18.4		28.7	14.1		30.2	21.7		30.0	20.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	2.2		8.5	0.2		10.1	3.1		2.8	0.5	
Delay (s)	35.2	20.6		37.2	14.3		40.4	24.8		32.9	20.6	
Level of Service	D	C		D	B		D	C		C	C	
Approach Delay (s)		21.4			18.3			27.4			22.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Volume (veh/h)	0	861	8	4	543	17	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	936	9	4	590	18	41
Pedestrians		10			10	10	
Lane Width (ft)		8.0			12.0	12.0	
Walking Speed (ft/s)		4.0			4.0	4.0	
Percent Blockage		1			1	1	
Right turn flare (veh)							
Median type						None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0			955		1264	492
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0			955		1264	492
tC, single (s)	0.0			4.1		6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0			2.2		3.5	3.3
p0 queue free %	0			99		88	92
cM capacity (veh/h)	0			710		158	514

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	624	321	0	4	295	295	60
Volume Left	0	0	0	4	0	0	18
Volume Right	0	9	0	0	0	0	41
cSH	1700	1700	1700	710	1700	1700	303
Volume to Capacity	0.37	0.19	0.00	0.01	0.17	0.17	0.20
Queue Length 95th (ft)	0	0	0	0	0	0	18
Control Delay (s)	0.0	0.0	0.0	10.1	0.0	0.0	19.8
Lane LOS				B			C
Approach Delay (s)	0.0			0.1			19.8
Approach LOS							C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	9	1	1	9	4	1	2	1	3	6	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	10	1	1	10	4	1	2	1	3	7	1
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	24			21			51	49	30	49	47	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	24			21			51	49	30	49	47	32
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	99	100
cM capacity (veh/h)	1577			1582			913	828	1027	920	829	1025

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	15	4	11
Volume Left	1	1	1	3
Volume Right	1	4	1	1
cSH	1577	1582	892	872
Volume to Capacity	0.00	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.7	0.5	9.1	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.7	0.5	9.1	9.2
Approach LOS			A	A

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	8	5	22	2	140	5	204	52	301	390	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	9	5	24	2	152	5	222	57	327	424	4
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1373	1387	232	1157	1363	159	438			288		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1373	1387	232	1157	1363	159	438			288		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	92	99	78	98	82	100			74		
cM capacity (veh/h)	65	103	757	109	106	844	1109			1260		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	13	5	178	5	148	130	327	212	212	4
Volume Left	4	0	24	5	0	0	327	0	0	0
Volume Right	0	5	152	0	0	57	0	0	0	4
cSH	86	757	425	1109	1700	1700	1260	1700	1700	1700
Volume to Capacity	0.15	0.01	0.42	0.00	0.09	0.08	0.26	0.12	0.12	0.00
Queue Length 95th (ft)	13	1	51	0	0	0	26	0	0	0
Control Delay (s)	54.0	9.8	19.5	8.3	0.0	0.0	8.9	0.0	0.0	0.0
Lane LOS	F	A	C	A			A			
Approach Delay (s)	41.0		19.5	0.2			3.8			
Approach LOS	E		C							

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	280	89	141	110	34	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	304	97	153	120	37	125
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			411		799	373
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			411		799	373
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		88	81
cM capacity (veh/h)			1138		302	662

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	401	273	162
Volume Left	0	153	37
Volume Right	97	0	125
cSH	1700	1138	520
Volume to Capacity	0.24	0.13	0.31
Queue Length 95th (ft)	0	12	33
Control Delay (s)	0.0	5.4	15.0
Lane LOS		A	C
Approach Delay (s)	0.0	5.4	15.0
Approach LOS			C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	81	234	39	37	104	38	65	170	36	52	150	91
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	254	42	40	113	41	71	185	39	57	163	99

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	385	195	255	39	318
Volume Left (vph)	88	40	71	0	57
Volume Right (vph)	42	41	0	39	99
Hadj (s)	0.01	-0.05	0.17	-0.67	-0.12
Departure Headway (s)	6.5	6.9	7.4	6.5	6.6
Degree Utilization, x	0.69	0.37	0.52	0.07	0.59
Capacity (veh/h)	520	448	449	502	497
Control Delay (s)	22.6	14.0	16.9	8.8	18.5
Approach Delay (s)	22.6	14.0	15.8		18.5
Approach LOS	C	B	C		C

Intersection Summary			
Delay	18.4		
HCM Level of Service	C		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	313	0	0	175	2	0	0	0	4	0	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	340	0	0	190	2	0	0	0	4	0	16
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	202			350			600	585	360	584	584	211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	202			350			600	585	360	584	584	211
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	99	100	98
cM capacity (veh/h)	1358			1199			389	411	673	407	411	815

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	357	192	0	21
Volume Left	16	0	0	4
Volume Right	0	2	0	16
cSH	1358	1199	1700	673
Volume to Capacity	0.01	0.00	0.00	0.03
Queue Length 95th (ft)	1	0	0	2
Control Delay (s)	0.5	0.0	0.0	10.5
Lane LOS	A		A	B
Approach Delay (s)	0.5	0.0	0.0	10.5
Approach LOS			A	B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	257	37	17	143	50	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	279	40	18	155	54	13
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			330		512	319
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			330		512	319
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		89	98
cM capacity (veh/h)			1220		506	709

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	320	174	67
Volume Left	0	18	54
Volume Right	40	0	13
cSH	1700	1220	535
Volume to Capacity	0.19	0.02	0.13
Queue Length 95th (ft)	0	1	11
Control Delay (s)	0.0	1.0	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	12.7
Approach LOS			B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	260	153	7	1	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	283	166	8	1	8
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	184				492	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				492	190
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	99
cM capacity (veh/h)	1379				523	838

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	292	174	9
Volume Left	10	0	1
Volume Right	0	8	8
cSH	1379	1700	779
Volume to Capacity	0.01	0.10	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	0.3	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	271	7	13	141	9	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	295	8	14	153	10	13
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			312		500	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			312		500	318
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1238		516	710

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	302	167	23
Volume Left	0	14	10
Volume Right	8	0	13
cSH	1700	1238	611
Volume to Capacity	0.18	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.8	11.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	11.1
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	96	3	8	125	8	6	1	15	8	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	104	3	9	136	9	7	1	16	9	3	1
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	155			118			288	290	126	303	287	160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	155			118			288	290	126	303	287	160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	98	99	99	100
cM capacity (veh/h)	1414			1458			638	606	909	616	608	870

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	109	153	24	13
Volume Left	1	9	7	9
Volume Right	3	9	16	1
cSH	1414	1458	798	629
Volume to Capacity	0.00	0.01	0.03	0.02
Queue Length 95th (ft)	0	0	2	2
Control Delay (s)	0.1	0.5	9.6	10.8
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.5	9.6	10.8
Approach LOS			A	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95				1.00	0.97	1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	1.00				0.98	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00				1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00				0.86	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1535	1770	3539				1582	3433	1863	1535
Flt Permitted		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (perm)		3539	1535	1770	3539				1582	3433	1863	1535
Volume (vph)	0	443	81	119	451	0	0	0	184	343	57	104
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.92	0.92	0.92
Adj. Flow (vph)	0	482	88	129	490	0	0	0	209	373	62	113
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	174	0	0	65
Lane Group Flow (vph)	0	482	22	129	490	0	0	0	35	373	62	48
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot					custom	Prot		Perm
Protected Phases		4		3	8					1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)		13.9	13.9	6.2	24.1				9.0	10.9	23.9	23.9
Effective Green, g (s)		14.4	14.4	6.2	24.6				9.5	10.9	24.4	24.4
Actuated g/C Ratio		0.25	0.25	0.11	0.43				0.17	0.19	0.43	0.43
Clearance Time (s)		4.5	4.5	4.0	4.5				4.5	4.0	4.5	4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0				3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		894	388	193	1527				264	656	797	657
v/s Ratio Prot		c0.14		c0.07	0.14					c0.11	0.03	
v/s Ratio Perm			0.01						c0.02			0.03
v/c Ratio		0.54	0.06	0.67	0.32				0.13	0.57	0.08	0.07
Uniform Delay, d1		18.4	16.2	24.4	10.7				20.2	20.9	9.6	9.6
Progression Factor		1.00	1.00	1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	0.1	8.5	0.1				0.2	1.1	0.0	0.0
Delay (s)		19.1	16.2	32.9	10.8				20.5	22.1	9.7	9.7
Level of Service		B	B	C	B				C	C	A	A
Approach Delay (s)		18.6			15.4			20.5			18.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1552	3433	3401		3433	3539	1552	1770	3539	2732
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1552	3433	3401		3433	3539	1552	1770	3539	2732
Volume (vph)	226	581	118	122	629	172	119	120	85	74	193	189
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	246	632	128	133	684	187	129	130	92	87	227	222
RTOR Reduction (vph)	0	0	74	0	27	0	0	0	76	0	0	183
Lane Group Flow (vph)	246	632	54	133	844	0	129	130	16	87	227	39
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	11.8	28.8	28.8	5.7	22.7		5.7	11.6	11.6	5.8	11.7	11.7
Effective Green, g (s)	11.8	29.3	29.3	5.7	23.2		5.7	12.1	12.1	5.8	12.2	12.2
Actuated g/C Ratio	0.17	0.43	0.43	0.08	0.34		0.08	0.18	0.18	0.08	0.18	0.18
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	303	1505	660	284	1145		284	622	273	149	627	484
v/s Ratio Prot	c0.14	0.18		0.04	c0.25		0.04	0.04		c0.05	c0.06	
v/s Ratio Perm			0.04						0.01			0.01
v/c Ratio	0.81	0.42	0.08	0.47	0.74		0.45	0.21	0.06	0.58	0.36	0.08
Uniform Delay, d1	27.5	13.9	11.8	30.2	20.2		30.1	24.3	23.7	30.4	24.9	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.1	0.2	0.1	1.2	2.5		1.2	0.2	0.1	5.7	0.4	0.1
Delay (s)	42.6	14.0	11.8	31.4	22.7		31.3	24.5	23.7	36.1	25.3	23.7
Level of Service	D	B	B	C	C		C	C	C	D	C	C
Approach Delay (s)		20.8			23.8			26.8			26.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	0.95			0.95	1.00	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.99			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	3502			3539	1720	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	3502			3539	1720	
Volume (vph)	685	44	0	745	146	61
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	745	48	0	810	159	66
RTOR Reduction (vph)	7	0	0	0	27	0
Lane Group Flow (vph)	786	0	0	810	198	0
Confl. Peds. (#/hr)		10	10		10	10
Turn Type						
Protected Phases	4			8	2	
Permitted Phases						
Actuated Green, G (s)	14.5			14.5	10.8	
Effective Green, g (s)	15.0			15.0	11.3	
Actuated g/C Ratio	0.44			0.44	0.33	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1531			1548	567	
v/s Ratio Prot	0.22			c0.23	c0.11	
v/s Ratio Perm						
v/c Ratio	0.51			0.52	0.35	
Uniform Delay, d1	7.0			7.0	8.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.3			0.3	0.4	
Delay (s)	7.3			7.4	9.1	
Level of Service	A			A	A	
Approach Delay (s)	7.3			7.4	9.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3299		1770	3522		3433	3539	1554	1770	3539	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3299		1770	3522		3433	3539	1554	1770	3539	1554
Volume (vph)	45	356	243	95	318	9	167	194	3	75	271	47
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	387	264	103	346	10	182	211	3	82	295	51
RTOR Reduction (vph)	0	138	0	0	2	0	0	0	2	0	0	39
Lane Group Flow (vph)	49	513	0	103	354	0	182	211	1	82	295	12
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	3.8	16.0		6.3	18.5		5.6	15.0	15.0	4.0	13.4	13.4
Effective Green, g (s)	3.8	16.5		6.3	19.0		5.6	15.5	15.5	4.0	13.9	13.9
Actuated g/C Ratio	0.07	0.28		0.11	0.33		0.10	0.27	0.27	0.07	0.24	0.24
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	934		191	1148		330	941	413	121	844	371
v/s Ratio Prot	0.03	c0.16		c0.06	0.10		c0.05	0.06		0.05	c0.08	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.43	0.55		0.54	0.31		0.55	0.22	0.00	0.68	0.35	0.03
Uniform Delay, d1	26.2	17.7		24.6	14.7		25.2	16.7	15.7	26.5	18.4	17.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.7		2.9	0.2		2.0	0.1	0.0	14.0	0.3	0.0
Delay (s)	28.7	18.4		27.5	14.9		27.1	16.8	15.7	40.6	18.7	17.1
Level of Service	C	B		C	B		C	B	B	D	B	B
Approach Delay (s)		19.1			17.7			21.6			22.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1820		1770	1863	1553	1770	1791		1770	1863	1553
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1820		1770	1863	1553	1770	1791		1770	1863	1553
Volume (vph)	206	278	43	30	272	40	42	161	43	34	162	99
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	302	47	33	296	43	46	175	47	37	176	108
RTOR Reduction (vph)	0	5	0	0	0	31	0	11	0	0	0	85
Lane Group Flow (vph)	224	344	0	33	296	12	46	211	0	37	176	23
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	12.2	27.9		2.4	18.1	18.1	3.8	14.9		2.4	13.5	13.5
Effective Green, g (s)	12.2	28.4		2.4	18.6	18.6	3.8	15.4		2.4	14.0	14.0
Actuated g/C Ratio	0.19	0.44		0.04	0.29	0.29	0.06	0.24		0.04	0.22	0.22
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	334	800		66	536	447	104	427		66	404	337
v/s Ratio Prot	c0.13	0.19		0.02	c0.16		c0.03	c0.12		0.02	0.09	
v/s Ratio Perm						0.01						0.02
v/c Ratio	0.67	0.43		0.50	0.55	0.03	0.44	0.49		0.56	0.44	0.07
Uniform Delay, d1	24.3	12.5		30.5	19.5	16.5	29.4	21.2		30.6	21.9	20.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.2	0.4		5.8	1.2	0.0	3.0	0.9		10.4	0.8	0.1
Delay (s)	29.5	12.9		36.4	20.7	16.5	32.4	22.1		41.0	22.6	20.2
Level of Service	C	B		D	C	B	C	C		D	C	C
Approach Delay (s)		19.4			21.6			23.9			23.9	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	35	330	7	10	289	22	6	19	7	12	22	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	359	8	11	314	24	7	21	8	13	24	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	404	349	35	63
Volume Left (vph)	38	11	7	13
Volume Right (vph)	8	24	8	26
Hadj (s)	0.04	0.00	-0.06	-0.17
Departure Headway (s)	4.6	4.6	5.7	5.5
Degree Utilization, x	0.52	0.45	0.05	0.10
Capacity (veh/h)	759	748	536	564
Control Delay (s)	12.5	11.4	9.0	9.1
Approach Delay (s)	12.5	11.4	9.0	9.1
Approach LOS	B	B	A	A

Intersection Summary			
Delay	11.7		
HCM Level of Service	B		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	18	352	285	13	13	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	383	310	14	14	30
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	334				759	337
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	334				759	337
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				96	96
cM capacity (veh/h)	1215				362	694

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	402	324	45
Volume Left	20	0	14
Volume Right	0	14	30
cSH	1215	1700	538
Volume to Capacity	0.02	0.19	0.08
Queue Length 95th (ft)	1	0	7
Control Delay (s)	0.5	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor			0.88					0.95	1.00	1.00	0.95	
Frpb, ped/bikes			0.98					1.00	0.97	1.00	1.00	
Flpb, ped/bikes			1.00					1.00	1.00	1.00	1.00	
Frt			0.85					1.00	0.85	1.00	1.00	
Flt Protected			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)			2739					3539	1538	1770	3539	
Flt Permitted			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)			2739					3539	1538	1770	3539	
Volume (vph)	0	0	405	0	0	0	0	718	39	175	257	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	440	0	0	0	0	780	42	190	279	0
RTOR Reduction (vph)	0	0	354	0	0	0	0	0	27	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	0	0	780	15	190	279	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)			8.6					16.4	16.4	8.0	28.9	
Effective Green, g (s)			9.1					16.9	16.9	8.5	29.4	
Actuated g/C Ratio			0.20					0.36	0.36	0.18	0.63	
Clearance Time (s)			4.5					4.5	4.5	4.5	4.5	
Vehicle Extension (s)			3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)			536					1286	559	324	2238	
v/s Ratio Prot								c0.22		c0.11	0.08	
v/s Ratio Perm			c0.03						0.01			
v/c Ratio			0.16					0.61	0.03	0.59	0.12	
Uniform Delay, d1			15.5					12.1	9.5	17.4	3.4	
Progression Factor			1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2			0.1					0.8	0.0	2.7	0.0	
Delay (s)			15.7					12.9	9.5	20.1	3.4	
Level of Service			B					B	A	C	A	
Approach Delay (s)		15.7			0.0			12.7			10.2	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	12	6	20	24	89	7	560	31	130	484	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	13	7	22	26	97	8	609	34	141	526	11
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1258	1486	283	1203	1463	324	547			652		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1258	1486	283	1203	1463	324	547			652		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	87	99	80	75	85	99			85		
cM capacity (veh/h)	75	102	702	107	105	660	1010			922		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	16	7	145	8	304	304	34	141	263	263	11
Volume Left	3	0	22	8	0	0	0	141	0	0	0
Volume Right	0	7	97	0	0	0	34	0	0	0	11
cSH	95	702	242	1010	1700	1700	1700	922	1700	1700	1700
Volume to Capacity	0.17	0.01	0.60	0.01	0.18	0.18	0.02	0.15	0.15	0.15	0.01
Queue Length 95th (ft)	15	1	87	1	0	0	0	13	0	0	0
Control Delay (s)	50.4	10.2	39.8	8.6	0.0	0.0	0.0	9.6	0.0	0.0	0.0
Lane LOS	F	B	E	A				A			
Approach Delay (s)	38.9		39.8	0.1				2.0			
Approach LOS	E		E								

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	92	7	4	51	17	8	6	23	16	41	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	100	8	4	55	18	9	7	25	17	45	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	57	58	32	46	40	68
Volume Left (vph)	7	0	4	0	9	17
Volume Right (vph)	0	8	0	18	25	7
Hadj (s)	0.09	-0.06	0.10	-0.25	-0.30	0.03
Departure Headway (s)	4.9	4.8	4.9	4.6	4.1	4.4
Degree Utilization, x	0.08	0.08	0.04	0.06	0.05	0.08
Capacity (veh/h)	715	732	699	755	826	781
Control Delay (s)	7.1	6.9	7.0	6.7	7.3	7.8
Approach Delay (s)	7.0		6.8		7.3	7.8
Approach LOS	A		A		A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00			0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.99			0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1802			1753		1770	3539	1536	1770	3539	1536
Flt Permitted		0.88			0.89		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1614			1587		1770	3539	1536	1770	3539	1536
Volume (vph)	39	70	13	51	82	55	15	494	64	63	443	50
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	76	14	55	89	60	16	537	70	68	482	54
RTOR Reduction (vph)	0	7	0	0	24	0	0	0	37	0	0	26
Lane Group Flow (vph)	0	125	0	0	180	0	16	537	33	68	482	28
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		12.5			12.5		1.1	25.1	25.1	2.9	26.9	26.9
Effective Green, g (s)		13.0			13.0		1.1	25.6	25.6	2.9	27.4	27.4
Actuated g/C Ratio		0.24			0.24		0.02	0.48	0.48	0.05	0.51	0.51
Clearance Time (s)		4.5			4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		392			386		36	1693	735	96	1812	787
v/s Ratio Prot							0.01	c0.15		c0.04	0.14	
v/s Ratio Perm		0.08			c0.11				0.02			0.02
v/c Ratio		0.32			0.47		0.44	0.32	0.05	0.71	0.27	0.04
Uniform Delay, d1		16.6			17.3		25.9	8.6	7.4	24.9	7.4	6.5
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			0.9		8.5	0.1	0.0	21.2	0.1	0.0
Delay (s)		17.1			18.2		34.4	8.7	7.5	46.1	7.4	6.5
Level of Service		B			B		C	A	A	D	A	A
Approach Delay (s)		17.1			18.2			9.2			11.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	13	164	35	51	169	12	42	37	48	15	24	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	178	38	55	184	13	46	40	52	16	26	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	230	252	138	42	3
Volume Left (vph)	14	55	46	16	0
Volume Right (vph)	38	13	52	0	3
Hadj (s)	-0.05	0.05	-0.13	0.23	-0.67
Departure Headway (s)	4.7	4.7	5.1	6.1	5.2
Degree Utilization, x	0.30	0.33	0.20	0.07	0.00
Capacity (veh/h)	728	724	644	533	618
Control Delay (s)	9.6	10.1	9.4	8.3	7.0
Approach Delay (s)	9.6	10.1	9.4	8.2	
Approach LOS	A	B	A	A	

Intersection Summary			
Delay	9.6		
HCM Level of Service	A		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	328	30	85	355	0	0	0	0	149	0	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	357	33	92	386	0	0	0	0	162	0	48
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			0.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					1181							
pX, platoon unblocked												
vC, conflicting volume	396			399			818	963	215	769	980	213
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	396			399			818	963	215	769	980	213
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			100	100	100	39	100	94
cM capacity (veh/h)	1150			1156			232	232	784	267	227	779

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	238	151	221	257	162	48
Volume Left	0	0	92	0	162	0
Volume Right	0	33	0	0	0	48
cSH	1700	1700	1156	1700	267	779
Volume to Capacity	0.14	0.09	0.08	0.15	0.61	0.06
Queue Length 95th (ft)	0	0	7	0	91	5
Control Delay (s)	0.0	0.0	3.9	0.0	37.4	9.9
Lane LOS			A		E	A
Approach Delay (s)	0.0		1.8		31.1	
Approach LOS					D	

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	29	453	0	0	403	146	23	0	114	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	492	0	0	438	159	25	0	124	0	0	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					807							
pX, platoon unblocked												
vC, conflicting volume	607			502			794	1172	266	971	1093	318
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	607			502			794	1172	266	971	1093	318
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			91	100	83	100	100	100
cM capacity (veh/h)	967			1049			265	183	720	165	204	672

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	196	328	292	305	25	124
Volume Left	32	0	0	0	25	0
Volume Right	0	0	0	159	0	124
cSH	967	1700	1700	1700	265	720
Volume to Capacity	0.03	0.19	0.17	0.18	0.09	0.17
Queue Length 95th (ft)	3	0	0	0	8	15
Control Delay (s)	1.7	0.0	0.0	0.0	20.0	11.0
Lane LOS	A				C	B
Approach Delay (s)	0.6		0.0		12.5	
Approach LOS					B	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3463		1770	3474		1770	3384	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3469		1770	3463		1770	3474		1770	3384	
Volume (vph)	66	440	59	71	366	54	127	216	27	58	184	65
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	478	64	77	398	59	138	235	29	63	200	71
RTOR Reduction (vph)	0	12	0	0	14	0	0	11	0	0	44	0
Lane Group Flow (vph)	72	530	0	77	443	0	138	253	0	63	227	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.8	14.8		3.8	14.8		6.9	15.9		3.7	12.7	
Effective Green, g (s)	3.8	15.3		3.8	15.3		6.9	16.4		3.7	13.2	
Actuated g/C Ratio	0.07	0.28		0.07	0.28		0.12	0.30		0.07	0.24	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	122	962		122	960		221	1032		119	809	
v/s Ratio Prot	0.04	c0.15		c0.04	0.13		c0.08	c0.07		0.04	0.07	
v/s Ratio Perm												
v/c Ratio	0.59	0.55		0.63	0.46		0.62	0.24		0.53	0.28	
Uniform Delay, d1	24.9	17.0		25.0	16.5		22.9	14.7		24.9	17.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.4	0.7		10.2	0.4		5.4	0.1		4.2	0.2	
Delay (s)	32.4	17.7		35.2	16.9		28.3	14.8		29.1	17.3	
Level of Service	C	B		D	B		C	B		C	B	
Approach Delay (s)		19.4			19.5			19.5			19.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	40	23	5	1	43	7	9	8	0	8	7	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	25	5	1	47	8	10	9	0	9	8	54

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	74	55	18	71
Volume Left (vph)	43	1	10	9
Volume Right (vph)	5	8	0	54
Hadj (s)	0.11	-0.04	0.14	-0.40
Departure Headway (s)	4.2	4.1	4.4	3.8
Degree Utilization, x	0.09	0.06	0.02	0.07
Capacity (veh/h)	824	850	784	913
Control Delay (s)	7.7	7.4	7.5	7.1
Approach Delay (s)	7.7	7.4	7.5	7.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.4		
HCM Level of Service	A		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1857		1770	1801		1770	1830		1770	1837	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1857		1770	1801		1770	1830		1770	1837	
Volume (vph)	24	57	1	44	61	15	5	471	51	35	435	35
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	62	1	48	66	16	5	512	55	38	473	38
RTOR Reduction (vph)	0	1	0	0	13	0	0	2	0	0	2	0
Lane Group Flow (vph)	26	62	0	48	69	0	5	565	0	38	509	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.7	6.0		2.8	6.1		1.0	48.9		2.8	50.7	
Effective Green, g (s)	2.7	6.5		2.8	6.6		1.0	49.4		2.8	51.2	
Actuated g/C Ratio	0.03	0.08		0.04	0.09		0.01	0.64		0.04	0.66	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	62	156		64	153		23	1166		64	1214	
v/s Ratio Prot	0.01	0.03		c0.03	c0.04		0.00	c0.31		c0.02	0.28	
v/s Ratio Perm												
v/c Ratio	0.42	0.40		0.75	0.45		0.22	0.48		0.59	0.42	
Uniform Delay, d1	36.6	33.6		37.0	33.7		37.9	7.4		36.8	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.5	1.7		38.4	2.1		4.7	0.3		13.9	0.2	
Delay (s)	41.2	35.3		75.4	35.8		42.6	7.7		50.7	6.4	
Level of Service	D	D		E	D		D	A		D	A	
Approach Delay (s)		37.0			50.4			8.0			9.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	13	151	3	3	120	11	1	18	1	3	15	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	164	3	3	130	12	1	20	1	3	16	3
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	152			177			368	363	186	368	359	156
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152			177			368	363	186	368	359	156
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	96	100	99	97	100
cM capacity (veh/h)	1416			1387			551	548	842	550	552	874

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	182	146	22	23
Volume Left	14	3	1	3
Volume Right	3	12	1	3
cSH	1416	1387	558	582
Volume to Capacity	0.01	0.00	0.04	0.04
Queue Length 95th (ft)	1	0	3	3
Control Delay (s)	0.7	0.2	11.7	11.4
Lane LOS	A	A	B	B
Approach Delay (s)	0.7	0.2	11.7	11.4
Approach LOS			B	B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	109	9	17	107	11	13	94	112	11	50	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	118	10	18	116	12	14	102	122	12	54	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	152	147	238	88
Volume Left (vph)	24	18	14	12
Volume Right (vph)	10	12	122	22
Hadj (s)	0.03	0.01	-0.26	-0.09
Departure Headway (s)	4.9	4.9	4.5	4.9
Degree Utilization, x	0.21	0.20	0.30	0.12
Capacity (veh/h)	677	679	751	674
Control Delay (s)	9.2	9.1	9.4	8.5
Approach Delay (s)	9.2	9.1	9.4	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.2		
HCM Level of Service	A		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	294	4	7	185	0	8	0	53	268	11	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	320	4	8	201	0	9	0	58	291	12	80
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	211			334			644	558	342	616	560	221
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	211			334			644	558	342	616	560	221
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			97	100	92	18	97	90
cM capacity (veh/h)	1348			1215			328	428	689	357	427	805

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	324	209	66	303	80
Volume Left	0	8	9	291	0
Volume Right	4	0	58	0	80
cSH	1348	1215	602	359	805
Volume to Capacity	0.00	0.01	0.11	0.84	0.10
Queue Length 95th (ft)	0	0	9	193	8
Control Delay (s)	0.0	0.3	11.7	50.9	10.0
Lane LOS		A	B	F	A
Approach Delay (s)	0.0	0.3	11.7	42.4	
Approach LOS			B	E	

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	550	63	40	192	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	598	68	43	209	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			676		948	652
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			676		948	652
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	100
cM capacity (veh/h)			915		273	464

Direction, Lane #	EB 1	WB 1
Volume Total	666	252
Volume Left	0	43
Volume Right	68	0
cSH	1700	915
Volume to Capacity	0.39	0.05
Queue Length 95th (ft)	0	4
Control Delay (s)	0.0	2.0
Lane LOS		A
Approach Delay (s)	0.0	2.0
Approach LOS		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	59	491	251	318	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	534	273	346	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1274			
pX, platoon unblocked	0.78				0.78	0.78
vC, conflicting volume	628				1128	466
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522				1164	312
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	100
cM capacity (veh/h)	811				152	561

Direction, Lane #	EB 1	WB 1
Volume Total	598	618
Volume Left	64	0
Volume Right	0	346
cSH	811	1700
Volume to Capacity	0.08	0.36
Queue Length 95th (ft)	6	0
Control Delay (s)	2.1	0.0
Lane LOS	A	
Approach Delay (s)	2.1	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	491	0	0	534	35	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	534	0	0	580	38	41
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				1004		
pX, platoon unblocked					0.77	
vC, conflicting volume			544		1134	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			544		1174	554
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		76	92
cM capacity (veh/h)			1017		160	523

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	534	580	79
Volume Left	0	0	38
Volume Right	0	0	41
cSH	1700	1700	251
Volume to Capacity	0.31	0.34	0.32
Queue Length 95th (ft)	0	0	33
Control Delay (s)	0.0	0.0	25.8
Lane LOS			D
Approach Delay (s)	0.0	0.0	25.8
Approach LOS			D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1766	3475		1766	3462		1760	3539	1557	1770	3539	1539
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1766	3475		1766	3462		1760	3539	1557	1770	3539	1539
Volume (vph)	23	432	52	10	467	71	29	160	10	65	255	29
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	470	57	11	508	77	32	174	11	71	277	32
RTOR Reduction (vph)	0	10	0	0	13	0	0	0	8	0	0	22
Lane Group Flow (vph)	25	517	0	11	572	0	32	174	3	71	277	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.7	13.4		0.7	13.4		0.7	11.5	11.5	2.3	13.1	13.1
Effective Green, g (s)	0.7	13.9		0.7	13.9		0.7	12.0	12.0	2.3	13.6	13.6
Actuated g/C Ratio	0.02	0.31		0.02	0.31		0.02	0.27	0.27	0.05	0.30	0.30
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	1076		28	1072		27	946	416	91	1072	466
v/s Ratio Prot	c0.01	0.15		0.01	c0.17		0.02	0.05		c0.04	c0.08	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.89	0.48		0.39	0.53		1.19	0.18	0.01	0.78	0.26	0.02
Uniform Delay, d1	22.1	12.6		21.9	12.8		22.1	12.7	12.1	21.1	11.8	11.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	123.8	0.3		8.9	0.5		234.8	0.1	0.0	34.1	0.1	0.0
Delay (s)	145.8	12.9		30.8	13.3		256.9	12.8	12.1	55.1	12.0	11.0
Level of Service	F	B		C	B		F	B	B	E	B	B
Approach Delay (s)		18.9			13.7			48.7			19.9	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Year 2035 Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1553	3433	3539	1532	3433	1863	1553	1770	1797	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1553	3433	3539	1532	3433	1863	1553	1770	1797	
Volume (vph)	34	592	110	283	1217	39	26	45	83	73	133	35
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	643	120	308	1323	42	28	49	90	79	145	38
RTOR Reduction (vph)	0	0	75	0	0	21	0	0	73	0	12	0
Lane Group Flow (vph)	37	643	45	308	1323	21	28	49	17	79	171	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.4	24.7	24.7	9.6	31.9	31.9	2.1	12.0	12.0	4.2	14.1	
Effective Green, g (s)	2.4	25.2	25.2	9.6	32.4	32.4	2.1	12.5	12.5	4.2	14.6	
Actuated g/C Ratio	0.04	0.37	0.37	0.14	0.48	0.48	0.03	0.19	0.19	0.06	0.22	
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	63	1321	580	488	1699	735	107	345	288	110	389	
v/s Ratio Prot	0.02	0.18		c0.09	c0.37		0.01	0.03		c0.04	c0.10	
v/s Ratio Perm			0.03			0.01			0.01			
v/c Ratio	0.59	0.49	0.08	0.63	0.78	0.03	0.26	0.14	0.06	0.72	0.44	
Uniform Delay, d1	32.1	16.2	13.6	27.3	14.6	9.3	31.9	23.0	22.7	31.1	22.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.2	0.3	0.1	2.7	2.3	0.0	1.3	0.2	0.1	20.0	0.8	
Delay (s)	45.3	16.5	13.7	29.9	16.9	9.3	33.2	23.2	22.7	51.0	23.7	
Level of Service	D	B	B	C	B	A	C	C	C	D	C	
Approach Delay (s)		17.4			19.1			24.6			31.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Volume (vph)	28	521	80	151	1155	36	160	131	195	66	293	69
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	566	87	164	1255	39	174	142	212	72	318	75
RTOR Reduction (vph)	0	0	52	0	0	21	0	0	163	0	0	60
Lane Group Flow (vph)	30	566	35	164	1255	18	174	142	49	72	318	15
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.2	27.3	27.3	5.9	31.0	31.0	6.0	15.6	15.6	4.0	13.6	13.6
Effective Green, g (s)	2.2	27.8	27.8	5.9	31.5	31.5	6.0	16.1	16.1	4.0	14.1	14.1
Actuated g/C Ratio	0.03	0.40	0.40	0.08	0.45	0.45	0.09	0.23	0.23	0.06	0.20	0.20
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	108	1410	618	290	1597	700	295	816	358	197	715	314
v/s Ratio Prot	0.01	0.16		c0.05	c0.35		c0.05	0.04		0.02	c0.09	
v/s Ratio Perm			0.02			0.01			0.03			0.01
v/c Ratio	0.28	0.40	0.06	0.57	0.79	0.03	0.59	0.17	0.14	0.37	0.44	0.05
Uniform Delay, d1	33.0	15.0	12.9	30.7	16.3	10.6	30.7	21.5	21.3	31.7	24.4	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.2	0.0	2.5	2.6	0.0	3.0	0.1	0.2	1.2	0.4	0.1
Delay (s)	34.4	15.2	13.0	33.2	18.9	10.6	33.7	21.6	21.5	32.8	24.9	22.5
Level of Service	C	B	B	C	B	B	C	C	C	C	C	C
Approach Delay (s)		15.8			20.3			25.6			25.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1556	1770	3539	1770	1556
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1556	1770	3539	1770	1556
Volume (vph)	10	591	77	62	1207	100	43
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	642	84	67	1312	109	47
RTOR Reduction (vph)	0	0	44	0	0	0	37
Lane Group Flow (vph)	11	642	40	67	1312	109	10
Confl. Peds. (#/hr)	10		10	10		10	10
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	7	4		3	8	2	
Permitted Phases			4				2
Actuated Green, G (s)	0.8	22.3	22.3	2.3	23.8	10.2	10.2
Effective Green, g (s)	1.3	22.8	22.8	2.8	24.3	10.7	10.7
Actuated g/C Ratio	0.03	0.47	0.47	0.06	0.50	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	1671	735	103	1780	392	345
v/s Ratio Prot	0.01	0.18		c0.04	c0.37	c0.06	
v/s Ratio Perm			0.03				0.01
v/c Ratio	0.23	0.38	0.05	0.65	0.74	0.28	0.03
Uniform Delay, d1	23.0	8.2	6.9	22.3	9.5	15.6	14.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.1	0.0	13.8	1.6	0.4	0.0
Delay (s)	25.4	8.4	6.9	36.0	11.1	16.0	14.8
Level of Service	C	A	A	D	B	B	B
Approach Delay (s)		8.5			12.3	15.6	
Approach LOS		A			B	B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1553	1770	3539	1553	1770	3539	1553	1770	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1553	1770	3539	1553	1770	3539	1553	1770	3539	1553
Volume (vph)	54	143	22	97	174	92	15	69	44	63	186	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	155	24	105	189	100	16	75	48	68	202	30
RTOR Reduction (vph)	0	0	19	0	0	76	0	0	29	0	0	17
Lane Group Flow (vph)	59	155	5	105	189	24	16	75	19	68	202	13
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.1	12.4	12.4	5.8	15.1	15.1	1.1	24.5	24.5	5.0	28.4	28.4
Effective Green, g (s)	3.1	12.9	12.9	5.8	15.6	15.6	1.1	25.0	25.0	5.0	28.9	28.9
Actuated g/C Ratio	0.05	0.20	0.20	0.09	0.24	0.24	0.02	0.39	0.39	0.08	0.45	0.45
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	85	706	310	159	853	374	30	1367	600	137	1581	694
v/s Ratio Prot	0.03	0.04		c0.06	c0.05		0.01	0.02		c0.04	c0.06	
v/s Ratio Perm			0.00			0.02			0.01			0.01
v/c Ratio	0.69	0.22	0.02	0.66	0.22	0.06	0.53	0.05	0.03	0.50	0.13	0.02
Uniform Delay, d1	30.3	21.7	20.8	28.5	19.7	18.9	31.5	12.4	12.3	28.6	10.5	10.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.7	0.2	0.0	9.8	0.1	0.1	17.0	0.0	0.0	2.8	0.0	0.0
Delay (s)	52.1	21.8	20.8	38.3	19.8	19.0	48.5	12.5	12.3	31.5	10.5	10.0
Level of Service	D	C	C	D	B	B	D	B	B	C	B	B
Approach Delay (s)		29.2			24.5			16.6			15.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	3539	1770	1583
Volume (vph)	252	51	499	684	59	169
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	55	542	743	64	184
RTOR Reduction (vph)	0	44	0	0	0	143
Lane Group Flow (vph)	274	11	542	743	64	41
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	8.7	8.7	13.9	26.6	9.7	9.7
Effective Green, g (s)	9.2	9.2	13.9	27.1	10.2	10.2
Actuated g/C Ratio	0.20	0.20	0.31	0.60	0.23	0.23
Clearance Time (s)	4.5	4.5	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	719	321	1053	2117	399	356
v/s Ratio Prot	0.08		c0.16	c0.21	c0.04	
v/s Ratio Perm		0.01				0.03
v/c Ratio	0.38	0.03	0.51	0.35	0.16	0.12
Uniform Delay, d1	15.6	14.5	12.9	4.6	14.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.4	0.1	0.2	0.1
Delay (s)	15.9	14.5	13.4	4.7	14.3	14.1
Level of Service	B	B	B	A	B	B
Approach Delay (s)	15.7			8.4	14.2	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	45.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1555	3433	3539	1555	3433	5085	1555	3433	5085	1555
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1555	3433	3539	1555	3433	5085	1555	3433	5085	1555
Volume (vph)	48	176	55	51	423	391	243	294	44	135	561	90
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	191	60	55	460	425	264	320	48	147	610	98
RTOR Reduction (vph)	0	0	44	0	0	308	0	0	34	0	0	72
Lane Group Flow (vph)	52	191	16	55	460	117	264	320	14	147	610	26
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.3	15.1	15.1	3.3	15.1	15.1	7.1	15.8	15.8	5.6	14.3	14.3
Effective Green, g (s)	3.3	15.6	15.6	3.3	15.6	15.6	7.1	16.3	16.3	5.6	14.8	14.8
Actuated g/C Ratio	0.06	0.27	0.27	0.06	0.27	0.27	0.12	0.29	0.29	0.10	0.26	0.26
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	972	427	199	972	427	429	1459	446	338	1325	405
v/s Ratio Prot	0.02	0.05		c0.02	c0.13		c0.08	0.06		0.04	c0.12	
v/s Ratio Perm			0.01			0.08			0.01			0.02
v/c Ratio	0.26	0.20	0.04	0.28	0.47	0.27	0.62	0.22	0.03	0.43	0.46	0.06
Uniform Delay, d1	25.6	15.8	15.1	25.6	17.2	16.2	23.6	15.4	14.6	24.1	17.6	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.0	0.8	0.4	0.3	2.6	0.1	0.0	0.9	0.3	0.1
Delay (s)	26.3	15.9	15.1	26.4	17.5	16.5	26.2	15.5	14.6	25.0	17.9	15.9
Level of Service	C	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		17.5			17.6			19.9			18.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1556	1770	3539	1770	1556
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1556	1770	3539	1770	1556
Volume (vph)	271	37	245	658	70	157
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	295	40	266	715	76	171
RTOR Reduction (vph)	0	30	0	0	0	134
Lane Group Flow (vph)	295	10	266	715	76	37
Confl. Peds. (#/hr)		10	10		10	10
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	11.3	11.3	13.0	28.3	9.7	9.7
Effective Green, g (s)	11.8	11.8	13.0	28.8	10.2	10.2
Actuated g/C Ratio	0.25	0.25	0.28	0.61	0.22	0.22
Clearance Time (s)	4.5	4.5	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	889	391	490	2169	384	338
v/s Ratio Prot	0.08		c0.15	c0.20	c0.04	
v/s Ratio Perm		0.01				0.02
v/c Ratio	0.33	0.03	0.54	0.33	0.20	0.11
Uniform Delay, d1	14.4	13.3	14.5	4.4	15.1	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	1.2	0.1	0.3	0.1
Delay (s)	14.6	13.3	15.7	4.5	15.3	14.9
Level of Service	B	B	B	A	B	B
Approach Delay (s)	14.4			7.5	15.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Volume (vph)	111	249	104	100	696	88	112	264	58	104	449	99
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	271	113	109	757	96	122	287	63	113	488	108
RTOR Reduction (vph)	0	0	77	0	0	65	0	0	47	0	0	80
Lane Group Flow (vph)	121	271	36	109	757	31	122	287	16	113	488	28
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.3	19.4	19.4	5.3	19.4	19.4	5.3	15.6	15.6	5.3	15.6	15.6
Effective Green, g (s)	5.3	19.9	19.9	5.3	19.9	19.9	5.3	16.1	16.1	5.3	16.1	16.1
Actuated g/C Ratio	0.08	0.32	0.32	0.08	0.32	0.32	0.08	0.26	0.26	0.08	0.26	0.26
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	1125	494	291	1125	494	291	910	400	291	910	400
v/s Ratio Prot	c0.04	0.08		0.03	c0.21		c0.04	0.08		0.03	c0.14	
v/s Ratio Perm			0.02			0.02			0.01			0.02
v/c Ratio	0.42	0.24	0.07	0.37	0.67	0.06	0.42	0.32	0.04	0.39	0.54	0.07
Uniform Delay, d1	27.2	15.8	14.9	27.1	18.5	14.9	27.2	18.8	17.5	27.1	20.0	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.1	0.8	1.6	0.1	1.0	0.2	0.0	0.9	0.6	0.1
Delay (s)	28.1	15.9	15.0	27.9	20.1	14.9	28.2	19.0	17.5	28.0	20.6	17.7
Level of Service	C	B	B	C	C	B	C	B	B	C	C	B
Approach Delay (s)		18.6			20.5			21.2			21.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1533	1770	3539	1533	1770	1863	1553	1770	1863	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1533	1770	3539	1533	1770	1863	1553	1770	1863	1553
Volume (vph)	51	302	66	44	609	19	177	32	26	19	105	102
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	328	72	48	662	21	192	35	28	21	114	111
RTOR Reduction (vph)	0	0	53	0	0	15	0	0	17	0	0	84
Lane Group Flow (vph)	55	328	19	48	662	6	192	35	11	21	114	27
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.9	16.6	16.6	3.8	16.5	16.5	11.2	25.0	25.0	1.1	14.9	14.9
Effective Green, g (s)	3.9	17.1	17.1	3.8	17.0	17.0	11.2	25.5	25.5	1.1	15.4	15.4
Actuated g/C Ratio	0.06	0.27	0.27	0.06	0.27	0.27	0.18	0.40	0.40	0.02	0.24	0.24
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	109	953	413	106	947	410	312	748	624	31	452	377
v/s Ratio Prot	c0.03	0.09		0.03	c0.19		c0.11	0.02		0.01	c0.06	
v/s Ratio Perm			0.01			0.00			0.01			0.02
v/c Ratio	0.50	0.34	0.05	0.45	0.70	0.01	0.62	0.05	0.02	0.68	0.25	0.07
Uniform Delay, d1	28.9	18.7	17.2	28.8	20.9	17.1	24.2	11.6	11.5	31.0	19.4	18.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.2	0.0	3.1	2.3	0.0	3.6	0.0	0.0	45.6	0.3	0.1
Delay (s)	32.5	18.9	17.2	31.9	23.2	17.1	27.7	11.6	11.5	76.7	19.7	18.6
Level of Service	C	B	B	C	C	B	C	B	B	E	B	B
Approach Delay (s)		20.3			23.6			23.7			24.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Volume (vph)	16	313	69	14	569	5	56	2	29	10	48	48
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	340	75	15	618	5	61	2	32	11	52	52
RTOR Reduction (vph)	0	0	51	0	0	3	0	0	23	0	0	39
Lane Group Flow (vph)	17	340	24	15	618	2	61	2	9	11	52	13
Confl. Peds. (#/hr)												
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	0.7	13.6	13.6	0.7	13.6	13.6	2.2	12.0	12.0	0.7	10.5	10.5
Effective Green, g (s)	0.7	14.1	14.1	0.7	14.1	14.1	2.2	12.5	12.5	0.7	11.0	11.0
Actuated g/C Ratio	0.02	0.32	0.32	0.02	0.32	0.32	0.05	0.28	0.28	0.02	0.25	0.25
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	1134	507	28	1134	507	89	529	450	28	466	396
v/s Ratio Prot	c0.01	0.10		0.01	c0.17		c0.03	0.00		0.01	c0.03	
v/s Ratio Perm			0.02			0.00			0.01			0.01
v/c Ratio	0.61	0.30	0.05	0.54	0.54	0.00	0.69	0.00	0.02	0.39	0.11	0.03
Uniform Delay, d1	21.5	11.2	10.3	21.5	12.3	10.2	20.6	11.3	11.3	21.4	12.7	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.0	0.1	0.0	18.3	0.5	0.0	19.7	0.0	0.0	8.9	0.1	0.0
Delay (s)	53.5	11.4	10.4	39.8	12.8	10.2	40.2	11.3	11.4	30.3	12.8	12.5
Level of Service	D	B	B	D	B	B	D	B	B	C	B	B
Approach Delay (s)		12.9			13.5			29.9			14.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	44.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1555	1770	3539	1583	1770	3539	1555	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1555	1770	3539	1583	1770	3539	1555	1770	3539	1583
Volume (vph)	15	241	64	151	435	15	61	83	102	29	123	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	262	70	164	473	16	66	90	111	32	134	27
RTOR Reduction (vph)	0	0	50	0	0	10	0	0	84	0	0	21
Lane Group Flow (vph)	16	262	20	164	473	6	66	90	27	32	134	6
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	0.9	14.6	14.6	7.7	21.4	21.4	3.8	12.7	12.7	2.2	11.1	11.1
Effective Green, g (s)	0.9	15.1	15.1	7.7	21.9	21.9	3.8	13.2	13.2	2.2	11.6	11.6
Actuated g/C Ratio	0.02	0.28	0.28	0.14	0.40	0.40	0.07	0.24	0.24	0.04	0.21	0.21
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	29	986	433	251	1430	640	124	862	379	72	757	339
v/s Ratio Prot	0.01	0.07		c0.09	c0.13		c0.04	0.03		0.02	c0.04	
v/s Ratio Perm			0.01			0.00			0.02			0.00
v/c Ratio	0.55	0.27	0.05	0.65	0.33	0.01	0.53	0.10	0.07	0.44	0.18	0.02
Uniform Delay, d1	26.4	15.2	14.3	22.0	11.1	9.7	24.3	15.9	15.8	25.4	17.4	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.8	0.1	0.0	6.0	0.1	0.0	4.3	0.1	0.1	4.3	0.1	0.0
Delay (s)	47.2	15.4	14.3	28.0	11.2	9.7	28.7	16.0	15.9	29.7	17.5	16.8
Level of Service	D	B	B	C	B	A	C	B	B	C	B	B
Approach Delay (s)		16.6			15.4			19.1			19.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1556	1763	3539	1556	1770	3539	1556	1770	3539	1556
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1556	1763	3539	1556	1770	3539	1556	1770	3539	1556
Volume (vph)	39	232	16	24	255	85	97	92	62	110	107	139
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	252	17	26	277	92	105	100	67	120	116	151
RTOR Reduction (vph)	0	0	13	0	0	72	0	0	45	0	0	102
Lane Group Flow (vph)	42	252	4	26	277	20	105	100	22	120	116	49
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.0	11.1	11.1	0.8	9.9	9.9	4.6	15.2	15.2	4.7	15.3	15.3
Effective Green, g (s)	2.0	11.6	11.6	0.8	10.4	10.4	4.6	15.7	15.7	4.7	15.8	15.8
Actuated g/C Ratio	0.04	0.24	0.24	0.02	0.21	0.21	0.09	0.32	0.32	0.10	0.32	0.32
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	73	841	370	29	754	332	167	1139	501	170	1146	504
v/s Ratio Prot	c0.02	0.07		0.01	c0.08		0.06	0.03		c0.07	c0.03	
v/s Ratio Perm			0.00			0.01			0.01			0.03
v/c Ratio	0.58	0.30	0.01	0.90	0.37	0.06	0.63	0.09	0.04	0.71	0.10	0.10
Uniform Delay, d1	23.0	15.3	14.2	24.0	16.4	15.3	21.3	11.6	11.4	21.4	11.5	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	0.2	0.0	122.2	0.3	0.1	7.2	0.0	0.0	12.5	0.0	0.1
Delay (s)	33.5	15.5	14.2	146.2	16.7	15.4	28.5	11.6	11.4	33.9	11.6	11.6
Level of Service	C	B	B	F	B	B	C	B	B	C	B	B
Approach Delay (s)		17.8			24.9			18.1			18.5	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	48.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95				1.00	0.97	1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	1.00				0.98	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00				1.00	0.99	1.00	1.00
Frt		1.00	0.85	1.00	1.00				0.86	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (prot)		3539	1532	1770	3539				1580	3407	0	1552
Flt Permitted		1.00	1.00	0.95	1.00				1.00	0.95	1.00	1.00
Satd. Flow (perm)		3539	1532	1770	3539				1580	3407	0	1552
Volume (vph)	0	1245	41	38	1200	0	0	0	46	233	42	320
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1353	45	41	1304	0	0	0	50	253	46	348
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	33	0	0	29
Lane Group Flow (vph)	0	1353	20	41	1304	0	0	0	17	253	46	319
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot					custom	Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		29.7	29.7	4.0	37.7				22.5	22.5	22.5	22.5
Effective Green, g (s)		30.2	30.2	4.0	38.2				23.0	23.0	23.0	23.0
Actuated g/C Ratio		0.44	0.44	0.06	0.55				0.33	0.33	0.33	0.33
Clearance Time (s)		4.5	4.5	4.0	4.5				4.5	4.5	4.5	4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0				3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1544	669	102	1954				525	1132	0	516
v/s Ratio Prot		c0.38		0.02	c0.37							
v/s Ratio Perm			0.01						0.01	0.07		c0.21
v/c Ratio		0.88	0.03	0.40	0.67				0.03	0.22	no cap	0.62
Uniform Delay, d1		17.8	11.1	31.4	11.0				15.6	16.7	Error	19.4
Progression Factor		1.00	1.00	1.00	1.00				1.00	1.00		1.00
Incremental Delay, d2		5.9	0.0	2.6	0.9				0.0	0.1	Error	2.2
Delay (s)		23.7	11.2	34.0	11.9				15.6	16.8	Error	21.6
Level of Service		C	B	C	B				B	B	F	C
Approach Delay (s)		23.3			12.5			15.6			Error	
Approach LOS		C			B			B			F	

Intersection Summary			
HCM Average Control Delay	Error	HCM Level of Service	F
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1550	1770	3539	1550	3433	3539	1550	1770	3539	2728
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1550	1770	3539	1550	3433	3539	1550	1770	3539	2728
Volume (vph)	185	949	294	233	995	172	180	299	182	80	499	426
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	1032	320	253	1082	187	196	325	198	87	542	463
RTOR Reduction (vph)	0	0	177	0	0	123	0	0	145	0	0	337
Lane Group Flow (vph)	201	1032	143	253	1082	64	196	325	53	87	542	126
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.1	26.6	26.6	11.1	27.6	27.6	7.8	21.6	21.6	6.2	20.0	20.0
Effective Green, g (s)	10.1	27.1	27.1	11.1	28.1	28.1	7.8	22.1	22.1	6.2	20.5	20.5
Actuated g/C Ratio	0.12	0.33	0.33	0.13	0.34	0.34	0.09	0.27	0.27	0.08	0.25	0.25
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	217	1163	509	238	1205	528	325	948	415	133	879	678
v/s Ratio Prot	0.11	0.29		c0.14	c0.31		c0.06	0.09		0.05	c0.15	
v/s Ratio Perm			0.09			0.04			0.03			0.05
v/c Ratio	0.93	0.89	0.28	1.06	0.90	0.12	0.60	0.34	0.13	0.65	0.62	0.19
Uniform Delay, d1	35.8	26.3	20.5	35.7	25.8	18.7	35.9	24.3	22.9	37.1	27.5	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.8	8.4	0.3	76.0	9.0	0.1	3.1	0.2	0.1	11.0	1.3	0.1
Delay (s)	76.6	34.7	20.8	111.7	34.9	18.8	39.0	24.6	23.0	48.1	28.8	24.6
Level of Service	E	C	C	F	C	B	D	C	C	D	C	C
Approach Delay (s)		37.3			45.7			28.1			28.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	0.95			0.95	1.00	
Frpb, ped/bikes	1.00			1.00	0.99	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	3539			3539	1715	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	3539			3539	1715	
Volume (vph)	889	0	0	1199	296	135
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	966	0	0	1303	322	147
RTOR Reduction (vph)	0	0	0	0	28	0
Lane Group Flow (vph)	966	0	0	1303	441	0
Confl. Peds. (#/hr)		10	10		10	10
Turn Type						
Protected Phases	4			8	2	
Permitted Phases						
Actuated Green, G (s)	24.0			24.0	17.6	
Effective Green, g (s)	24.5			24.5	18.1	
Actuated g/C Ratio	0.48			0.48	0.36	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1714			1714	613	
v/s Ratio Prot	0.27			c0.37	c0.26	
v/s Ratio Perm						
v/c Ratio	0.56			0.76	0.72	
Uniform Delay, d1	9.3			10.7	14.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.4			2.0	4.0	
Delay (s)	9.7			12.7	18.1	
Level of Service	A			B	B	
Approach Delay (s)	9.7			12.7	18.1	
Approach LOS	A			B	B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3470		3433	3539	1552	1770	3539	1552
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3375		1770	3470		3433	3539	1552	1770	3539	1552
Volume (vph)	54	635	240	89	740	97	359	253	16	107	318	43
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	690	261	97	804	105	390	275	17	116	346	47
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	12	0	0	37
Lane Group Flow (vph)	59	909	0	97	899	0	390	275	5	116	346	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	4.2	24.2		5.8	25.8		11.1	19.6	19.6	6.5	15.0	15.0
Effective Green, g (s)	4.2	24.7		5.8	26.3		11.1	20.1	20.1	6.5	15.5	15.5
Actuated g/C Ratio	0.06	0.34		0.08	0.36		0.15	0.27	0.27	0.09	0.21	0.21
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	102	1140		140	1248		521	973	427	157	750	329
v/s Ratio Prot	0.03	c0.27		c0.05	0.26		c0.11	0.08		0.07	c0.10	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.58	0.80		0.69	0.72		0.75	0.28	0.01	0.74	0.46	0.03
Uniform Delay, d1	33.6	21.9		32.8	20.2		29.7	20.8	19.3	32.5	25.2	22.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	4.0		13.8	2.1		5.8	0.2	0.0	16.5	0.5	0.0
Delay (s)	41.3	25.9		46.6	22.3		35.5	21.0	19.3	49.0	25.6	22.9
Level of Service	D	C		D	C		D	C	B	D	C	C
Approach Delay (s)		26.8			24.6			29.2			30.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1811		1770	1863	1549	1770	1827		1770	1863	1549
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1811		1770	1863	1549	1770	1827		1770	1863	1549
Volume (vph)	143	479	93	82	516	102	122	317	37	101	450	262
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	155	521	101	89	561	111	133	345	40	110	489	285
RTOR Reduction (vph)	0	8	0	0	0	74	0	5	0	0	0	197
Lane Group Flow (vph)	155	614	0	89	561	37	133	380	0	110	489	88
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	8.1	30.5		6.1	28.5	28.5	8.1	28.0		6.1	26.0	26.0
Effective Green, g (s)	8.1	31.0		6.1	29.0	29.0	8.1	28.5		6.1	26.5	26.5
Actuated g/C Ratio	0.09	0.35		0.07	0.33	0.33	0.09	0.32		0.07	0.30	0.30
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	163	640		123	616	512	163	594		123	563	468
v/s Ratio Prot	c0.09	c0.34		0.05	0.30		c0.08	0.21		0.06	c0.26	
v/s Ratio Perm						0.02						0.06
v/c Ratio	0.95	0.96		0.72	0.91	0.07	0.82	0.64		0.89	0.87	0.19
Uniform Delay, d1	39.6	27.7		40.0	28.1	20.1	39.1	25.2		40.5	29.0	22.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	55.8	25.6		18.9	17.7	0.1	25.9	2.4		49.8	13.4	0.2
Delay (s)	95.4	53.3		58.9	45.8	20.2	65.0	27.6		90.3	42.3	22.8
Level of Service	F	D		E	D	C	E	C		F	D	C
Approach Delay (s)		61.7			43.6			37.2			42.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	46.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.96			0.96	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1819			1849			1738			1751	
Flt Permitted		0.91			0.98			0.83			0.89	
Satd. Flow (perm)		1666			1807			1468			1578	
Volume (vph)	43	375	56	23	585	22	61	33	39	40	64	47
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	408	61	25	636	24	66	36	42	43	70	51
RTOR Reduction (vph)	0	6	0	0	2	0	0	29	0	0	32	0
Lane Group Flow (vph)	0	510	0	0	683	0	0	115	0	0	132	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.5			20.5			10.5			10.5	
Effective Green, g (s)		21.0			21.0			11.0			11.0	
Actuated g/C Ratio		0.52			0.52			0.28			0.28	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		875			949			404			434	
v/s Ratio Prot												
v/s Ratio Perm		0.31			c0.38			0.08			c0.08	
v/c Ratio		0.58			0.72			0.28			0.30	
Uniform Delay, d1		6.5			7.3			11.4			11.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.6			0.4			0.4	
Delay (s)		7.5			9.9			11.8			11.9	
Level of Service		A			A			B			B	
Approach Delay (s)		7.5			9.9			11.8			11.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1555	1770	3539	1583	1770	3539	1536
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1555	1770	3539	1583	1770	3539	1536
Volume (vph)	37	256	59	34	390	78	136	199	10	79	227	98
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	278	64	37	424	85	148	216	11	86	247	107
RTOR Reduction (vph)	0	0	48	0	0	65	0	0	7	0	0	80
Lane Group Flow (vph)	40	278	16	37	424	20	148	216	4	86	247	27
Confl. Peds. (#/hr)	10					10				10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.5	12.8	12.8	2.2	12.5	12.5	9.1	17.9	17.9	4.3	13.1	13.1
Effective Green, g (s)	2.5	13.3	13.3	2.2	13.0	13.0	9.1	18.4	18.4	4.3	13.6	13.6
Actuated g/C Ratio	0.05	0.25	0.25	0.04	0.24	0.24	0.17	0.34	0.34	0.08	0.25	0.25
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	82	868	388	72	849	373	297	1201	537	140	888	385
v/s Ratio Prot	c0.02	0.08		0.02	c0.12		c0.08	0.06		0.05	c0.07	
v/s Ratio Perm			0.01			0.01			0.00			0.02
v/c Ratio	0.49	0.32	0.04	0.51	0.50	0.05	0.50	0.18	0.01	0.61	0.28	0.07
Uniform Delay, d1	25.2	16.7	15.6	25.5	17.8	15.9	20.5	12.6	11.9	24.1	16.3	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.2	0.0	6.1	0.5	0.1	1.3	0.1	0.0	7.8	0.2	0.1
Delay (s)	29.7	17.0	15.6	31.5	18.3	15.9	21.8	12.7	11.9	31.9	16.5	15.6
Level of Service	C	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		18.1			18.8			16.2			19.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor			0.88					0.95	1.00	1.00	0.95	
Frpb, ped/bikes			0.98					1.00	0.97	1.00	1.00	
Flpb, ped/bikes			1.00					1.00	1.00	1.00	1.00	
Frt			0.85					1.00	0.85	1.00	1.00	
Flt Protected			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)			2733					3539	1532	1770	3539	
Flt Permitted			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)			2733					3539	1532	1770	3539	
Volume (vph)	0	0	444	0	0	0	0	888	45	396	485	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	483	0	0	0	0	965	49	430	527	0
RTOR Reduction (vph)	0	0	416	0	0	0	0	0	31	0	0	0
Lane Group Flow (vph)	0	0	67	0	0	0	0	965	18	430	527	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)			8.9					23.8	23.8	21.7	50.0	
Effective Green, g (s)			9.4					24.3	24.3	22.2	50.5	
Actuated g/C Ratio			0.14					0.36	0.36	0.33	0.74	
Clearance Time (s)			4.5					4.5	4.5	4.5	4.5	
Vehicle Extension (s)			3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)			378					1267	548	579	2632	
v/s Ratio Prot								c0.27		c0.24	0.15	
v/s Ratio Perm			c0.02						0.01			
v/c Ratio			0.18					0.76	0.03	0.74	0.20	
Uniform Delay, d1			25.8					19.2	14.2	20.3	2.6	
Progression Factor			1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2			0.2					2.8	0.0	5.1	0.0	
Delay (s)			26.1					22.0	14.2	25.4	2.7	
Level of Service			C					C	B	C	A	
Approach Delay (s)		26.1			0.0			21.6			12.9	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1551	1770	1863	1551	1770	5085	1529	1770	5085	1529
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1551	1770	1863	1551	1770	5085	1529	1770	5085	1529
Volume (vph)	95	58	42	36	67	141	70	773	42	124	517	176
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	63	46	39	73	153	76	840	46	135	562	191
RTOR Reduction (vph)	0	0	36	0	0	127	0	0	27	0	0	102
Lane Group Flow (vph)	103	63	10	39	73	26	76	840	19	135	562	89
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.6	17.2	17.2	3.3	12.9	12.9	5.8	33.1	33.1	9.2	36.5	36.5
Effective Green, g (s)	7.6	17.7	17.7	3.3	13.4	13.4	5.8	33.6	33.6	9.2	37.0	37.0
Actuated g/C Ratio	0.10	0.22	0.22	0.04	0.17	0.17	0.07	0.42	0.42	0.12	0.46	0.46
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	413	344	73	313	260	129	2141	644	204	2358	709
v/s Ratio Prot	c0.06	0.03		0.02	c0.04		0.04	c0.17		c0.08	c0.11	
v/s Ratio Perm			0.01			0.02			0.01			0.06
v/c Ratio	0.61	0.15	0.03	0.53	0.23	0.10	0.59	0.39	0.03	0.66	0.24	0.12
Uniform Delay, d1	34.7	25.0	24.3	37.5	28.8	28.1	35.8	16.0	13.5	33.8	12.9	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	0.2	0.0	7.3	0.4	0.2	6.7	0.1	0.0	7.8	0.1	0.1
Delay (s)	40.8	25.2	24.4	44.8	29.1	28.3	42.6	16.1	13.6	41.6	13.0	12.3
Level of Service	D	C	C	D	C	C	D	B	B	D	B	B
Approach Delay (s)		32.6			30.9			18.1			17.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	47	227	24	14	262	12	39	43	37	82	54	48
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	52	249	26	15	288	13	43	47	41	90	59	53

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	176	151	159	157	131	202
Volume Left (vph)	52	0	15	0	43	90
Volume Right (vph)	0	26	0	13	41	53
Hadj (s)	0.18	-0.09	0.08	-0.02	-0.09	-0.03
Departure Headway (s)	6.2	5.9	6.1	6.0	5.8	5.7
Degree Utilization, x	0.30	0.25	0.27	0.26	0.21	0.32
Capacity (veh/h)	552	579	560	571	550	578
Control Delay (s)	10.6	9.6	10.1	9.8	10.4	11.4
Approach Delay (s)	10.1		10.0		10.4	11.4
Approach LOS	B		A		B	B

Intersection Summary			
Delay	10.4		
HCM Level of Service	B		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	5085	1534	3433	5085	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	5085	1534	3433	5085	1554
Volume (vph)	118	193	24	87	255	86	119	643	97	44	468	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	210	26	95	277	93	129	699	105	48	509	101
RTOR Reduction (vph)	0	0	21	0	0	76	0	0	61	0	0	64
Lane Group Flow (vph)	128	210	5	95	277	17	129	699	44	48	509	37
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.4	11.8	11.8	3.8	10.2	10.2	5.5	24.6	24.6	2.3	21.4	21.4
Effective Green, g (s)	5.9	12.3	12.3	4.3	10.7	10.7	5.5	25.1	25.1	2.3	21.9	21.9
Actuated g/C Ratio	0.10	0.21	0.21	0.07	0.18	0.18	0.09	0.42	0.42	0.04	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	725	319	246	631	277	315	2127	642	132	1856	567
v/s Ratio Prot	c0.04	0.06		0.03	c0.08		c0.04	c0.14		0.01	0.10	
v/s Ratio Perm			0.00			0.01			0.03			0.02
v/c Ratio	0.38	0.29	0.02	0.39	0.44	0.06	0.41	0.33	0.07	0.36	0.27	0.07
Uniform Delay, d1	25.3	20.2	19.0	26.6	22.0	20.5	25.7	11.8	10.4	28.1	13.4	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	1.0	0.5	0.1	0.9	0.1	0.0	1.7	0.1	0.0
Delay (s)	26.0	20.4	19.0	27.6	22.5	20.6	26.6	11.9	10.5	29.8	13.5	12.4
Level of Service	C	C	B	C	C	C	C	B	B	C	B	B
Approach Delay (s)		22.3			23.1			13.7			14.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	4.0
Lane Util. Factor		1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.99			1.00	0.98
Flpb, ped/bikes		1.00			1.00			1.00			1.00	1.00
Frt		0.99			0.99			0.93			1.00	0.85
Flt Protected		1.00			0.99			0.99			0.97	1.00
Satd. Flow (prot)		1831			1819			1690			1807	1558
Flt Permitted		0.99			0.91			0.90			0.73	1.00
Satd. Flow (perm)		1807			1661			1533			1349	1558
Volume (vph)	11	383	47	55	340	47	51	58	135	102	71	7
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	12	435	53	62	386	53	58	66	153	116	81	8
RTOR Reduction (vph)	0	7	0	0	7	0	0	80	0	0	0	5
Lane Group Flow (vph)	0	493	0	0	494	0	0	197	0	0	197	3
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		16.3			16.3			11.9			11.9	11.9
Effective Green, g (s)		16.8			16.8			12.4			12.4	12.4
Actuated g/C Ratio		0.45			0.45			0.33			0.33	0.33
Clearance Time (s)		4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		816			750			511			450	519
v/s Ratio Prot												
v/s Ratio Perm		0.27			c0.30			0.13			c0.15	0.00
v/c Ratio		0.60			0.66			0.39			0.44	0.01
Uniform Delay, d1		7.7			8.0			9.5			9.7	8.3
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		1.3			2.1			0.5			0.7	0.0
Delay (s)		9.0			10.1			10.0			10.4	8.3
Level of Service		A			B			A			B	A
Approach Delay (s)		9.0			10.1			10.0			10.3	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	0.95						1.00	1.00
Frpb, ped/bikes		1.00		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.98		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.95	1.00
Satd. Flow (prot)		3472		1770	3539						1759	1536
Flt Permitted		1.00		0.95	1.00						0.95	1.00
Satd. Flow (perm)		3472		1770	3539						1759	1536
Volume (vph)	0	688	81	182	469	0	0	0	0	221	0	41
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	782	92	207	533	0	0	0	0	251	0	47
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	862	0	207	533	0	0	0	0	0	251	12
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type				Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases										6		6
Actuated Green, G (s)		19.2		7.9	31.6						13.6	13.6
Effective Green, g (s)		19.7		8.4	32.1						14.1	14.1
Actuated g/C Ratio		0.36		0.15	0.59						0.26	0.26
Clearance Time (s)		4.5		4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1262		274	2096						458	400
v/s Ratio Prot		c0.25		c0.12	0.15							
v/s Ratio Perm											0.14	0.01
v/c Ratio		0.68		0.76	0.25						0.55	0.03
Uniform Delay, d1		14.6		21.9	5.3						17.3	15.0
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		1.5		11.2	0.1						1.3	0.0
Delay (s)		16.2		33.2	5.4						18.6	15.0
Level of Service		B		C	A						B	B
Approach Delay (s)		16.2			13.1			0.0			18.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			1.00	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.95			1.00	0.85			
Flt Protected		0.99			1.00			0.95	1.00			
Satd. Flow (prot)		3497			3328			1758	1554			
Flt Permitted		0.57			1.00			0.95	1.00			
Satd. Flow (perm)		2013			3328			1758	1554			
Volume (vph)	206	699	0	0	609	304	42	0	233	0	0	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	234	794	0	0	692	345	48	0	265	0	0	0
RTOR Reduction (vph)	0	0	0	0	58	0	0	0	124	0	0	0
Lane Group Flow (vph)	0	1028	0	0	979	0	0	48	141	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)		38.7			38.7			11.6	11.6			
Effective Green, g (s)		39.2			39.2			12.1	12.1			
Actuated g/C Ratio		0.66			0.66			0.20	0.20			
Clearance Time (s)		4.5			4.5			4.5	4.5			
Vehicle Extension (s)		3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)		1331			2200			359	317			
v/s Ratio Prot					0.29							
v/s Ratio Perm		c0.51						0.03	c0.09			
v/c Ratio		0.95dl			0.44			0.13	0.44			
Uniform Delay, d1		7.0			4.8			19.3	20.7			
Progression Factor		1.00			1.00			1.00	1.00			
Incremental Delay, d2		2.8			0.1			0.2	1.0			
Delay (s)		9.8			5.0			19.5	21.7			
Level of Service		A			A			B	C			
Approach Delay (s)		9.8			5.0			21.3			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3357		1770	3493		1770	3453		1770	3483	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3357		1770	3493		1770	3453		1770	3483	
Volume (vph)	104	698	296	259	589	48	302	518	85	92	570	58
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	759	322	282	640	52	328	563	92	100	620	63
RTOR Reduction (vph)	0	43	0	0	5	0	0	11	0	0	7	0
Lane Group Flow (vph)	113	1038	0	282	687	0	328	644	0	100	676	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.1	31.1		16.0	36.0		19.0	35.5		8.9	25.4	
Effective Green, g (s)	11.1	31.6		16.0	36.5		19.0	36.0		8.9	25.9	
Actuated g/C Ratio	0.10	0.29		0.15	0.34		0.18	0.33		0.08	0.24	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	978		261	1175		310	1146		145	831	
v/s Ratio Prot	0.06	c0.31		c0.16	0.20		c0.19	0.19		0.06	c0.19	
v/s Ratio Perm												
v/c Ratio	0.62	1.06		1.08	0.58		1.06	0.56		0.69	0.81	
Uniform Delay, d1	46.7	38.5		46.2	29.7		44.8	29.8		48.5	39.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	46.7		78.8	0.7		67.2	0.6		12.8	6.1	
Delay (s)	53.3	85.1		125.0	30.5		112.0	30.4		61.3	45.2	
Level of Service	D	F		F	C		F	C		E	D	
Approach Delay (s)		82.1			57.9			57.6			47.2	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM Average Control Delay	63.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	288	45	43	218	8	19	14	13	52	39	62
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	62	327	51	49	248	9	22	16	15	59	44	70

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	441	306	52	174
Volume Left (vph)	63	49	22	59
Volume Right (vph)	51	9	15	70
Hadj (s)	-0.01	0.05	-0.05	-0.14
Departure Headway (s)	5.0	5.3	6.1	5.8
Degree Utilization, x	0.62	0.45	0.09	0.28
Capacity (veh/h)	689	650	483	555
Control Delay (s)	15.8	12.4	9.7	11.0
Approach Delay (s)	15.8	12.4	9.7	11.0
Approach LOS	C	B	A	B

Intersection Summary			
Delay	13.5		
HCM Level of Service	B		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	72	123	96	85	163	46	29	187	22	36	383	31
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	134	104	92	177	50	32	203	24	39	416	34
RTOR Reduction (vph)	0	0	88	0	0	40	0	0	13	0	0	18
Lane Group Flow (vph)	78	134	16	92	177	10	32	203	11	39	416	16
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.1	9.5	9.5	5.9	12.3	12.3	2.7	30.4	30.4	2.7	30.4	30.4
Effective Green, g (s)	3.6	10.0	10.0	6.4	12.8	12.8	3.2	30.9	30.9	3.2	30.9	30.9
Actuated g/C Ratio	0.05	0.15	0.15	0.10	0.19	0.19	0.05	0.46	0.46	0.05	0.46	0.46
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	96	532	238	170	681	305	85	1644	736	85	1644	736
v/s Ratio Prot	c0.04	0.04		0.05	c0.05		0.02	0.06		c0.02	c0.12	
v/s Ratio Perm			0.01			0.01			0.01			0.01
v/c Ratio	0.81	0.25	0.07	0.54	0.26	0.03	0.38	0.12	0.02	0.46	0.25	0.02
Uniform Delay, d1	31.1	24.9	24.2	28.7	22.8	21.8	30.7	10.1	9.6	30.8	10.8	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	38.8	0.3	0.1	3.5	0.2	0.0	2.8	0.0	0.0	3.9	0.1	0.0
Delay (s)	69.9	25.2	24.4	32.1	23.0	21.9	33.5	10.1	9.6	34.7	10.9	9.6
Level of Service	E	C	C	C	C	C	C	B	A	C	B	A
Approach Delay (s)		35.9			25.5			13.0			12.7	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Volume (vph)	97	479	39	71	214	129	50	640	121	87	493	56
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	521	42	77	233	140	54	696	132	95	536	61
RTOR Reduction (vph)	0	0	30	0	0	103	0	0	90	0	0	41
Lane Group Flow (vph)	105	521	12	77	233	37	54	696	42	95	536	20
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.4	17.4	17.4	3.5	15.5	15.5	3.3	18.7	18.7	3.6	19.0	19.0
Effective Green, g (s)	5.4	17.9	17.9	3.5	16.0	16.0	3.3	19.2	19.2	3.6	19.5	19.5
Actuated g/C Ratio	0.09	0.30	0.30	0.06	0.27	0.27	0.05	0.32	0.32	0.06	0.32	0.32
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	308	1052	462	200	941	413	188	1129	496	205	1146	503
v/s Ratio Prot	c0.03	c0.15		0.02	0.07		0.02	c0.20		c0.03	0.15	
v/s Ratio Perm			0.01			0.02			0.03			0.01
v/c Ratio	0.34	0.50	0.03	0.39	0.25	0.09	0.29	0.62	0.08	0.46	0.47	0.04
Uniform Delay, d1	25.7	17.4	15.0	27.3	17.4	16.6	27.3	17.4	14.4	27.4	16.2	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	0.0	1.2	0.1	0.1	0.8	1.0	0.1	1.7	0.3	0.0
Delay (s)	26.4	17.8	15.0	28.5	17.5	16.7	28.2	18.4	14.4	29.0	16.5	14.0
Level of Service	C	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		19.0			19.2			18.4			18.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3504		1770	1711		1770	1754	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3509		1770	3504		1770	1711		1770	1754	
Volume (vph)	24	506	26	39	391	23	69	108	103	115	48	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	550	28	42	425	25	75	117	112	125	52	28
RTOR Reduction (vph)	0	4	0	0	5	0	0	41	0	0	20	0
Lane Group Flow (vph)	26	574	0	42	445	0	75	188	0	125	60	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.9	14.9		2.0	15.0		3.9	12.6		4.7	13.4	
Effective Green, g (s)	1.9	15.4		2.0	15.5		3.9	13.1		4.7	13.9	
Actuated g/C Ratio	0.04	0.30		0.04	0.30		0.08	0.26		0.09	0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	66	1055		69	1061		135	438		162	476	
v/s Ratio Prot	0.01	c0.16		c0.02	0.13		0.04	c0.11		c0.07	0.03	
v/s Ratio Perm												
v/c Ratio	0.39	0.54		0.61	0.42		0.56	0.43		0.77	0.13	
Uniform Delay, d1	24.1	15.0		24.2	14.3		22.8	15.9		22.7	14.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	0.6		14.3	0.3		4.9	0.7		20.0	0.1	
Delay (s)	27.9	15.5		38.5	14.5		27.7	16.6		42.8	14.2	
Level of Service	C	B		D	B		C	B		D	B	
Approach Delay (s)		16.1			16.6			19.3			31.6	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Volume (vph)	120	616	66	275	381	133	58	177	111	120	213	68
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	670	72	299	414	145	63	192	121	130	232	74
RTOR Reduction (vph)	0	0	50	0	0	91	0	0	97	0	0	57
Lane Group Flow (vph)	130	670	22	299	414	54	63	192	24	130	232	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.6	18.4	18.4	10.0	22.8	22.8	3.7	11.9	11.9	5.6	13.8	13.8
Effective Green, g (s)	5.6	18.9	18.9	10.0	23.3	23.3	3.7	12.4	12.4	5.6	14.3	14.3
Actuated g/C Ratio	0.09	0.30	0.30	0.16	0.37	0.37	0.06	0.20	0.20	0.09	0.23	0.23
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	1063	467	546	1311	575	202	698	306	306	805	353
v/s Ratio Prot	0.04	c0.19		c0.09	0.12		0.02	0.05		c0.04	c0.07	
v/s Ratio Perm			0.01			0.03			0.02			0.01
v/c Ratio	0.42	0.63	0.05	0.55	0.32	0.09	0.31	0.28	0.08	0.42	0.29	0.05
Uniform Delay, d1	27.1	19.0	15.6	24.4	14.1	12.9	28.4	21.4	20.6	27.1	20.1	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	1.2	0.0	1.1	0.1	0.1	0.9	0.2	0.1	1.0	0.2	0.1
Delay (s)	28.1	20.2	15.6	25.5	14.3	13.0	29.3	21.6	20.7	28.1	20.3	19.0
Level of Service	C	C	B	C	B	B	C	C	C	C	C	B
Approach Delay (s)		21.0			18.0			22.6			22.4	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.99		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1530	1770	3539					1755		1551
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3539	1530	1770	3539					1755		1551
Volume (vph)	0	1133	219	161	964	0	0	0	0	410	0	591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1232	238	175	1048	0	0	0	0	446	0	642
RTOR Reduction (vph)	0	0	151	0	0	0	0	0	0	0	0	46
Lane Group Flow (vph)	0	1232	87	175	1048	0	0	0	0	446	0	596
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot						custom		custom
Protected Phases		4		3	8							
Permitted Phases			4							6		6
Actuated Green, G (s)		27.0	27.0	7.5	39.0					27.0		27.0
Effective Green, g (s)		27.5	27.5	8.0	39.5					27.5		27.5
Actuated g/C Ratio		0.37	0.37	0.11	0.53					0.37		0.37
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1298	561	189	1864					644		569
v/s Ratio Prot		c0.35		c0.10	0.30							
v/s Ratio Perm			0.06							0.25		c0.38
v/c Ratio		0.95	0.16	0.93	0.56					0.69		1.05
Uniform Delay, d1		23.1	16.0	33.2	11.9					20.2		23.8
Progression Factor		1.00	1.00	1.00	1.00					1.00		1.00
Incremental Delay, d2		14.4	0.1	44.5	0.4					3.2		50.6
Delay (s)		37.4	16.1	77.7	12.3					23.4		74.4
Level of Service		D	B	E	B					C		E
Approach Delay (s)		34.0			21.7			0.0			53.5	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1758		1554			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1758		1554			
Volume (vph)	201	1330	0	0	800	552	307	0	245	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	1446	0	0	870	600	334	0	266	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	378	0	0	18	0	0	0
Lane Group Flow (vph)	218	1446	0	0	870	222	334	0	248	0	0	0
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot					Perm	custom		custom			
Protected Phases	7	4			8							
Permitted Phases						8	2		2			
Actuated Green, G (s)	7.9	33.8			21.4	21.4	16.4		16.4			
Effective Green, g (s)	8.4	34.3			21.9	21.9	16.9		16.9			
Actuated g/C Ratio	0.14	0.58			0.37	0.37	0.29		0.29			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5		4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	251	2050			1309	586	502		444			
v/s Ratio Prot	c0.12	c0.41			0.25							
v/s Ratio Perm						0.14	c0.19		0.16			
v/c Ratio	0.87	0.71			0.66	0.38	0.67		0.56			
Uniform Delay, d1	24.9	8.9			15.6	13.7	18.7		18.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	25.6	1.1			1.3	0.4	3.3		1.5			
Delay (s)	50.5	10.0			16.9	14.1	22.0		19.5			
Level of Service	D	A			B	B	C		B			
Approach Delay (s)		15.3			15.7			20.9			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Volume (vph)	402	901	223	66	833	149	262	415	134	154	270	255
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	437	979	242	72	905	162	285	451	146	167	293	277
RTOR Reduction (vph)	0	0	138	0	0	107	0	0	114	0	0	174
Lane Group Flow (vph)	437	979	104	72	905	55	285	451	32	167	293	103
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.2	32.0	32.0	4.1	24.9	24.9	8.2	16.3	16.3	6.1	14.2	14.2
Effective Green, g (s)	11.2	32.5	32.5	4.1	25.4	25.4	8.2	16.8	16.8	6.1	14.7	14.7
Actuated g/C Ratio	0.15	0.43	0.43	0.05	0.34	0.34	0.11	0.22	0.22	0.08	0.19	0.19
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	509	1523	668	186	1191	522	373	1131	345	277	990	302
v/s Ratio Prot	c0.13	0.28		0.02	c0.26		c0.08	c0.09		0.05	0.06	
v/s Ratio Perm			0.07			0.04			0.02			0.07
v/c Ratio	0.86	0.64	0.16	0.39	0.76	0.10	0.76	0.40	0.09	0.60	0.30	0.34
Uniform Delay, d1	31.4	16.9	13.1	34.5	22.3	17.2	32.7	25.0	23.3	33.5	26.0	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.9	0.1	1.3	2.8	0.1	9.0	0.2	0.1	3.7	0.2	0.7
Delay (s)	44.8	17.9	13.2	35.8	25.2	17.3	41.7	25.3	23.4	37.2	26.1	26.9
Level of Service	D	B	B	D	C	B	D	C	C	D	C	C
Approach Delay (s)		24.3			24.7			30.3			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1583	1770	3539					1770		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3539	1583	1770	3539					1770		1583
Volume (vph)	0	352	90	57	848	0	0	0	0	42	0	329
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	383	98	62	922	0	0	0	0	46	0	358
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	383	35	62	922	0	0	0	0	46	0	284
Turn Type			Perm	Prot						custom		custom
Protected Phases		4		3	8							
Permitted Phases			4							6		6
Actuated Green, G (s)		15.1	15.1	2.3	21.4					12.9		12.9
Effective Green, g (s)		15.6	15.6	2.3	21.9					13.4		13.4
Actuated g/C Ratio		0.36	0.36	0.05	0.51					0.31		0.31
Clearance Time (s)		4.5	4.5	4.0	4.5					4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1275	570	94	1790					548		490
v/s Ratio Prot		0.11		0.04	c0.26							
v/s Ratio Perm			0.02							0.03		c0.18
v/c Ratio		0.30	0.06	0.66	0.52					0.08		0.58
Uniform Delay, d1		9.9	9.1	20.1	7.2					10.6		12.6
Progression Factor		1.00	1.00	1.00	1.00					1.00		1.00
Incremental Delay, d2		0.1	0.0	15.5	0.3					0.1		1.7
Delay (s)		10.1	9.1	35.6	7.4					10.7		14.2
Level of Service		B	A	D	A					B		B
Approach Delay (s)		9.9			9.2			0.0			13.8	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1770		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1770		1583			
Volume (vph)	54	344	0	0	689	105	216	0	416	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	374	0	0	749	114	235	0	452	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	0	306	0	0	0
Lane Group Flow (vph)	59	374	0	0	749	41	235	0	146	0	0	0
Turn Type	Prot					Perm	custom		custom			
Protected Phases	7	4			8							
Permitted Phases						8	2		2			
Actuated Green, G (s)	3.6	23.7			16.1	16.1	13.3		13.3			
Effective Green, g (s)	3.6	24.2			16.6	16.6	13.8		13.8			
Actuated g/C Ratio	0.08	0.53			0.36	0.36	0.30		0.30			
Clearance Time (s)	4.0	4.5			4.5	4.5	4.5		4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	139	1862			1277	571	531		475			
v/s Ratio Prot	c0.03	0.11			c0.21							
v/s Ratio Perm						0.03	c0.13		0.09			
v/c Ratio	0.42	0.20			0.59	0.07	0.44		0.31			
Uniform Delay, d1	20.2	5.8			11.9	9.6	13.0		12.4			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	2.1	0.1			0.7	0.1	0.6		0.4			
Delay (s)	22.3	5.8			12.6	9.7	13.6		12.8			
Level of Service	C	A			B	A	B		B			
Approach Delay (s)		8.1			12.2			13.1			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1549	3433	3539	1526	3433	1863	1549	1770	1791	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1549	3433	3539	1526	3433	1863	1549	1770	1791	
Volume (vph)	123	1284	82	119	819	118	109	142	557	24	144	42
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	1396	89	129	890	128	118	154	605	26	157	46
RTOR Reduction (vph)	0	0	45	0	0	76	0	0	180	0	11	0
Lane Group Flow (vph)	134	1396	44	129	890	52	118	154	425	26	192	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	8.1	38.5	38.5	5.9	36.3	36.3	5.9	26.4	26.4	2.7	23.2	
Effective Green, g (s)	8.1	39.0	39.0	5.9	36.8	36.8	5.9	26.9	26.9	2.7	23.7	
Actuated g/C Ratio	0.09	0.43	0.43	0.07	0.41	0.41	0.07	0.30	0.30	0.03	0.26	
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	158	1525	668	224	1439	621	224	554	460	53	469	
v/s Ratio Prot	c0.08	c0.39		0.04	0.25		c0.03	0.08		0.01	0.11	
v/s Ratio Perm			0.03			0.03			c0.27			
v/c Ratio	0.85	0.92	0.07	0.58	0.62	0.08	0.53	0.28	0.92	0.49	0.41	
Uniform Delay, d1	40.6	24.2	15.1	41.1	21.3	16.5	40.9	24.4	30.8	43.2	27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.2	8.9	0.0	3.6	0.8	0.1	2.2	0.3	24.3	7.0	0.6	
Delay (s)	72.8	33.1	15.1	44.6	22.1	16.6	43.2	24.6	55.1	50.2	28.2	
Level of Service	E	C	B	D	C	B	D	C	E	D	C	
Approach Delay (s)		35.4			24.0			48.1			30.7	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1548	3433	3539	1548	3433	3539	1548	3433	3539	1548
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1548	3433	3539	1548	3433	3539	1548	3433	3539	1548
Volume (vph)	104	1321	200	279	880	96	124	455	213	117	248	30
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	1436	217	303	957	104	135	495	232	127	270	33
RTOR Reduction (vph)	0	0	106	0	0	55	0	0	140	0	0	26
Lane Group Flow (vph)	113	1436	111	303	957	49	135	495	92	127	270	7
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.1	40.0	40.0	9.0	42.9	42.9	7.7	19.1	19.1	7.6	19.0	19.0
Effective Green, g (s)	6.1	40.5	40.5	9.0	43.4	43.4	7.7	19.6	19.6	7.6	19.5	19.5
Actuated g/C Ratio	0.07	0.44	0.44	0.10	0.47	0.47	0.08	0.21	0.21	0.08	0.21	0.21
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1546	676	333	1657	725	285	748	327	281	744	326
v/s Ratio Prot	0.03	c0.41		c0.09	c0.27		c0.04	c0.14		0.04	0.08	
v/s Ratio Perm			0.07			0.03			0.06			0.00
v/c Ratio	0.50	0.93	0.16	0.91	0.58	0.07	0.47	0.66	0.28	0.45	0.36	0.02
Uniform Delay, d1	41.8	24.7	15.8	41.4	18.0	13.5	40.6	33.5	30.7	40.6	31.3	29.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	10.1	0.1	27.4	0.5	0.0	1.2	2.2	0.5	1.2	0.3	0.0
Delay (s)	43.6	34.8	15.9	68.8	18.5	13.6	41.8	35.7	31.1	41.7	31.6	29.1
Level of Service	D	C	B	E	B	B	D	D	C	D	C	C
Approach Delay (s)		33.1			29.3			35.4			34.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1553	1770	3539	1770	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1553	1770	3539	1770	1553
Volume (vph)	10	1455	135	41	927	91	84
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1582	147	45	1008	99	91
RTOR Reduction (vph)	0	0	63	0	0	0	75
Lane Group Flow (vph)	11	1582	84	45	1008	99	16
Confl. Peds. (#/hr)	10		10	10		10	10
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	7	4		3	8	2	
Permitted Phases			4				2
Actuated Green, G (s)	1.0	36.4	36.4	3.6	39.0	11.2	11.2
Effective Green, g (s)	1.5	36.9	36.9	4.1	39.5	11.7	11.7
Actuated g/C Ratio	0.02	0.57	0.57	0.06	0.61	0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	41	2018	886	112	2161	320	281
v/s Ratio Prot	0.01	c0.45		c0.03	c0.28	c0.06	
v/s Ratio Perm			0.05				0.01
v/c Ratio	0.27	0.78	0.10	0.40	0.47	0.31	0.06
Uniform Delay, d1	31.1	10.8	6.3	29.1	6.9	23.0	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	2.1	0.0	2.4	0.2	0.6	0.1
Delay (s)	34.6	12.9	6.4	31.5	7.0	23.5	22.0
Level of Service	C	B	A	C	A	C	C
Approach Delay (s)		12.5			8.1	22.8	
Approach LOS		B			A	C	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1761	3539	1555	1762	3539	1555	1770	3539	1555	1770	3539	1555
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1761	3539	1555	1762	3539	1555	1770	3539	1555	1770	3539	1555
Volume (vph)	27	192	15	23	92	55	49	135	174	81	55	38
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	209	16	25	100	60	53	147	189	88	60	41
RTOR Reduction (vph)	0	0	13	0	0	50	0	0	103	0	0	22
Lane Group Flow (vph)	29	209	3	25	100	10	53	147	86	88	60	19
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	0.9	8.0	8.0	0.9	8.0	8.0	2.8	23.6	23.6	3.2	24.0	24.0
Effective Green, g (s)	0.9	8.5	8.5	0.9	8.5	8.5	2.8	24.1	24.1	3.2	24.5	24.5
Actuated g/C Ratio	0.02	0.16	0.16	0.02	0.16	0.16	0.05	0.46	0.46	0.06	0.46	0.46
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	30	571	251	30	571	251	94	1618	711	107	1645	723
v/s Ratio Prot	c0.02	c0.06		0.01	0.03		0.03	0.04		c0.05	0.02	
v/s Ratio Perm			0.00			0.01			c0.06			0.01
v/c Ratio	0.97	0.37	0.01	0.83	0.18	0.04	0.56	0.09	0.12	0.82	0.04	0.03
Uniform Delay, d1	25.9	19.7	18.6	25.8	19.1	18.7	24.4	8.1	8.2	24.5	7.7	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	149.0	0.4	0.0	95.9	0.1	0.1	7.5	0.0	0.1	37.7	0.0	0.0
Delay (s)	174.9	20.1	18.6	121.7	19.2	18.7	31.9	8.1	8.3	62.2	7.7	7.7
Level of Service	F	C	B	F	B	B	C	A	A	E	A	A
Approach Delay (s)		37.7			32.9			11.4			33.0	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3433	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3433	3539	1770	1583
Volume (vph)	868	94	476	626	89	575
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	943	102	517	680	97	625
RTOR Reduction (vph)	0	67	0	0	0	268
Lane Group Flow (vph)	943	35	517	680	97	357
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	22.1	22.1	12.9	39.0	18.0	18.0
Effective Green, g (s)	22.6	22.6	12.9	39.5	18.5	18.5
Actuated g/C Ratio	0.34	0.34	0.20	0.60	0.28	0.28
Clearance Time (s)	4.5	4.5	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1212	542	671	2118	496	444
v/s Ratio Prot	c0.27		c0.15	0.19	0.05	
v/s Ratio Perm		0.02				c0.23
v/c Ratio	0.78	0.06	0.77	0.32	0.20	0.80
Uniform Delay, d1	19.5	14.6	25.1	6.6	18.1	22.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.1	5.5	0.1	0.2	10.2
Delay (s)	22.7	14.6	30.6	6.7	18.3	32.2
Level of Service	C	B	C	A	B	C
Approach Delay (s)	21.9			17.0	30.4	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Volume (vph)	177	566	199	30	220	213	180	1124	115	386	1116	83
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	615	216	33	239	232	196	1222	125	420	1213	90
RTOR Reduction (vph)	0	0	154	0	0	178	0	0	86	0	0	59
Lane Group Flow (vph)	192	615	62	33	239	54	196	1222	39	420	1213	31
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.8	21.8	21.8	3.6	17.6	17.6	8.3	23.4	23.4	11.3	26.4	26.4
Effective Green, g (s)	7.8	22.3	22.3	3.6	18.1	18.1	8.3	23.9	23.9	11.3	26.9	26.9
Actuated g/C Ratio	0.10	0.29	0.29	0.05	0.23	0.23	0.11	0.31	0.31	0.15	0.35	0.35
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1024	449	160	831	364	370	1576	481	503	1774	541
v/s Ratio Prot	c0.06	c0.17		0.01	0.07		0.06	c0.24		c0.12	c0.24	
v/s Ratio Perm			0.04			0.04			0.02			0.02
v/c Ratio	0.55	0.60	0.14	0.21	0.29	0.15	0.53	0.78	0.08	0.83	0.68	0.06
Uniform Delay, d1	33.0	23.6	20.3	35.4	24.2	23.4	32.6	24.2	18.8	32.0	21.5	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	1.0	0.1	0.6	0.2	0.2	1.4	2.5	0.1	11.4	1.1	0.0
Delay (s)	34.9	24.6	20.4	36.0	24.4	23.6	33.9	26.6	18.9	43.4	22.6	16.7
Level of Service	C	C	C	D	C	C	C	C	B	D	C	B
Approach Delay (s)		25.6			24.8			26.9			27.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1555	1770	3539	1770	1555
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1555	1770	3539	1770	1555
Volume (vph)	753	167	261	244	98	237
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	818	182	284	265	107	258
RTOR Reduction (vph)	0	120	0	0	0	206
Lane Group Flow (vph)	818	62	284	265	107	52
Confl. Peds. (#/hr)		10	10		10	10
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	18.7	18.7	13.6	36.3	10.7	10.7
Effective Green, g (s)	19.2	19.2	13.6	36.8	11.2	11.2
Actuated g/C Ratio	0.34	0.34	0.24	0.66	0.20	0.20
Clearance Time (s)	4.5	4.5	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1213	533	430	2326	354	311
v/s Ratio Prot	c0.23		c0.16	0.07	c0.06	
v/s Ratio Perm		0.04				0.03
v/c Ratio	0.67	0.12	0.66	0.11	0.30	0.17
Uniform Delay, d1	15.7	12.6	19.1	3.6	19.1	18.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.1	3.8	0.0	0.5	0.3
Delay (s)	17.2	12.7	22.9	3.6	19.6	18.8
Level of Service	B	B	C	A	B	B
Approach Delay (s)	16.4			13.6	19.0	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Volume (vph)	211	769	109	88	363	84	150	556	104	116	399	159
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	836	118	96	395	91	163	604	113	126	434	173
RTOR Reduction (vph)	0	0	79	0	0	63	0	0	82	0	0	125
Lane Group Flow (vph)	229	836	39	96	395	28	163	604	31	126	434	48
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.1	22.1	22.1	5.2	20.2	20.2	5.5	18.3	18.3	5.4	18.2	18.2
Effective Green, g (s)	7.1	22.6	22.6	5.2	20.7	20.7	5.5	18.8	18.8	5.4	18.7	18.7
Actuated g/C Ratio	0.10	0.33	0.33	0.08	0.30	0.30	0.08	0.28	0.28	0.08	0.27	0.27
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	1176	516	263	1077	473	278	978	429	273	973	427
v/s Ratio Prot	c0.07	c0.24		0.03	0.11		c0.05	c0.17		0.04	0.12	
v/s Ratio Perm			0.03			0.02			0.02			0.03
v/c Ratio	0.64	0.71	0.08	0.37	0.37	0.06	0.59	0.62	0.07	0.46	0.45	0.11
Uniform Delay, d1	29.2	19.8	15.5	29.8	18.5	16.7	30.2	21.5	18.2	29.9	20.4	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	2.1	0.1	0.9	0.2	0.1	3.1	1.2	0.1	1.2	0.3	0.1
Delay (s)	33.0	21.9	15.6	30.7	18.7	16.8	33.3	22.6	18.2	31.1	20.7	18.6
Level of Service	C	C	B	C	B	B	C	C	B	C	C	B
Approach Delay (s)		23.4			20.4			24.0			22.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1532	1770	3539	1532	1770	1863	1553	1770	1863	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1532	1770	3539	1532	1770	1863	1553	1770	1863	1553
Volume (vph)	165	695	180	96	299	30	181	95	21	25	50	64
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	755	196	104	325	33	197	103	23	27	54	70
RTOR Reduction (vph)	0	0	132	0	0	24	0	0	16	0	0	56
Lane Group Flow (vph)	179	755	64	104	325	9	197	103	7	27	54	14
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.4	21.7	21.7	6.1	18.4	18.4	10.4	20.5	20.5	2.5	12.6	12.6
Effective Green, g (s)	9.4	22.2	22.2	6.1	18.9	18.9	10.4	21.0	21.0	2.5	13.1	13.1
Actuated g/C Ratio	0.14	0.33	0.33	0.09	0.28	0.28	0.15	0.31	0.31	0.04	0.19	0.19
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	245	1159	502	159	987	427	272	577	481	65	360	300
v/s Ratio Prot	c0.10	c0.21		0.06	0.09		c0.11	c0.06		0.02	0.03	
v/s Ratio Perm			0.04			0.01			0.00			0.01
v/c Ratio	0.73	0.65	0.13	0.65	0.33	0.02	0.72	0.18	0.01	0.42	0.15	0.05
Uniform Delay, d1	28.0	19.5	16.0	29.8	19.4	17.7	27.3	17.1	16.2	31.9	22.7	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7	1.3	0.1	9.3	0.2	0.0	9.2	0.1	0.0	4.3	0.2	0.1
Delay (s)	38.6	20.8	16.1	39.1	19.6	17.8	36.5	17.2	16.2	36.2	22.9	22.3
Level of Service	D	C	B	D	B	B	D	B	B	D	C	C
Approach Delay (s)		22.8			23.9			28.9			25.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Volume (vph)	56	555	82	33	307	34	111	4	22	5	10	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	603	89	36	334	37	121	4	24	5	11	26
RTOR Reduction (vph)	0	0	60	0	0	26	0	0	17	0	0	20
Lane Group Flow (vph)	61	603	29	36	334	11	121	4	7	5	11	6
Confl. Peds. (#/hr)												
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.6	16.5	16.5	2.1	15.0	15.0	4.6	15.3	15.3	0.7	11.4	11.4
Effective Green, g (s)	3.6	17.0	17.0	2.1	15.5	15.5	4.6	15.8	15.8	0.7	11.9	11.9
Actuated g/C Ratio	0.07	0.33	0.33	0.04	0.30	0.30	0.09	0.31	0.31	0.01	0.23	0.23
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	1166	522	72	1063	476	158	570	485	24	430	365
v/s Ratio Prot	c0.03	c0.17		0.02	0.09		c0.07	0.00		0.00	c0.01	
v/s Ratio Perm			0.02			0.01			c0.00			0.00
v/c Ratio	0.50	0.52	0.06	0.50	0.31	0.02	0.77	0.01	0.02	0.21	0.03	0.02
Uniform Delay, d1	23.1	14.0	11.8	24.2	13.9	12.7	23.0	12.4	12.5	25.2	15.4	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.4	0.0	5.4	0.2	0.0	19.6	0.0	0.0	4.3	0.0	0.0
Delay (s)	26.3	14.4	11.9	29.6	14.1	12.7	42.6	12.5	12.5	29.5	15.4	15.3
Level of Service	C	B	B	C	B	B	D	B	B	C	B	B
Approach Delay (s)		15.0			15.4			36.9			17.0	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1555	1770	3539	1583	1770	3539	1555	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1555	1770	3539	1583	1770	3539	1555	1770	3539	1583
Volume (vph)	21	463	51	117	241	25	81	199	134	22	139	18
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	503	55	127	262	27	88	216	146	24	151	20
RTOR Reduction (vph)	0	0	38	0	0	16	0	0	105	0	0	15
Lane Group Flow (vph)	23	503	17	127	262	11	88	216	41	24	151	5
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	0.9	16.8	16.8	6.8	22.7	22.7	3.9	15.3	15.3	0.9	12.3	12.3
Effective Green, g (s)	0.9	17.3	17.3	6.8	23.2	23.2	3.9	15.8	15.8	0.9	12.8	12.8
Actuated g/C Ratio	0.02	0.30	0.30	0.12	0.41	0.41	0.07	0.28	0.28	0.02	0.23	0.23
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	1078	474	212	1446	647	122	984	433	28	798	357
v/s Ratio Prot	0.01	c0.14		c0.07	0.07		c0.05	c0.06		0.01	0.04	
v/s Ratio Perm			0.01			0.01			0.03			0.00
v/c Ratio	0.82	0.47	0.04	0.60	0.18	0.02	0.72	0.22	0.09	0.86	0.19	0.01
Uniform Delay, d1	27.9	16.0	13.9	23.7	10.7	10.0	25.9	15.8	15.2	27.9	17.8	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	96.0	0.3	0.0	4.5	0.1	0.0	18.9	0.1	0.1	108.8	0.1	0.0
Delay (s)	123.8	16.3	13.9	28.2	10.8	10.0	44.8	15.9	15.3	136.7	17.9	17.1
Level of Service	F	B	B	C	B	B	D	B	B	F	B	B
Approach Delay (s)		20.4			16.1			21.3			32.5	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1553	1770	3539	1553	1770	3539	1553	1770	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1553	1770	3539	1553	1770	3539	1553	1770	3539	1553
Volume (vph)	177	388	49	59	384	247	59	100	66	171	257	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	422	53	64	417	268	64	109	72	186	279	101
RTOR Reduction (vph)	0	0	35	0	0	200	0	0	58	0	0	73
Lane Group Flow (vph)	192	422	18	64	417	68	64	109	14	186	279	28
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.4	20.9	20.9	4.3	15.8	15.8	4.3	12.3	12.3	9.4	17.4	17.4
Effective Green, g (s)	9.4	21.4	21.4	4.3	16.3	16.3	4.3	12.8	12.8	9.4	17.9	17.9
Actuated g/C Ratio	0.15	0.33	0.33	0.07	0.26	0.26	0.07	0.20	0.20	0.15	0.28	0.28
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	260	1185	520	119	903	396	119	709	311	260	991	435
v/s Ratio Prot	c0.11	0.12		0.04	c0.12		0.04	0.03		c0.11	c0.08	
v/s Ratio Perm			0.01			0.04			0.01			0.02
v/c Ratio	0.74	0.36	0.03	0.54	0.46	0.17	0.54	0.15	0.05	0.72	0.28	0.07
Uniform Delay, d1	26.1	16.0	14.3	28.8	20.1	18.5	28.8	21.1	20.6	26.0	18.0	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	0.2	0.0	4.6	0.4	0.2	4.6	0.1	0.1	9.0	0.2	0.1
Delay (s)	36.5	16.2	14.3	33.5	20.5	18.8	33.5	21.2	20.7	35.0	18.1	16.9
Level of Service	D	B	B	C	C	B	C	C	C	C	B	B
Approach Delay (s)		21.9			21.0			24.2			23.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0				4.0	4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95				1.00	0.97		1.00
Frpb, ped/bikes		1.00	0.96	1.00	1.00				0.97	1.00		0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00				1.00	0.99		1.00
Frt		1.00	0.85	1.00	1.00				0.86	1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00				1.00	0.95		1.00
Satd. Flow (prot)		3539	1517	1770	3539				1571	3387		1544
Flt Permitted		1.00	1.00	0.95	1.00				1.00	0.95		1.00
Satd. Flow (perm)		3539	1517	1770	3539				1571	3387		1544
Volume (vph)	0	2675	106	156	1990	0	0	0	184	412	0	518
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2908	115	170	2163	0	0	0	200	448	0	563
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	97	0	0	6
Lane Group Flow (vph)	0	2908	90	170	2163	0	0	0	103	448	0	557
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot					custom	custom		custom
Protected Phases		4		3	8							
Permitted Phases			4						2	6		6
Actuated Green, G (s)		62.5	62.5	9.0	75.5				35.5	35.5		35.5
Effective Green, g (s)		63.0	63.0	9.0	76.0				36.0	36.0		36.0
Actuated g/C Ratio		0.52	0.52	0.08	0.63				0.30	0.30		0.30
Clearance Time (s)		4.5	4.5	4.0	4.5				4.5	4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0				3.0	3.0		3.0
Lane Grp Cap (vph)		1858	796	133	2241				471	1016		463
v/s Ratio Prot		c0.82		c0.10	0.61							
v/s Ratio Perm			0.06						0.07	0.13		c0.36
v/c Ratio		1.57	0.11	1.28	0.97				0.22	0.44		1.20
Uniform Delay, d1		28.5	14.4	55.5	20.8				31.5	33.9		42.0
Progression Factor		1.00	1.00	1.00	1.00				1.00	1.00		1.00
Incremental Delay, d2		257.0	0.1	170.8	11.9				0.2	0.3		110.2
Delay (s)		285.5	14.5	226.3	32.6				31.7	34.2		152.2
Level of Service		F	B	F	C				C	C		F
Approach Delay (s)		275.2			46.7			31.7			99.9	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM Average Control Delay	159.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1544	1770	3539	1544	3433	3539	1544	1770	3539	2717
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1544	1770	3539	1544	3433	3539	1544	1770	3539	2717
Volume (vph)	452	2041	609	317	1697	294	355	331	239	164	658	522
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	2218	662	345	1845	320	386	360	260	178	715	567
RTOR Reduction (vph)	0	0	117	0	0	108	0	0	181	0	0	338
Lane Group Flow (vph)	491	2218	545	345	1845	212	386	360	79	178	715	229
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	20.0	49.5	49.5	15.0	44.5	44.5	10.0	28.6	28.6	9.0	27.6	27.6
Effective Green, g (s)	20.0	50.0	50.0	15.0	45.0	45.0	10.0	29.1	29.1	9.0	28.1	28.1
Actuated g/C Ratio	0.17	0.42	0.42	0.13	0.38	0.38	0.08	0.24	0.24	0.08	0.24	0.24
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	297	1486	648	223	1337	583	288	865	377	134	835	641
v/s Ratio Prot	c0.28	c0.63		0.19	0.52		c0.11	0.10		0.10	c0.20	
v/s Ratio Perm			0.35			0.14			0.05			0.08
v/c Ratio	1.65	1.49	0.84	1.55	1.38	0.36	1.34	0.42	0.21	1.33	0.86	0.36
Uniform Delay, d1	49.5	34.5	31.0	52.0	37.0	26.7	54.5	37.9	35.8	55.0	43.6	38.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	308.6	225.3	9.6	267.2	175.7	0.4	174.7	0.3	0.3	190.0	8.6	0.3
Delay (s)	358.1	259.8	40.6	319.3	212.8	27.1	229.3	38.2	36.1	245.1	52.2	38.3
Level of Service	F	F	D	F	F	C	F	D	D	F	D	D
Approach Delay (s)		231.1			203.8			111.0			70.3	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	180.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	0.95			0.95	1.00	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.97	
Flt Protected	1.00			1.00	0.96	
Satd. Flow (prot)	3539			3539	1735	
Flt Permitted	1.00			1.00	0.96	
Satd. Flow (perm)	3539			3539	1735	
Volume (vph)	1522	0	0	1655	554	135
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1654	0	0	1799	602	147
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	1654	0	0	1799	743	0
Confl. Peds. (#/hr)		10	10		10	10
Turn Type						
Protected Phases	4			8	2	
Permitted Phases						
Actuated Green, G (s)	54.5			54.5	46.5	
Effective Green, g (s)	55.0			55.0	47.0	
Actuated g/C Ratio	0.50			0.50	0.43	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1770			1770	741	
v/s Ratio Prot	0.47			c0.51	c0.43	
v/s Ratio Perm						
v/c Ratio	0.93			1.02	1.00	
Uniform Delay, d1	25.8			27.5	31.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	9.7			25.6	33.6	
Delay (s)	35.5			53.1	65.1	
Level of Service	D			D	E	
Approach Delay (s)	35.5			53.1	65.1	
Approach LOS	D			D	E	

Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3425		1770	3519		3433	3539	1544	1770	3539	1544
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3425		1770	3519		3433	3539	1544	1770	3539	1544
Volume (vph)	136	1600	363	177	1019	34	482	431	12	216	602	112
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	1739	395	192	1108	37	524	468	13	235	654	122
RTOR Reduction (vph)	0	16	0	0	2	0	0	0	10	0	0	95
Lane Group Flow (vph)	148	2118	0	192	1143	0	524	468	3	235	654	27
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	12.3	51.5		10.0	49.2		13.0	26.6	26.6	12.0	25.6	25.6
Effective Green, g (s)	12.3	52.0		10.0	49.7		13.0	27.1	27.1	12.0	26.1	26.1
Actuated g/C Ratio	0.11	0.44		0.09	0.42		0.11	0.23	0.23	0.10	0.22	0.22
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	1521		151	1494		381	819	357	181	789	344
v/s Ratio Prot	0.08	c0.62		c0.11	0.32		c0.15	0.13		0.13	c0.18	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.80	1.39		1.27	0.77		1.38	0.57	0.01	1.30	0.83	0.08
Uniform Delay, d1	51.2	32.5		53.5	28.7		52.0	39.9	34.7	52.5	43.4	36.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.5	180.7		163.8	2.4		184.7	1.0	0.0	168.7	7.2	0.1
Delay (s)	71.7	213.2		217.4	31.1		236.8	40.8	34.7	221.2	50.6	36.1
Level of Service	E	F		F	C		F	D	C	F	D	D
Approach Delay (s)		204.1			57.9			142.9			88.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	137.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1821		1770	1863	1544	1770	1788		1770	1863	1544
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1821		1770	1863	1544	1770	1788		1770	1863	1544
Volume (vph)	475	942	140	67	784	158	137	358	96	148	467	226
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	1024	152	73	852	172	149	389	104	161	508	246
RTOR Reduction (vph)	0	4	0	0	0	66	0	8	0	0	0	160
Lane Group Flow (vph)	516	1172	0	73	852	106	149	485	0	161	508	86
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	23.0	58.9		6.4	42.3	42.3	9.0	29.5		9.0	29.5	29.5
Effective Green, g (s)	23.0	59.4		6.4	42.8	42.8	9.0	30.0		9.0	30.0	30.0
Actuated g/C Ratio	0.19	0.49		0.05	0.35	0.35	0.07	0.25		0.07	0.25	0.25
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	337	895		94	660	547	132	444		132	463	383
v/s Ratio Prot	c0.29	c0.64		0.04	0.46		0.08	0.27		c0.09	c0.27	
v/s Ratio Perm						0.07						0.06
v/c Ratio	1.53	1.31		0.78	1.29	0.19	1.13	1.09		1.22	1.10	0.22
Uniform Delay, d1	48.9	30.7		56.5	39.0	27.0	55.9	45.4		55.9	45.4	36.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	253.5	147.3		32.2	142.1	0.2	117.1	69.8		149.1	70.8	0.3
Delay (s)	302.4	178.0		88.7	181.1	27.2	173.0	115.2		205.0	116.2	36.4
Level of Service	F	F		F	F	C	F	F		F	F	D
Approach Delay (s)		215.9			150.8			128.6			110.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	164.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.97			0.94	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1828			1842			1752			1722	
Flt Permitted		0.87			0.93			0.66			0.91	
Satd. Flow (perm)		1598			1724			1196			1589	
Volume (vph)	78	833	83	32	742	49	84	42	30	27	49	53
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	905	90	35	807	53	91	46	33	29	53	58
RTOR Reduction (vph)	0	2	0	0	2	0	0	9	0	0	25	0
Lane Group Flow (vph)	0	1078	0	0	893	0	0	161	0	0	115	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		70.7			70.7			16.8			16.8	
Effective Green, g (s)		71.2			71.2			17.3			17.3	
Actuated g/C Ratio		0.74			0.74			0.18			0.18	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1179			1272			214			285	
v/s Ratio Prot												
v/s Ratio Perm		c0.67			0.52			c0.13			0.07	
v/c Ratio		0.91			0.70			0.75			0.40	
Uniform Delay, d1		10.2			6.9			37.6			35.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		10.9			1.8			13.9			0.9	
Delay (s)		21.0			8.7			51.4			36.0	
Level of Service		C			A			D			D	
Approach Delay (s)		21.0			8.7			51.4			36.0	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1555	1770	3539	1583	1770	3539	1535
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1555	1770	3539	1583	1770	3539	1535
Volume (vph)	91	601	166	37	633	88	55	308	61	77	335	100
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	653	180	40	688	96	60	335	66	84	364	109
RTOR Reduction (vph)	0	0	114	0	0	65	0	0	50	0	0	82
Lane Group Flow (vph)	99	653	66	40	688	31	60	335	16	84	364	27
Confl. Peds. (#/hr)	10					10				10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.5	20.2	20.2	2.2	17.9	17.9	3.5	13.4	13.4	3.6	13.5	13.5
Effective Green, g (s)	4.5	20.7	20.7	2.2	18.4	18.4	3.5	13.9	13.9	3.6	14.0	14.0
Actuated g/C Ratio	0.08	0.37	0.37	0.04	0.33	0.33	0.06	0.25	0.25	0.06	0.25	0.25
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1299	581	69	1155	507	110	872	390	113	878	381
v/s Ratio Prot	c0.06	0.18		0.02	c0.19		0.03	0.09		c0.05	c0.10	
v/s Ratio Perm			0.04			0.02			0.01			0.02
v/c Ratio	0.70	0.50	0.11	0.58	0.60	0.06	0.55	0.38	0.04	0.74	0.41	0.07
Uniform Delay, d1	25.3	13.9	11.8	26.6	15.9	13.1	25.7	17.7	16.2	25.9	17.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.6	0.3	0.1	11.3	0.8	0.1	5.4	0.3	0.0	22.9	0.3	0.1
Delay (s)	39.9	14.2	11.9	37.9	16.7	13.1	31.1	18.0	16.2	48.9	18.1	16.3
Level of Service	D	B	B	D	B	B	C	B	B	D	B	B
Approach Delay (s)		16.5			17.3			19.4			22.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor			0.88					0.95	1.00	1.00	0.95	
Frpb, ped/bikes			0.98					1.00	0.96	1.00	1.00	
Flpb, ped/bikes			1.00					1.00	1.00	1.00	1.00	
Frt			0.85					1.00	0.85	1.00	1.00	
Flt Protected			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)			2720					3539	1520	1770	3539	
Flt Permitted			1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)			2720					3539	1520	1770	3539	
Volume (vph)	0	0	538	0	0	0	0	1175	90	642	860	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	585	0	0	0	0	1277	98	698	935	0
RTOR Reduction (vph)	0	0	273	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	0	0	312	0	0	0	0	1277	52	698	935	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			custom						Perm	Prot		
Protected Phases								2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)			17.3					39.2	39.2	40.6	84.3	
Effective Green, g (s)			17.8					39.7	39.7	41.1	84.8	
Actuated g/C Ratio			0.16					0.36	0.36	0.37	0.77	
Clearance Time (s)			4.5					4.5	4.5	4.5	4.5	
Vehicle Extension (s)			3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)			438					1270	546	658	2713	
v/s Ratio Prot								c0.36		c0.39	0.26	
v/s Ratio Perm			c0.11						0.03			
v/c Ratio			0.71					1.01	0.09	1.06	0.34	
Uniform Delay, d1			44.0					35.4	23.5	34.8	4.1	
Progression Factor			1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2			5.4					26.6	0.1	52.3	0.1	
Delay (s)			49.4					62.0	23.6	87.1	4.2	
Level of Service			D					E	C	F	A	
Approach Delay (s)		49.4			0.0			59.3			39.6	
Approach LOS		D			A			E			D	

Intersection Summary			
HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1548	1770	1863	1548	1770	5085	1524	1770	5085	1524
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1548	1770	1863	1548	1770	5085	1524	1770	5085	1524
Volume (vph)	295	170	136	44	110	198	47	854	69	289	723	285
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	185	148	48	120	215	51	928	75	314	786	310
RTOR Reduction (vph)	0	0	100	0	0	181	0	0	55	0	0	181
Lane Group Flow (vph)	321	185	48	48	120	34	51	928	20	314	786	129
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	20.3	30.4	30.4	4.5	14.6	14.6	4.5	24.4	24.4	19.2	39.1	39.1
Effective Green, g (s)	20.3	30.9	30.9	4.5	15.1	15.1	4.5	24.9	24.9	19.2	39.6	39.6
Actuated g/C Ratio	0.21	0.32	0.32	0.05	0.16	0.16	0.05	0.26	0.26	0.20	0.41	0.41
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	603	501	83	295	245	83	1326	397	356	2109	632
v/s Ratio Prot	c0.18	0.10		0.03	c0.06		0.03	c0.18		c0.18	0.15	
v/s Ratio Perm			0.03			0.02			0.01			0.08
v/c Ratio	0.85	0.31	0.10	0.58	0.41	0.14	0.61	0.70	0.05	0.88	0.37	0.20
Uniform Delay, d1	36.2	24.3	22.5	44.6	36.2	34.6	44.6	31.9	26.4	37.1	19.4	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.9	0.3	0.1	9.4	0.9	0.3	12.8	1.6	0.1	21.7	0.1	0.2
Delay (s)	53.1	24.5	22.6	54.0	37.1	34.9	57.4	33.6	26.5	58.7	19.5	18.0
Level of Service	D	C	C	D	D	C	E	C	C	E	B	B
Approach Delay (s)		38.1			38.0			34.2			27.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	80	256	16	19	147	82	43	75	86	60	80	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	88	281	18	21	162	90	47	82	95	66	88	48

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	229	158	102	171	224	202
Volume Left (vph)	88	0	21	0	47	66
Volume Right (vph)	0	18	0	90	95	48
Hadj (s)	0.23	-0.04	0.14	-0.34	-0.18	-0.04
Departure Headway (s)	6.5	6.2	6.6	6.1	5.9	6.1
Degree Utilization, x	0.41	0.27	0.19	0.29	0.37	0.34
Capacity (veh/h)	524	546	506	546	557	542
Control Delay (s)	12.8	10.3	9.9	10.4	12.2	12.1
Approach Delay (s)	11.8		10.2		12.2	12.1
Approach LOS	B		B		B	B

Intersection Summary			
Delay	11.6		
HCM Level of Service	B		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	5085	1533	3433	5085	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	5085	1533	3433	5085	1553
Volume (vph)	126	409	133	108	420	108	72	843	156	149	756	130
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	445	145	117	457	117	78	916	170	162	822	141
RTOR Reduction (vph)	0	0	109	0	0	88	0	0	115	0	0	92
Lane Group Flow (vph)	137	445	36	117	457	29	78	916	55	162	822	49
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.2	15.3	15.3	5.1	15.2	15.2	3.7	19.9	19.9	5.5	21.7	21.7
Effective Green, g (s)	5.7	15.8	15.8	5.6	15.7	15.7	3.7	20.4	20.4	5.5	22.2	22.2
Actuated g/C Ratio	0.09	0.25	0.25	0.09	0.25	0.25	0.06	0.32	0.32	0.09	0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	883	388	304	878	385	201	1639	494	298	1783	545
v/s Ratio Prot	c0.04	0.13		0.03	c0.13		0.02	c0.18		c0.05	0.16	
v/s Ratio Perm			0.02			0.02			0.04			0.03
v/c Ratio	0.44	0.50	0.09	0.38	0.52	0.08	0.39	0.56	0.11	0.54	0.46	0.09
Uniform Delay, d1	27.3	20.4	18.2	27.2	20.5	18.2	28.7	17.7	15.1	27.7	15.9	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.5	0.1	0.8	0.6	0.1	1.2	0.4	0.1	2.0	0.2	0.1
Delay (s)	28.3	20.8	18.4	28.0	21.1	18.3	30.0	18.1	15.2	29.7	16.1	13.9
Level of Service	C	C	B	C	C	B	C	B	B	C	B	B
Approach Delay (s)		21.8			21.8			18.5			17.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	4.0
Lane Util. Factor		1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.99			1.00	0.98
Flpb, ped/bikes		1.00			1.00			1.00			1.00	1.00
Frt		0.99			1.00			0.93			1.00	0.85
Flt Protected		1.00			0.99			0.99			0.98	1.00
Satd. Flow (prot)		1826			1823			1679			1825	1545
Flt Permitted		0.94			0.58			0.88			0.66	1.00
Satd. Flow (perm)		1727			1072			1500			1224	1545
Volume (vph)	29	598	78	232	523	27	93	82	208	33	53	7
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	33	680	89	264	594	31	106	93	236	38	60	8
RTOR Reduction (vph)	0	4	0	0	1	0	0	39	0	0	0	6
Lane Group Flow (vph)	0	798	0	0	888	0	0	396	0	0	98	2
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		73.5			73.5			27.5			27.5	27.5
Effective Green, g (s)		74.0			74.0			28.0			28.0	28.0
Actuated g/C Ratio		0.67			0.67			0.25			0.25	0.25
Clearance Time (s)		4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1162			721			382			312	393
v/s Ratio Prot												
v/s Ratio Perm		0.46			c0.83			c0.26			0.08	0.00
v/c Ratio		0.69			1.23			1.04			0.31	0.01
Uniform Delay, d1		11.0			18.0			41.0			33.2	30.6
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		1.7			116.0			56.0			0.6	0.0
Delay (s)		12.7			134.0			97.0			33.8	30.6
Level of Service		B			F			F			C	C
Approach Delay (s)		12.7			134.0			97.0			33.6	
Approach LOS		B			F			F			C	

Intersection Summary			
HCM Average Control Delay	78.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	119.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	0.95						1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.95	1.00
Satd. Flow (prot)		3427		1770	3539						1758	1534
Flt Permitted		1.00		0.95	1.00						0.95	1.00
Satd. Flow (perm)		3427		1770	3539						1758	1534
Volume (vph)	0	758	162	177	715	0	0	0	0	278	0	185
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	861	184	201	812	0	0	0	0	316	0	210
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	0	98
Lane Group Flow (vph)	0	1022	0	201	812	0	0	0	0	0	316	112
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type				Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases										6		6
Actuated Green, G (s)		22.8		7.8	35.1						16.2	16.2
Effective Green, g (s)		23.3		8.3	35.6						16.7	16.7
Actuated g/C Ratio		0.39		0.14	0.59						0.28	0.28
Clearance Time (s)		4.5		4.5	4.5						4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1324		244	2089						487	425
v/s Ratio Prot		c0.30		c0.11	0.23							
v/s Ratio Perm											0.18	0.07
v/c Ratio		0.77		0.82	0.39						0.65	0.26
Uniform Delay, d1		16.2		25.3	6.6						19.2	17.0
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		2.9		19.7	0.1						3.0	0.3
Delay (s)		19.0		45.0	6.7						22.2	17.3
Level of Service		B		D	A						C	B
Approach Delay (s)		19.0			14.3			0.0			20.3	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			1.00	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.96			1.00	0.85			
Flt Protected		0.99			1.00			0.95	1.00			
Satd. Flow (prot)		3516			3350			1755	1552			
Flt Permitted		0.62			1.00			0.95	1.00			
Satd. Flow (perm)		2179			3350			1755	1552			
Volume (vph)	130	907	0	0	777	324	94	0	253	0	0	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	148	1031	0	0	883	368	107	0	288	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	0	0	0	85	0	0	0
Lane Group Flow (vph)	0	1179	0	0	1210	0	0	107	203	0	0	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)		48.6			48.6			14.5	14.5			
Effective Green, g (s)		49.1			49.1			15.0	15.0			
Actuated g/C Ratio		0.68			0.68			0.21	0.21			
Clearance Time (s)		4.5			4.5			4.5	4.5			
Vehicle Extension (s)		3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)		1484			2281			365	323			
v/s Ratio Prot					0.36							
v/s Ratio Perm		c0.54						0.06	c0.13			
v/c Ratio		0.79			0.53			0.29	0.63			
Uniform Delay, d1		8.0			5.7			24.1	26.0			
Progression Factor		1.00			1.00			1.00	1.00			
Incremental Delay, d2		3.0			0.2			0.4	3.8			
Delay (s)		11.0			6.0			24.5	29.8			
Level of Service		B			A			C	C			
Approach Delay (s)		11.0			6.0			28.4			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3359		1770	3460		1770	3465		1770	3533	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3359		1770	3460		1770	3465		1770	3533	
Volume (vph)	113	774	320	345	625	92	632	1289	177	129	1071	11
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	841	348	375	679	100	687	1401	192	140	1164	12
RTOR Reduction (vph)	0	37	0	0	10	0	0	9	0	0	1	0
Lane Group Flow (vph)	123	1152	0	375	769	0	687	1584	0	140	1175	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.6	31.5		15.0	35.9		24.0	48.5		8.0	32.5	
Effective Green, g (s)	10.6	32.0		15.0	36.4		24.0	49.0		8.0	33.0	
Actuated g/C Ratio	0.09	0.27		0.12	0.30		0.20	0.41		0.07	0.28	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	156	896		221	1050		354	1415		118	972	
v/s Ratio Prot	0.07	c0.34		c0.21	0.22		c0.39	0.46		0.08	c0.33	
v/s Ratio Perm												
v/c Ratio	0.79	1.29		1.70	0.73		1.94	1.12		1.19	1.21	
Uniform Delay, d1	53.6	44.0		52.5	37.4		48.0	35.5		56.0	43.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.7	136.9		332.3	2.7		433.5	63.8		141.5	103.8	
Delay (s)	76.3	180.9		384.8	40.1		481.5	99.3		197.5	147.3	
Level of Service	E	F		F	D		F	F		F	F	
Approach Delay (s)		171.1			152.1			214.5			152.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	179.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	129.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	115	294	21	23	344	51	47	39	46	47	34	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	131	334	24	26	391	58	53	44	52	53	39	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	489	475	150	105
Volume Left (vph)	131	26	53	53
Volume Right (vph)	24	58	52	13
Hadj (s)	0.06	-0.03	-0.10	0.06
Departure Headway (s)	5.7	5.6	6.8	7.1
Degree Utilization, x	0.77	0.74	0.28	0.21
Capacity (veh/h)	617	617	467	439
Control Delay (s)	25.0	22.9	12.4	11.9
Approach Delay (s)	25.0	22.9	12.4	11.9
Approach LOS	D	C	B	B

Intersection Summary			
Delay	21.5		
HCM Level of Service	C		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	36	226	48	61	213	33	109	489	109	65	189	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	246	52	66	232	36	118	532	118	71	205	87
RTOR Reduction (vph)	0	0	42	0	0	28	0	0	73	0	0	55
Lane Group Flow (vph)	39	246	10	66	232	8	118	532	45	71	205	32
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.2	10.4	10.4	3.5	11.7	11.7	4.7	21.4	21.4	3.9	20.6	20.6
Effective Green, g (s)	2.7	10.9	10.9	4.0	12.2	12.2	5.2	21.9	21.9	4.4	21.1	21.1
Actuated g/C Ratio	0.05	0.19	0.19	0.07	0.21	0.21	0.09	0.38	0.38	0.08	0.37	0.37
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	84	674	302	124	755	338	161	1355	606	136	1305	584
v/s Ratio Prot	0.02	c0.07		c0.04	0.07		c0.07	c0.15		0.04	0.06	
v/s Ratio Perm			0.01			0.00			0.03			0.02
v/c Ratio	0.46	0.36	0.03	0.53	0.31	0.02	0.73	0.39	0.07	0.52	0.16	0.05
Uniform Delay, d1	26.5	20.1	18.9	25.7	18.9	17.8	25.3	12.8	11.2	25.4	12.1	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.3	0.0	4.3	0.2	0.0	15.8	0.2	0.1	3.6	0.1	0.0
Delay (s)	30.6	20.5	18.9	30.0	19.2	17.8	41.1	13.0	11.3	29.0	12.1	11.7
Level of Service	C	C	B	C	B	B	D	B	B	C	B	B
Approach Delay (s)		21.4			21.2			17.1			15.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	57.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Volume (vph)	85	321	63	164	549	124	31	804	113	170	966	117
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	349	68	178	597	135	34	874	123	185	1050	127
RTOR Reduction (vph)	0	0	51	0	0	100	0	0	78	0	0	77
Lane Group Flow (vph)	92	349	17	178	597	35	34	874	45	185	1050	50
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.2	17.6	17.6	5.6	18.0	18.0	3.3	25.3	25.3	5.6	27.6	27.6
Effective Green, g (s)	5.2	18.1	18.1	5.6	18.5	18.5	3.3	25.8	25.8	5.6	28.1	28.1
Actuated g/C Ratio	0.07	0.25	0.25	0.08	0.26	0.26	0.05	0.36	0.36	0.08	0.40	0.40
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	901	395	270	921	404	159	1284	563	270	1399	613
v/s Ratio Prot	0.03	0.10		c0.05	c0.17		0.01	0.25		c0.05	c0.30	
v/s Ratio Perm			0.01			0.02			0.03			0.03
v/c Ratio	0.37	0.39	0.04	0.66	0.65	0.09	0.21	0.68	0.08	0.69	0.75	0.08
Uniform Delay, d1	31.4	21.9	20.0	31.8	23.4	19.9	32.7	19.2	14.9	31.9	18.5	13.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3	0.0	5.7	1.6	0.1	0.7	1.5	0.1	7.0	2.3	0.1
Delay (s)	32.3	22.2	20.0	37.5	25.0	20.0	33.3	20.7	14.9	38.9	20.8	13.5
Level of Service	C	C	C	D	C	C	C	C	B	D	C	B
Approach Delay (s)		23.7			26.7			20.4			22.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3443		1770	1736		1770	1786	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3495		1770	3443		1770	1736		1770	1786	
Volume (vph)	63	529	39	135	821	144	41	57	39	139	120	39
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	575	42	147	892	157	45	62	42	151	130	42
RTOR Reduction (vph)	0	6	0	0	14	0	0	31	0	0	14	0
Lane Group Flow (vph)	68	611	0	147	1035	0	45	73	0	151	158	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.1	22.9		8.4	27.2		4.0	13.4		9.1	18.5	
Effective Green, g (s)	4.1	23.4		8.4	27.7		4.0	13.9		9.1	19.0	
Actuated g/C Ratio	0.06	0.33		0.12	0.39		0.06	0.20		0.13	0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	1155		210	1347		100	341		228	479	
v/s Ratio Prot	0.04	0.17		c0.08	c0.30		0.03	0.04		c0.09	c0.09	
v/s Ratio Perm												
v/c Ratio	0.66	0.53		0.70	0.77		0.45	0.21		0.66	0.33	
Uniform Delay, d1	32.7	19.2		30.0	18.8		32.3	23.9		29.4	20.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.7	0.4		9.8	2.7		3.2	0.3		7.0	0.4	
Delay (s)	47.4	19.7		39.8	21.5		35.5	24.2		36.4	21.2	
Level of Service	D	B		D	C		D	C		D	C	
Approach Delay (s)		22.4			23.7			27.6			28.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	3539	1551	3433	3539	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	3539	1551	3433	3539	1551
Volume (vph)	174	526	78	363	803	184	94	413	418	235	301	181
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	572	85	395	873	200	102	449	454	255	327	197
RTOR Reduction (vph)	0	0	61	0	0	129	0	0	194	0	0	141
Lane Group Flow (vph)	189	572	24	395	873	71	102	449	260	255	327	56
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.1	21.4	21.4	11.2	26.5	26.5	5.7	18.5	18.5	8.2	21.0	21.0
Effective Green, g (s)	6.1	21.9	21.9	11.2	27.0	27.0	5.7	19.0	19.0	8.2	21.5	21.5
Actuated g/C Ratio	0.08	0.29	0.29	0.15	0.35	0.35	0.07	0.25	0.25	0.11	0.28	0.28
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	1016	445	504	1252	549	256	881	386	369	997	437
v/s Ratio Prot	0.06	0.16		c0.12	c0.25		0.03	0.13		c0.07	0.09	
v/s Ratio Perm			0.02			0.05			c0.17			0.04
v/c Ratio	0.69	0.56	0.05	0.78	0.70	0.13	0.40	0.51	0.67	0.69	0.33	0.13
Uniform Delay, d1	34.2	23.1	19.7	31.4	21.1	16.7	33.7	24.6	25.9	32.8	21.7	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.7	0.1	7.8	1.7	0.1	1.0	0.5	4.6	5.5	0.2	0.1
Delay (s)	41.2	23.8	19.8	39.2	22.9	16.8	34.7	25.1	30.5	38.3	21.9	20.5
Level of Service	D	C	B	D	C	B	C	C	C	D	C	C
Approach Delay (s)		27.3			26.4			28.5			26.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frpb, ped/bikes		1.00	0.96	1.00	1.00					1.00		0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00					0.99		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1517	1770	3539					1746		1544
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3539	1517	1770	3539					1746		1544
Volume (vph)	0	1814	450	269	1696	0	0	0	0	484	0	534
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1972	489	292	1843	0	0	0	0	526	0	580
RTOR Reduction (vph)	0	0	156	0	0	0	0	0	0	0	0	12
Lane Group Flow (vph)	0	1972	333	292	1843	0	0	0	0	526	0	568
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type			Perm	Prot						custom		custom
Protected Phases		4		3	8							
Permitted Phases			4							6		6
Actuated Green, G (s)		53.5	53.5	15.5	73.5					37.5		37.5
Effective Green, g (s)		54.0	54.0	16.0	74.0					38.0		38.0
Actuated g/C Ratio		0.45	0.45	0.13	0.62					0.32		0.32
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1593	683	236	2182					553		489
v/s Ratio Prot		c0.56		c0.17	0.52							
v/s Ratio Perm			0.22							0.30		c0.37
v/c Ratio		1.24	0.49	1.24	0.84					0.95		1.16
Uniform Delay, d1		33.0	23.3	52.0	18.4					40.1		41.0
Progression Factor		1.00	1.00	1.00	1.00					1.00		1.00
Incremental Delay, d2		112.6	0.6	137.6	3.2					26.5		93.1
Delay (s)		145.6	23.8	189.6	21.6					66.6		134.1
Level of Service		F	C	F	C					E		F
Approach Delay (s)		121.4			44.6			0.0			102.0	
Approach LOS		F			D			A			F	

Intersection Summary			
HCM Average Control Delay	88.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.97			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1746		1544			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1746		1544			
Volume (vph)	471	1816	0	0	1531	766	459	0	336	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	512	1974	0	0	1664	833	499	0	365	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	314	0	0	14	0	0	0
Lane Group Flow (vph)	512	1974	0	0	1664	519	499	0	351	0	0	0
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot					Perm	custom		custom			
Protected Phases	7	4			8							
Permitted Phases						8	2		2			
Actuated Green, G (s)	27.5	79.5			47.5	47.5	31.5		31.5			
Effective Green, g (s)	28.0	80.0			48.0	48.0	32.0		32.0			
Actuated g/C Ratio	0.23	0.67			0.40	0.40	0.27		0.27			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5		4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	413	2359			1416	633	466		412			
v/s Ratio Prot	c0.29	0.56			c0.47							
v/s Ratio Perm						0.33	c0.29		0.23			
v/c Ratio	1.24	0.84			1.18	0.82	1.07		0.85			
Uniform Delay, d1	46.0	15.1			36.0	32.1	44.0		41.8			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	127.0	2.7			86.6	8.4	61.9		15.5			
Delay (s)	173.0	17.8			122.6	40.5	105.9		57.3			
Level of Service	F	B			F	D	F		E			
Approach Delay (s)		49.8			95.2			85.4			0.0	
Approach LOS		D			F			F			A	

Intersection Summary			
HCM Average Control Delay	74.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1544	3433	3539	1544	3433	5085	1544	3433	5085	1544
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1544	3433	3539	1544	3433	5085	1544	3433	5085	1544
Volume (vph)	643	1200	301	131	1093	342	380	754	167	313	904	814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	699	1304	327	142	1188	372	413	820	182	340	983	885
RTOR Reduction (vph)	0	0	157	0	0	186	0	0	110	0	0	173
Lane Group Flow (vph)	699	1304	170	142	1188	186	413	820	72	340	983	712
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.0	43.6	43.6	7.9	33.5	33.5	12.0	35.5	35.5	16.0	39.5	39.5
Effective Green, g (s)	18.0	44.1	44.1	7.9	34.0	34.0	12.0	36.0	36.0	16.0	40.0	40.0
Actuated g/C Ratio	0.15	0.37	0.37	0.07	0.28	0.28	0.10	0.30	0.30	0.13	0.33	0.33
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	515	1301	567	226	1003	437	343	1526	463	458	1695	515
v/s Ratio Prot	c0.20	0.37		0.04	c0.34		c0.12	0.16		0.10	0.19	
v/s Ratio Perm			0.11			0.12			0.05			c0.46
v/c Ratio	1.36	1.00	0.30	0.63	1.18	0.43	1.20	0.54	0.16	0.74	0.58	1.38
Uniform Delay, d1	51.0	37.9	27.0	54.6	43.0	35.1	54.0	35.1	30.8	50.0	33.1	40.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	173.1	25.5	0.3	5.4	93.3	0.7	116.3	0.4	0.2	6.4	0.5	184.2
Delay (s)	224.1	63.5	27.3	60.0	136.3	35.7	170.3	35.4	31.0	56.4	33.5	224.2
Level of Service	F	E	C	E	F	D	F	D	C	E	C	F
Approach Delay (s)		106.6			107.9			74.2			113.5	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM Average Control Delay	102.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1583	1770	3539					1770		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3539	1583	1770	3539					1770		1583
Volume (vph)	0	1134	332	41	802	0	0	0	0	102	0	269
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1233	361	45	872	0	0	0	0	111	0	292
RTOR Reduction (vph)	0	0	189	0	0	0	0	0	0	0	0	92
Lane Group Flow (vph)	0	1233	172	45	872	0	0	0	0	111	0	200
Turn Type			Perm	Prot						custom		custom
Protected Phases		4		3	8							
Permitted Phases			4							6		6
Actuated Green, G (s)		24.1	24.1	2.3	30.4					12.2		12.2
Effective Green, g (s)		24.6	24.6	2.3	30.9					12.7		12.7
Actuated g/C Ratio		0.48	0.48	0.04	0.60					0.25		0.25
Clearance Time (s)		4.5	4.5	4.0	4.5					4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1687	755	79	2119					436		390
v/s Ratio Prot		c0.35		0.03	c0.25							
v/s Ratio Perm			0.11							0.06		c0.13
v/c Ratio		0.73	0.23	0.57	0.41					0.25		0.51
Uniform Delay, d1		10.8	7.9	24.2	5.5					15.6		16.8
Progression Factor		1.00	1.00	1.00	1.00					1.00		1.00
Incremental Delay, d2		1.7	0.2	9.1	0.1					0.3		1.1
Delay (s)		12.5	8.1	33.3	5.6					16.0		17.9
Level of Service		B	A	C	A					B		B
Approach Delay (s)		11.5			7.0			0.0			17.4	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1770	3539			3539	1583	1770		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1770	3539			3539	1583	1770		1583			
Volume (vph)	74	1162	0	0	664	91	173	0	227	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	1263	0	0	722	99	188	0	247	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	31	0	0	0
Lane Group Flow (vph)	80	1263	0	0	722	40	188	0	216	0	0	0
Turn Type	Prot					Perm	custom		custom			
Protected Phases	7	4			8							
Permitted Phases						8	2		2			
Actuated Green, G (s)	3.9	26.8			18.9	18.9	12.5		12.5			
Effective Green, g (s)	3.9	27.3			19.4	19.4	13.0		13.0			
Actuated g/C Ratio	0.08	0.57			0.40	0.40	0.27		0.27			
Clearance Time (s)	4.0	4.5			4.5	4.5	4.5		4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	143	2000			1421	636	476		426			
v/s Ratio Prot	0.05	c0.36			0.20							
v/s Ratio Perm						0.03	0.11		c0.14			
v/c Ratio	0.56	0.63			0.51	0.06	0.39		0.51			
Uniform Delay, d1	21.4	7.1			10.9	8.9	14.4		14.9			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	4.7	0.7			0.3	0.0	0.5		0.9			
Delay (s)	26.1	7.8			11.2	8.9	15.0		15.9			
Level of Service	C	A			B	A	B		B			
Approach Delay (s)		8.8			10.9			15.5			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX D

ROAD SEGMENT ANALYSIS TABLE

ROAD SEGMENT ANALYSIS TABLE
East-West Streets

Road	Segment	2035 General Plan Designations	Existing							2035						
			No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM		No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM	
						PHV	LOS	PHV	LOS				PHV	LOS	PHV	LOS
Manning Avenue	Armstrong to Temperance	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	*2,014*	C	*2,459*	D
	Temperance to SR 99	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	*2,014*	C	*2,459*	D
	SR 99 to Golden State	Expressway	4	Y	Y	*1,065*	D	*1,340*	C	4	Y	Y	*2,014*	C	*2,459*	D
	Golden State to DeWolf	Expressway	4	Y	Y	1,065	C	1,340	C	4	Y	Y	2,014	C	2,459	D
	DeWolf to Leonard	Expressway	4	Y	Y	1,056	C	1,364	C	4	Y	Y	2,286	D	2,920	D
	Leonard to Highland	Expressway	4	Y	Y	*1,062*	C	*1,382*	C	4	Y	Y	*2,150*	D	*2,789*	D
	Highland to Thompson	Expressway	4	Y	Y	*1,062*	C	*1,382*	C	4	Y	Y	*2,150*	D	*2,789*	D
	Thompson to McCall	Expressway	4	Y	Y	1,068	C	1,399	C	4	Y	Y	2,013	C	2,659	D
	McCall to Dockery	Expressway	4	Y	Y	1,054	C	1,432	C	4	Y	Y	2,125	D	2,906	D
	Dockery to Del Rey	Expressway	4	Y	Y	1,079	C	1,432	C	4	Y	Y	1,997	C	2,628	D
	Del Rey to Bethel	Expressway	4	Y	Y	1,093	C	1,451	C	4	Y	Y	1,915	C	2,528	D
Springfield Avenue	Armstrong to Temperance	Collector	2	N	N	NA	-	NA	-	2	Y	Y	<100	C	<100	C
	Temperance to Locan	Collector	2	N	N	NA	-	NA	-	2	Y	Y	<100	C	119	C
	Leonard to Highland	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	142	C
	Thompson to McCall	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	151	C
	McCall to Dockery	Collector	-	-	-	-	-	-	-	2	Y	Y	450	C	625	C
	Dockery to Del Rey	Collector	-	-	-	-	-	-	-	2	Y	Y	225	C	309	C
	Del Rey to Bethel	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
Dinuba Avenue	Armstrong to Temperance	Arterial	2	N	N	51	C	22	C	4	Y	Y	436	C	413	C
	Temperance to Locan	Arterial	2	N	N	44	C	27	C	4	Y	Y	613	C	617	C
	Locan to DeWolf	Arterial	2	N	N	45	C	25	C	4	Y	Y	1,046	C	1,678	C
	DeWolf to Golden State	Arterial	2	N	N	14	C	28	C	4	Y	Y	1,035	C	1,425	C
	Golden State to Leonard	Arterial	2	N	N	426	C	525	C	4	Y	Y	1,220	C	1,530	C
	Leonard to Highland	Arterial	2	N	N	412	C	513	C	4	Y	Y	1,200	C	1,499	C
	Highland to Thompson	Arterial	2	N	N	535	C	646	C	4	Y	Y	1,475	C	1,734	C
	Thompson to Wright	Arterial	2	N	N	*546*	C	*630*	C	4	Y	Y	*1,423*	C	*1,747*	C
	Wright to McCall	Arterial	2	N	N	557	C	614	C	4	Y	Y	1,372	C	1,760	C
	McCall to Dockery	Arterial	2	N	N	478	C	501	C	4	Y	Y	1,295	C	1,524	C
	Dockery to Amber	Arterial	2	N	N	458	C	494	C	4	Y	Y	1,019	C	1,166	C
	Amber to Bethel	Arterial	2	N	N	443	C	437	C	4	Y	Y	973	C	1,003	C
Huntsman Avenue	Armstrong to Temperance	Collector	2	N	N	NA	-	NA	-	2	Y	Y	141	C	432	C
	Temperance to Locan	Collector	2	N	N	NA	-	NA	-	2	Y	Y	422	C	672	C
	Locan to DeWolf	Collector	2	N	N	NA	-	NA	-	2	Y	Y	339	C	593	C
Nelson Avenue	Highland to Thompson	Collector	2	N	Y	NA	-	NA	-	2	N	N	<100	C	<100	C
	McCall to Dockery	Collector	2	N	Y	NA	-	NA	-	2	N	N	<100	C	<100	C
	Dockery to Orange	Collector	2	N	Y	NA	-	NA	-	2	N	N	<100	C	<100	C
Floral Avenue	Armstrong to Temperance	Arterial	2	N	N	*135*	C	*232*	C	4	Y	Y	*778*	C	*1,150*	C
	Temperance to Locan	Arterial	2	N	N	*135*	C	*232*	C	4	Y	Y	*778*	C	*1,150*	C
	Locan to DeWolf	Arterial	2	N	N	135	C	232	C	4	Y	Y	778	C	1,150	C
	DeWolf to Leonard	Arterial	2	N	N	174	C	260	C	4	Y	Y	768	C	1,315	C
	Leonard to SR 99	Arterial	4	N	N	434	C	1,079	C	4	Y	Y	2,806	D	5,289	**F**
	SR 99 to Highland	Arterial	4	Y	Y	1,060	C	1,862	C	4	Y	Y	3,029	**E**	5,676	**F**
	Highland to Whitson	Arterial	4	Y	Y	1,077	C	1,663	C	4	Y	Y	2,611	D	4,752	**F**
	Whitson to Thompson	Arterial	4	Y	N	583	C	856	C	4	Y	N	1,684	C	3,058	**F**
	Thompson to Wright	Arterial	4	N	N	539	C	940	C	4	N	N	1,615	D	2,704	**F**
	Wright to McCall	Arterial	2	N	N	539	C	940	D	2*	N	N	1,615	**F**	2,704	**F**
	McCall to Dockery	Arterial	2	N	N	391	C	697	D	2*	N	N	1,317	**F**	2,195	**F**
	Dockery to Amber	Arterial	2	N	N	371	C	683	C	4	Y	Y	976	C	1,646	C

ROAD SEGMENT ANALYSIS TABLE
East-West Streets

Road	Segment	2035 General Plan Designations	Existing							2035						
			No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM		No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM	
						PHV	LOS	PHV	LOS				PHV	LOS	PHV	LOS
Floral Avenue	Amber to Bethel	Arterial	2	N	N	389	C	663	C	4	Y	Y	846	C	1,497	C
Rose Avenue	Armstrong to Temperance	Collector	2	N	N	*38*	C	*62*	C	2	Y	Y	*508*	C	*1,044*	D
	Temperance to Locan	Collector	2	N	N	*38*	C	*62*	C	2	Y	Y	*508*	C	*1,044*	D
	Locan to DeWolf	Collector	2	N	N	*38*	C	*62*	C	2	Y	Y	*508*	C	*1,044*	D
	DeWolf to SR 43	Collector	2	N	N	*38*	C	*62*	C	2	Y	Y	*508*	C	*1,044*	D
	SR 43 to Leonard	Collector	2	N	N	*38*	C	*62*	C	2	Y	Y	*508*	C	*1,044*	D
	Leonard to Highland	Collector	2	N	N	38	C	62	C	2	Y	Y	508	C	1,044	D
	Highland to Thompson	Collector	2	N	N	232	C	306	C	2	N	N	468	C	880	D
	McCall to Dockery	Collector	4	N	N	286	C	170	C	4	N	N	646	C	585	C
	Dockery to Amber	Collector	4	N	N	280	C	203	C	4	N	N	634	C	650	C
	Amber to Bethel	Collector	2	N	N	*204*	C	*269*	C	2	Y	Y	*801*	C	*1,289*	D
Nebraska Avenue	Armstrong to Temperance	Arterial	2	N	N	*204*	C	*269*	C	4	Y	Y	*801*	C	*1,289*	C
	Temperance to Locan	Arterial	2	N	N	*204*	C	*269*	C	4	Y	Y	*801*	C	*1,289*	C
	Locan to DeWolf	Arterial	2	N	N	*204*	C	*269*	C	4	Y	Y	*801*	C	*1,289*	C
	DeWolf to Leonard	Arterial	2	N	N	*204*	C	*269*	C	4	Y	Y	*801*	C	*1,289*	C
	Leonard to SR 43	Arterial	2	N	N	*204*	C	*269*	C	4	Y	Y	*801*	C	*1,289*	C
	SR 43 to Highland	Arterial	2	N	N	204	C	269	C	4	Y	Y	801	C	1,289	C
	Highland to Thompson	Arterial	2	N	N	215	C	385	C	2*	N	N	761	D	1,350	**F**
	Thompson to 2nd	Arterial	2	N	N	378	C	459	C	2*	N	N	1,062	D	1,622	**F**
	Golden State to Dockery	Arterial	2	N	N	93	C	170	C	2*	N	N	687	C	832	D
	Dockery to Amber	Arterial	2	N	N	39	C	82	C	4	Y	Y	514	C	712	C
	Amber to Bethel	Arterial	2	N	N	39	C	82	C	4	Y	Y	475	C	708	C
Saginaw Avenue	DeWolf to Highland	Collector	2	N	N	NA	-	NA	-	2	Y	Y	357	C	476	C
	Highland to Thompson	Collector	-	-	-	-	-	-	-	2	Y	Y	313	C	514	C
	Thompson to McCall	Collector	-	-	-	-	-	-	-	2	Y	Y	317	C	662	C
	McCall to SR 99	Collector	-	-	-	-	-	-	-	2	Y	Y	542	C	990	D
	Golden State to Amber	Collector	2	N	N	NA	-	NA	-	2	Y	Y	259	C	411	C
	Amber to Bethel	Collector	2	N	N	NA	-	NA	-	2	Y	Y	270	C	415	C
Mountain View Avenue	DeWolf to Highland	Arterial	2	N	N	145	C	183	C	4	Y	Y	935	C	1,166	C
	Highland to Thompson	Arterial	2	N	N	201	C	291	C	4	Y	Y	1,042	C	1,532	C
	Thompson to McCall	Arterial	2	N	N	208	C	280	C	4	Y	Y	1,310	C	1,855	C
	McCall to Dockery	Arterial	2	N	N	241	C	367	C	4	Y	Y	1,636	C	2,529	D
	Dockery to SR 99	Arterial	2	N	N	402	C	565	C	4	Y	Y	2,907	D	4,494	**F**
	SR 99 to Golden State	Arterial	2	Y	Y	772	C	1,032	D	4	Y	Y	2,876	D	4,431	**F**
	Golden State to Amber	Arterial	4	Y	Y	760	C	1,055	D	4	Y	Y	2,237	D	3,246	**F**
	Amber to Bethel	Arterial	4	Y	Y	*760*	C	*1,055*	D	4	Y	Y	*2,237*	D	*3,246*	**F**
Caruthers Avenue	DeWolf to Highland	Collector	2	N	N	NA	-	NA	-	2	Y	Y	<100	C	<100	C
	Highland to Thompson	Collector	-	-	-	-	-	-	-	2	Y	Y	103	C	214	C
	Thompson to McCall	Collector	-	-	-	-	-	-	-	2	Y	Y	118	C	221	C
	McCall to Dockery	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C

Values in italics are interpolated or extrapolated from adjacent segments.
NA - Not Available
* Physical constraints

ROAD SEGMENT ANALYSIS TABLE
North-South Streets

Road	Segment	2035 General Plan Designations	Existing							2035						
			No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM		No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM	
						PHV	LOS	PHV	LOS				PHV	LOS	PHV	LOS
Armstrong Avenue	Manning to Springfield	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Springfield to Dinuba	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Dinuba to Huntsman	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Huntsman to Floral	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Floral to Rose	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
Temperance Avenue	Manning to Springfield	Arterial	2	N	N	*30*	C	*17*	C	4	Y	Y	429	C	601	C
	Springfield to Dinuba	Arterial	2	N	N	30	C	17	C	4	Y	Y	492	C	390	C
	Dinuba to Huntsman	Arterial	2	N	N	23	C	12	C	4	Y	Y	432	C	450	C
	Floral to Rose	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	<100	C	<100	C
	Rose to Nebraska	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	<100	C	160	C
Locan Avenue	Springfield to Dinuba	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	119	C
	Dinuba to Huntsman	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Floral to Rose	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
	Rose to Nebraska	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	<100	C
DeWolf Avenue	Manning to Golden State	Arterial	2	N	N	30	C	111	C	4	Y	Y	680	C	1,153	C
	Golden State to SR 99	Arterial	2	N	N	*30*	C	*111*	C	4	Y	Y	1,025	C	1,282	C
	Dinuba to Huntsman	Arterial	2	N	N	45	C	25	C	4	Y	Y	778	C	1,234	C
	Huntsman to Floral	Arterial	2	N	N	36	C	22	C	4	Y	Y	572	C	1,046	C
	Floral to SR 43	Arterial	2	N	N	19	C	36	C	4	Y	Y	398	C	590	C
	SR 43 to Rose	Arterial	2	N	N	*19*	C	*36*	C	4	Y	Y	234	C	395	C
	Rose to Nebraska	Arterial	2	N	N	*19*	C	*36*	C	4	Y	Y	279	C	495	C
	Nebraska to Saginaw	Arterial	2	N	N	*19*	C	*36*	C	4	Y	Y	347	C	717	C
	Saginaw to Mountain View	Arterial	2	N	N	*19*	C	*36*	C	4	Y	Y	125	C	188	C
	Mountain View to Caruthers	Arterial	2	N	N	*19*	C	*36*	C	4	Y	Y	<100	C	107	C
Leonard Avenue	Manning to Springfield	Collector	2	N	N	*19*	C	*36*	C	2	Y	Y	<100	C	<100	C
	Springfield to Dinuba	Collector	2	N	N	*19*	C	*36*	C	2	Y	Y	<100	C	<100	C
	Floral to Rose	Collector	-	-	-	-	-	-	-	2	Y	Y	124	C	351	C
	Rose to SR 43	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	128	C
	SR 43 to Nebraska	Collector	-	-	-	-	-	-	-	2	Y	Y	121	C	175	C
Highland Avenue	Golden State to Floral	Major Arterial	2	Y	Y	632	C	974	D	4*	Y	Y	1,661	C	2,422	D
	Floral to Rose	Major Arterial	4	Y	Y	939	C	1,276	C	4*	Y	Y	1,826	C	2,644	D
	Rose to Nebraska	Major Arterial	4	Y	Y	786	C	1,144	C	4*	Y	Y	1,452	C	2,111	D
	Nebraska to SR 43	Major Arterial	4	Y	Y	711	C	1,080	C	4*	Y	Y	1,438	C	2,068	D
Highland Avenue (SR 43)	SR 43 to Saginaw	State Highway	2	N	N	*714*	D	*1,048*	D	4	Y	Y	*1,470*	C	*2,167*	D
	Saginaw to Mountain View	State Highway	2	N	N	717	D	1,015	D	4	Y	Y	1,502	C	2,266	D
	Mountain View to Caruthers	State Highway	2	N	N	719	D	1,007	D	4	Y	Y	1,414	C	2,141	D
Thompson Avenue	Manning to Springfield	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	112	C
Thompson/Wright	Springfield to Dinuba	Collector	-	-	-	-	-	-	-	2	Y	Y	146	C	222	C
Thompson Avenue	Dinuba to Nelson	Collector	4	N	N	NA	-	NA	-	4	N	N	296	C	587	C
	Nelson to Floral	Collector	4	N	N	NA	-	NA	-	4	N	N	264	C	542	C
	Floral to Whitson	Collector	2	N	N	NA	-	NA	-	2	N	N	235	C	442	C
	Whitson to Rose	Collector	2	N	N	NA	-	NA	-	2	N	N	211	C	524	C
	Nebraska to Saginaw	Collector	2	N	N	158	C	237	C	2	N	N	417	C	746	D
	Saginaw to Mountain View	Collector	2	N	N	26	C	63	C	2	N	N	344	C	562	C
	Mountain View to Caruthers	Collector	2	N	N	20	C	41	C	2	N	N	393	C	431	C
McCall Avenue	Parlier to Manning	Arterial	2	N	N	307	C	460	C	4	Y	Y	623	C	1,049	C
	Manning to Springfield	Arterial	2	N	N	441	C	651	C	4	Y	Y	1,010	C	1,518	C
	Springfield to Dinuba	Arterial	2	N	N	548	C	582	C	4	Y	Y	1,116	C	1,526	C

ROAD SEGMENT ANALYSIS TABLE
North-South Streets

Road	Segment	2035 General Plan Designations	Existing							2035						
			No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM		No. of Lanes	Lft-turn Pockets	Divided Y/N	AM		PM	
						PHV	LOS	PHV	LOS				PHV	LOS	PHV	LOS
McCall Avenue	Dinuba to Nelson	Arterial	4	N	N	479	C	497	C	4	N	N	1,088	C	1,406	C
	Nelson to Floral	Arterial	4	N	N	477	C	702	C	4	N	N	1,374	C	1,832	D
	Floral to Arrants	Arterial	2	Y	N	363	C	481	C	2*	N	N	1,101	D	1,265	**F**
	Arrants to 2nd	Arterial	4	Y	Y	*363*	C	*481*	C	4	Y	Y	*1,101*	C	*1,265*	C
	Whitson to Saginaw	Arterial	2	N	N	*108*	C	*208*	C	2*	N	N	*832*	D	*1,487*	**F**
	Saginaw to Mountain View	Arterial	2	N	N	108	C	208	C	4	Y	Y	832	C	1,487	C
	Mountain View to Caruthers	Arterial	2	N	N	113	C	295	C	4	Y	Y	900	C	1,666	C
Dockery Avenue	Manning to Springfield	Collector	-	-	-	-	-	-	-	2	Y	Y	*328*	C	*429*	C
	Springfield to Dinuba	Collector	-	-	-	-	-	-	-	2	Y	Y	328	C	429	C
	Dinuba to Nelson	Collector	2	N	Y	67	C	92	C	2	N	Y	286	C	420	C
	SR 99 to Mountain View	Collector	2	N	N	24	C	30	C	2	Y	Y	173	C	209	C
	Mountain View to Caruthers	Collector	2	N	N	*24*	C	*30*	C	2	Y	Y	*173*	C	*209*	C
Del Rey Avenue	Manning to Springfield	Arterial	2	N	N	13	C	10	C	4	Y	Y	74	C	73	C
	Springfield to Mill Ditch	Arterial	2	N	N	71	C	41	C	4	Y	Y	290	C	424	C
Amber Avenue	Dinuba to Floral	Arterial	-	-	-	-	-	-	-	4	Y	Y	584	C	722	C
	Floral to Rose	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	665	C	961	C
	Rose to Nebraska	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	755	C	892	C
	Nebraska to Saginaw	Arterial	-	-	-	-	-	-	-	4	Y	Y	802	C	1,005	C
	Saginaw to Mountain View	Arterial	-	-	-	-	-	-	-	4	Y	Y	486	C	829	C
Bethel Avenue	South to Manning	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	341	C	420	C
	Manning to Springfield	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	322	C	501	C
	Springfield to Dinuba	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	296	C	472	C
	Dinuba to Floral	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	258	C	444	C
	Floral to Rose	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	236	C	373	C
	Rose to Nebraska	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	446	C	739	C
	Nebraska to Saginaw	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	236	C	365	C
	Saginaw to Mountain View	Arterial	2	N	N	NA	-	NA	-	4	Y	Y	164	C	264	C

Values in italics are interpolated or extrapolated from adjacent segments.
NA - Not Available
* Physical constraints

ROAD SEGMENT ANALYSIS TABLE
Diagonal Streets

Road	Segment	2035 General Plan Designations	Existing							2035						
			No. of	Lft-turn	Divided	AM		PM		No. of	Lft-turn	Divided	AM		PM	
			Lanes	Pockets	Y/N	PHV	LOS	PHV	LOS	Lanes	Pockets	Y/N	PHV	LOS	PHV	LOS
Golden State Blvd.	Manning to Springfield	Major Arterial	4	Y	Y	*770*	C	*1,043*	C	6	Y	Y	*1,520*	C	*3,100*	C
	Springfield to Dinuba	Major Arterial	4	Y	Y	770	C	1,043	C	6	Y	Y	1,520	C	3,100	C
	Dinuba to Highland	Major Arterial	4	Y	Y	452	C	678	C	6	Y	Y	1,248	C	2,764	C
Whitson Street	Highland to Floral	Major Arterial	4	Y	Y	402	C	641	C	4*	Y	Y	872	C	1,531	C
	Floral to Thompson	Major Arterial	4	Y	Y	656	C	973	C	4*	Y	Y	1,276	C	2,067	D
	Thompson to 2nd	Major Arterial	4	N	Y	408	C	643	C	4*	N	Y	1,390	C	2,705	**F**
	2nd to McCall	Major Arterial	4	N	Y	438	C	684	C	4*	N	Y	2,030	D	3,832	**F**
	McCall to Nebraska	Major Arterial	4	N	Y	*438*	C	*684*	C	4*	N	Y	*2,030*	D	*3,832*	**F**
Golden State Blvd.	Nebraska to Dockery	Major Arterial	4	N	Y	*409*	C	*644*	C	6	Y	Y	*1,838*	C	*3,801*	D
	Dockery to Saginaw	Major Arterial	4	N	Y	*380*	C	*603*	C	6	Y	Y	*1,645*	C	*3,770*	D
	Saginaw to Mountain View	Major Arterial	4	N	Y	380	C	603	C	6	Y	Y	1,645	C	3,770	D
SR 43	DeWolf to Rose	State Highway	-	-	-	-	-	-	-	4	Y	Y	262	C	430	C
	Rose to Leonard	State Highway	-	-	-	-	-	-	-	4	Y	Y	407	C	781	C
	Leonard to Nebraska	State Highway	-	-	-	-	-	-	-	4	Y	Y	297	C	641	C
	Nebraska to Highland	State Highway	-	-	-	-	-	-	-	4	Y	Y	299	C	471	C
2nd Street	Nebraska to SR 99	Arterial	2	N	N	683	C	757	D	2*	N	N	1,279	**F**	1,821	**F**
	SR 99 to Whitson	Arterial	2	Y	N	969	D	1,116	D	2*	Y	N	1,846	**F**	2,262	**F**
	Whitson to McCall	Arterial	2	N	N	908	D	1,016	**E**	2*	N	N	1,771	**F**	2,142	**F**
Saginaw-Dockery Diagonal	Saginaw to Dockery	Collector	-	-	-	-	-	-	-	2	Y	Y	<100	C	274	C
Del Rey-Amber Diagonal	Del Rey to Amber	Arterial	-	-	-	-	-	-	-	4	Y	Y	284	C	418	C

Values in italics are interpolated or extrapolated from adjacent segments.
NA - Not Available
* Physical constraints

APPENDIX E

MITIGATED INTERSECTION ANALYSIS SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1553	3433	3539	1532	3433	1863	1553	1770	1797	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1553	3433	3539	1532	3433	1863	1553	1770	1797	
Volume (vph)	34	592	110	283	1217	39	26	45	83	73	133	35
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	643	120	308	1323	42	28	49	90	79	145	38
RTOR Reduction (vph)	0	0	75	0	0	21	0	0	73	0	12	0
Lane Group Flow (vph)	37	643	45	308	1323	21	28	49	17	79	171	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.4	24.7	24.7	9.6	31.9	31.9	2.1	12.0	12.0	4.2	14.1	
Effective Green, g (s)	2.4	25.2	25.2	9.6	32.4	32.4	2.1	12.5	12.5	4.2	14.6	
Actuated g/C Ratio	0.04	0.37	0.37	0.14	0.48	0.48	0.03	0.19	0.19	0.06	0.22	
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	63	1321	580	488	1699	735	107	345	288	110	389	
v/s Ratio Prot	0.02	0.18		c0.09	c0.37		0.01	0.03		c0.04	c0.10	
v/s Ratio Perm			0.03			0.01			0.01			
v/c Ratio	0.59	0.49	0.08	0.63	0.78	0.03	0.26	0.14	0.06	0.72	0.44	
Uniform Delay, d1	32.1	16.2	13.6	27.3	14.6	9.3	31.9	23.0	22.7	31.1	22.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.2	0.3	0.1	2.7	2.3	0.0	1.3	0.2	0.1	20.0	0.8	
Delay (s)	45.3	16.5	13.7	29.9	16.9	9.3	33.2	23.2	22.7	51.0	23.7	
Level of Service	D	B	B	C	B	A	C	C	C	D	C	
Approach Delay (s)		17.4			19.1			24.6			31.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Volume (vph)	28	521	80	151	1155	36	160	131	195	66	293	69
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	566	87	164	1255	39	174	142	212	72	318	75
RTOR Reduction (vph)	0	0	52	0	0	21	0	0	163	0	0	60
Lane Group Flow (vph)	30	566	35	164	1255	18	174	142	49	72	318	15
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.2	27.3	27.3	5.9	31.0	31.0	6.0	15.6	15.6	4.0	13.6	13.6
Effective Green, g (s)	2.2	27.8	27.8	5.9	31.5	31.5	6.0	16.1	16.1	4.0	14.1	14.1
Actuated g/C Ratio	0.03	0.40	0.40	0.08	0.45	0.45	0.09	0.23	0.23	0.06	0.20	0.20
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	108	1410	618	290	1597	700	295	816	358	197	715	314
v/s Ratio Prot	0.01	0.16		c0.05	c0.35		c0.05	0.04		0.02	c0.09	
v/s Ratio Perm			0.02			0.01			0.03			0.01
v/c Ratio	0.28	0.40	0.06	0.57	0.79	0.03	0.59	0.17	0.14	0.37	0.44	0.05
Uniform Delay, d1	33.0	15.0	12.9	30.7	16.3	10.6	30.7	21.5	21.3	31.7	24.4	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.2	0.0	2.5	2.6	0.0	3.0	0.1	0.2	1.2	0.4	0.1
Delay (s)	34.4	15.2	13.0	33.2	18.9	10.6	33.7	21.6	21.5	32.8	24.9	22.5
Level of Service	C	B	B	C	B	B	C	C	C	C	C	C
Approach Delay (s)		15.8			20.3			25.6			25.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	3539	3539	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	3539	3539	2787
Volume (vph)	252	51	59	169	499	684
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	55	64	184	542	743
RTOR Reduction (vph)	0	44	0	0	0	307
Lane Group Flow (vph)	274	11	64	184	542	436
Turn Type		Perm	Prot			custom
Protected Phases	4		2		3	8
Permitted Phases		4		2		
Actuated Green, G (s)	8.7	8.7	10.2	10.2	13.3	26.0
Effective Green, g (s)	9.2	9.2	10.7	10.7	13.3	26.5
Actuated g/C Ratio	0.20	0.20	0.24	0.24	0.29	0.59
Clearance Time (s)	4.5	4.5	4.5	4.5	4.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	699	322	813	838	1041	1634
v/s Ratio Prot	c0.08		0.02		c0.15	0.16
v/s Ratio Perm		0.01		c0.05		
v/c Ratio	0.39	0.03	0.08	0.22	0.52	0.27
Uniform Delay, d1	15.6	14.4	13.4	13.9	13.3	4.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.0	0.1	0.5	0.1
Delay (s)	15.9	14.5	13.5	14.0	13.8	4.7
Level of Service	B	B	B	B	B	A
Approach Delay (s)	15.7			13.9	8.5	
Approach LOS	B			B	A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1555	3433	3539	1555	3433	5085	1555	3433	5085	1555
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1555	3433	3539	1555	3433	5085	1555	3433	5085	1555
Volume (vph)	48	176	55	51	423	391	243	294	44	135	561	90
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	191	60	55	460	425	264	320	48	147	610	98
RTOR Reduction (vph)	0	0	44	0	0	308	0	0	34	0	0	72
Lane Group Flow (vph)	52	191	16	55	460	117	264	320	14	147	610	26
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.3	15.1	15.1	3.3	15.1	15.1	7.1	15.8	15.8	5.6	14.3	14.3
Effective Green, g (s)	3.3	15.6	15.6	3.3	15.6	15.6	7.1	16.3	16.3	5.6	14.8	14.8
Actuated g/C Ratio	0.06	0.27	0.27	0.06	0.27	0.27	0.12	0.29	0.29	0.10	0.26	0.26
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	972	427	199	972	427	429	1459	446	338	1325	405
v/s Ratio Prot	0.02	0.05		c0.02	c0.13		c0.08	0.06		0.04	c0.12	
v/s Ratio Perm			0.01			0.08			0.01			0.02
v/c Ratio	0.26	0.20	0.04	0.28	0.47	0.27	0.62	0.22	0.03	0.43	0.46	0.06
Uniform Delay, d1	25.6	15.8	15.1	25.6	17.2	16.2	23.6	15.4	14.6	24.1	17.6	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.0	0.8	0.4	0.3	2.6	0.1	0.0	0.9	0.3	0.1
Delay (s)	26.3	15.9	15.1	26.4	17.5	16.5	26.2	15.5	14.6	25.0	17.9	15.9
Level of Service	C	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		17.5			17.6			19.9			18.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Volume (vph)	111	249	104	100	696	88	112	264	58	104	449	99
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	271	113	109	757	96	122	287	63	113	488	108
RTOR Reduction (vph)	0	0	77	0	0	65	0	0	47	0	0	80
Lane Group Flow (vph)	121	271	36	109	757	31	122	287	16	113	488	28
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.3	19.4	19.4	5.3	19.4	19.4	5.3	15.6	15.6	5.3	15.6	15.6
Effective Green, g (s)	5.3	19.9	19.9	5.3	19.9	19.9	5.3	16.1	16.1	5.3	16.1	16.1
Actuated g/C Ratio	0.08	0.32	0.32	0.08	0.32	0.32	0.08	0.26	0.26	0.08	0.26	0.26
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	1125	494	291	1125	494	291	910	400	291	910	400
v/s Ratio Prot	c0.04	0.08		0.03	c0.21		c0.04	0.08		0.03	c0.14	
v/s Ratio Perm			0.02			0.02			0.01			0.02
v/c Ratio	0.42	0.24	0.07	0.37	0.67	0.06	0.42	0.32	0.04	0.39	0.54	0.07
Uniform Delay, d1	27.2	15.8	14.9	27.1	18.5	14.9	27.2	18.8	17.5	27.1	20.0	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.1	0.8	1.6	0.1	1.0	0.2	0.0	0.9	0.6	0.1
Delay (s)	28.1	15.9	15.0	27.9	20.1	14.9	28.2	19.0	17.5	28.0	20.6	17.7
Level of Service	C	B	B	C	C	B	C	B	B	C	C	B
Approach Delay (s)		18.6			20.5			21.2			21.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		1.00	0.95	0.88
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4879		3433	3539	1549	3433	3311		1770	3539	2726
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4879		3433	3539	1549	3433	3311		1770	3539	2726
Volume (vph)	185	949	294	233	995	172	180	299	182	80	499	426
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	1032	320	253	1082	187	196	325	198	87	542	463
RTOR Reduction (vph)	0	57	0	0	0	115	0	107	0	0	0	285
Lane Group Flow (vph)	201	1295	0	253	1082	72	196	416	0	87	542	178
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	8.0	33.3		9.0	34.3	34.3	10.2	24.3		6.4	20.5	20.5
Effective Green, g (s)	8.0	33.8		9.0	34.8	34.8	10.2	24.8		6.4	21.0	21.0
Actuated g/C Ratio	0.09	0.38		0.10	0.39	0.39	0.11	0.28		0.07	0.23	0.23
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	1832		343	1368	599	389	912		126	826	636
v/s Ratio Prot	0.06	0.27		c0.07	c0.31		0.06	c0.13		0.05	c0.15	
v/s Ratio Perm						0.05						0.07
v/c Ratio	0.66	0.71		0.74	0.79	0.12	0.50	0.46		0.69	0.66	0.28
Uniform Delay, d1	39.7	23.9		39.4	24.4	17.8	37.5	27.0		40.8	31.2	28.3
Progression Factor	0.81	0.63		0.93	0.80	0.19	0.40	0.17		1.00	1.00	1.00
Incremental Delay, d2	4.7	2.1		6.6	3.9	0.3	0.8	0.3		15.1	1.9	0.2
Delay (s)	36.9	17.3		43.1	23.4	3.7	15.8	4.8		55.9	33.1	28.5
Level of Service	D	B		D	C	A	B	A		E	C	C
Approach Delay (s)		19.8			24.3			7.8			33.0	
Approach LOS		B			C			A			C	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3470		3433	3539	1552	1770	3539	1552
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3375		1770	3470		3433	3539	1552	1770	3539	1552
Volume (vph)	54	635	240	89	740	97	359	253	16	107	318	43
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	690	261	97	804	105	390	275	17	116	346	47
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	12	0	0	37
Lane Group Flow (vph)	59	909	0	97	899	0	390	275	5	116	346	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	4.2	24.2		5.8	25.8		11.1	19.6	19.6	6.5	15.0	15.0
Effective Green, g (s)	4.2	24.7		5.8	26.3		11.1	20.1	20.1	6.5	15.5	15.5
Actuated g/C Ratio	0.06	0.34		0.08	0.36		0.15	0.27	0.27	0.09	0.21	0.21
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	102	1140		140	1248		521	973	427	157	750	329
v/s Ratio Prot	0.03	c0.27		c0.05	0.26		c0.11	0.08		0.07	c0.10	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.58	0.80		0.69	0.72		0.75	0.28	0.01	0.74	0.46	0.03
Uniform Delay, d1	33.6	21.9		32.8	20.2		29.7	20.8	19.3	32.5	25.2	22.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	4.0		13.8	2.1		5.8	0.2	0.0	16.5	0.5	0.0
Delay (s)	41.3	25.9		46.6	22.3		35.5	21.0	19.3	49.0	25.6	22.9
Level of Service	D	C		D	C		D	C	B	D	C	C
Approach Delay (s)		26.8			24.6			29.2			30.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	5085	1534	3433	5085	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	5085	1534	3433	5085	1554
Volume (vph)	118	193	24	87	255	86	119	643	97	44	468	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	210	26	95	277	93	129	699	105	48	509	101
RTOR Reduction (vph)	0	0	21	0	0	76	0	0	61	0	0	64
Lane Group Flow (vph)	128	210	5	95	277	17	129	699	44	48	509	37
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.4	11.8	11.8	3.8	10.2	10.2	5.5	24.6	24.6	2.3	21.4	21.4
Effective Green, g (s)	5.9	12.3	12.3	4.3	10.7	10.7	5.5	25.1	25.1	2.3	21.9	21.9
Actuated g/C Ratio	0.10	0.21	0.21	0.07	0.18	0.18	0.09	0.42	0.42	0.04	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	725	319	246	631	277	315	2127	642	132	1856	567
v/s Ratio Prot	c0.04	0.06		0.03	c0.08		c0.04	c0.14		0.01	0.10	
v/s Ratio Perm			0.00			0.01			0.03			0.02
v/c Ratio	0.38	0.29	0.02	0.39	0.44	0.06	0.41	0.33	0.07	0.36	0.27	0.07
Uniform Delay, d1	25.3	20.2	19.0	26.6	22.0	20.5	25.7	11.8	10.4	28.1	13.4	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	1.0	0.5	0.1	0.9	0.1	0.0	1.7	0.1	0.0
Delay (s)	26.0	20.4	19.0	27.6	22.5	20.6	26.6	11.9	10.5	29.8	13.5	12.4
Level of Service	C	C	B	C	C	C	C	B	B	C	B	B
Approach Delay (s)		22.3			23.1			13.7			14.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1554	3433	3539	1554	3433	3539	1554	3433	3539	1554
Volume (vph)	97	479	39	71	214	129	50	640	121	87	493	56
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	521	42	77	233	140	54	696	132	95	536	61
RTOR Reduction (vph)	0	0	30	0	0	103	0	0	90	0	0	41
Lane Group Flow (vph)	105	521	12	77	233	37	54	696	42	95	536	20
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.4	17.4	17.4	3.5	15.5	15.5	3.3	18.7	18.7	3.6	19.0	19.0
Effective Green, g (s)	5.4	17.9	17.9	3.5	16.0	16.0	3.3	19.2	19.2	3.6	19.5	19.5
Actuated g/C Ratio	0.09	0.30	0.30	0.06	0.27	0.27	0.05	0.32	0.32	0.06	0.32	0.32
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	308	1052	462	200	941	413	188	1129	496	205	1146	503
v/s Ratio Prot	c0.03	c0.15		0.02	0.07		0.02	c0.20		c0.03	0.15	
v/s Ratio Perm			0.01			0.02			0.03			0.01
v/c Ratio	0.34	0.50	0.03	0.39	0.25	0.09	0.29	0.62	0.08	0.46	0.47	0.04
Uniform Delay, d1	25.7	17.4	15.0	27.3	17.4	16.6	27.3	17.4	14.4	27.4	16.2	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	0.0	1.2	0.1	0.1	0.8	1.0	0.1	1.7	0.3	0.0
Delay (s)	26.4	17.8	15.0	28.5	17.5	16.7	28.2	18.4	14.4	29.0	16.5	14.0
Level of Service	C	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		19.0			19.2			18.4			18.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Volume (vph)	120	616	66	275	381	133	58	177	111	120	213	68
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	670	72	299	414	145	63	192	121	130	232	74
RTOR Reduction (vph)	0	0	50	0	0	91	0	0	97	0	0	57
Lane Group Flow (vph)	130	670	22	299	414	54	63	192	24	130	232	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.6	18.4	18.4	10.0	22.8	22.8	3.7	11.9	11.9	5.6	13.8	13.8
Effective Green, g (s)	5.6	18.9	18.9	10.0	23.3	23.3	3.7	12.4	12.4	5.6	14.3	14.3
Actuated g/C Ratio	0.09	0.30	0.30	0.16	0.37	0.37	0.06	0.20	0.20	0.09	0.23	0.23
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	1063	467	546	1311	575	202	698	306	306	805	353
v/s Ratio Prot	0.04	c0.19		c0.09	0.12		0.02	0.05		c0.04	c0.07	
v/s Ratio Perm			0.01			0.03			0.02			0.01
v/c Ratio	0.42	0.63	0.05	0.55	0.32	0.09	0.31	0.28	0.08	0.42	0.29	0.05
Uniform Delay, d1	27.1	19.0	15.6	24.4	14.1	12.9	28.4	21.4	20.6	27.1	20.1	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	1.2	0.0	1.1	0.1	0.1	0.9	0.2	0.1	1.0	0.2	0.1
Delay (s)	28.1	20.2	15.6	25.5	14.3	13.0	29.3	21.6	20.7	28.1	20.3	19.0
Level of Service	C	C	B	C	B	B	C	C	C	C	C	B
Approach Delay (s)		21.0			18.0			22.6			22.4	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Volume (vph)	402	901	223	66	833	149	262	415	134	154	270	255
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	437	979	242	72	905	162	285	451	146	167	293	277
RTOR Reduction (vph)	0	0	138	0	0	107	0	0	114	0	0	174
Lane Group Flow (vph)	437	979	104	72	905	55	285	451	32	167	293	103
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.2	32.0	32.0	4.1	24.9	24.9	8.2	16.3	16.3	6.1	14.2	14.2
Effective Green, g (s)	11.2	32.5	32.5	4.1	25.4	25.4	8.2	16.8	16.8	6.1	14.7	14.7
Actuated g/C Ratio	0.15	0.43	0.43	0.05	0.34	0.34	0.11	0.22	0.22	0.08	0.19	0.19
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	509	1523	668	186	1191	522	373	1131	345	277	990	302
v/s Ratio Prot	c0.13	0.28		0.02	c0.26		c0.08	c0.09		0.05	0.06	
v/s Ratio Perm			0.07			0.04			0.02			0.07
v/c Ratio	0.86	0.64	0.16	0.39	0.76	0.10	0.76	0.40	0.09	0.60	0.30	0.34
Uniform Delay, d1	31.4	16.9	13.1	34.5	22.3	17.2	32.7	25.0	23.3	33.5	26.0	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.9	0.1	1.3	2.8	0.1	9.0	0.2	0.1	3.7	0.2	0.7
Delay (s)	44.8	17.9	13.2	35.8	25.2	17.3	41.7	25.3	23.4	37.2	26.1	26.9
Level of Service	D	B	B	D	C	B	D	C	C	D	C	C
Approach Delay (s)		24.3			24.7			30.3			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1549	3433	3539	1526	3433	1863	1549	1770	1791	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1549	3433	3539	1526	3433	1863	1549	1770	1791	
Volume (vph)	123	1284	82	119	819	118	109	142	557	24	144	42
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	1396	89	129	890	128	118	154	605	26	157	46
RTOR Reduction (vph)	0	0	45	0	0	76	0	0	180	0	11	0
Lane Group Flow (vph)	134	1396	44	129	890	52	118	154	425	26	192	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	8.1	38.5	38.5	5.9	36.3	36.3	5.9	26.4	26.4	2.7	23.2	
Effective Green, g (s)	8.1	39.0	39.0	5.9	36.8	36.8	5.9	26.9	26.9	2.7	23.7	
Actuated g/C Ratio	0.09	0.43	0.43	0.07	0.41	0.41	0.07	0.30	0.30	0.03	0.26	
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	158	1525	668	224	1439	621	224	554	460	53	469	
v/s Ratio Prot	c0.08	c0.39		0.04	0.25		c0.03	0.08		0.01	0.11	
v/s Ratio Perm			0.03			0.03			c0.27			
v/c Ratio	0.85	0.92	0.07	0.58	0.62	0.08	0.53	0.28	0.92	0.49	0.41	
Uniform Delay, d1	40.6	24.2	15.1	41.1	21.3	16.5	40.9	24.4	30.8	43.2	27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.2	8.9	0.0	3.6	0.8	0.1	2.2	0.3	24.3	7.0	0.6	
Delay (s)	72.8	33.1	15.1	44.6	22.1	16.6	43.2	24.6	55.1	50.2	28.2	
Level of Service	E	C	B	D	C	B	D	C	E	D	C	
Approach Delay (s)		35.4			24.0			48.1			30.7	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1548	3433	3539	1548	3433	3539	1548	3433	3539	1548
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1548	3433	3539	1548	3433	3539	1548	3433	3539	1548
Volume (vph)	104	1321	200	279	880	96	124	455	213	117	248	30
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	1436	217	303	957	104	135	495	232	127	270	33
RTOR Reduction (vph)	0	0	106	0	0	55	0	0	140	0	0	26
Lane Group Flow (vph)	113	1436	111	303	957	49	135	495	92	127	270	7
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.1	40.0	40.0	9.0	42.9	42.9	7.7	19.1	19.1	7.6	19.0	19.0
Effective Green, g (s)	6.1	40.5	40.5	9.0	43.4	43.4	7.7	19.6	19.6	7.6	19.5	19.5
Actuated g/C Ratio	0.07	0.44	0.44	0.10	0.47	0.47	0.08	0.21	0.21	0.08	0.21	0.21
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1546	676	333	1657	725	285	748	327	281	744	326
v/s Ratio Prot	0.03	c0.41		c0.09	c0.27		c0.04	c0.14		0.04	0.08	
v/s Ratio Perm			0.07			0.03			0.06			0.00
v/c Ratio	0.50	0.93	0.16	0.91	0.58	0.07	0.47	0.66	0.28	0.45	0.36	0.02
Uniform Delay, d1	41.8	24.7	15.8	41.4	18.0	13.5	40.6	33.5	30.7	40.6	31.3	29.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	10.1	0.1	27.4	0.5	0.0	1.2	2.2	0.5	1.2	0.3	0.0
Delay (s)	43.6	34.8	15.9	68.8	18.5	13.6	41.8	35.7	31.1	41.7	31.6	29.1
Level of Service	D	C	B	E	B	B	D	D	C	D	C	C
Approach Delay (s)		33.1			29.3			35.4			34.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	3539	3539	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	3539	3539	2787
Volume (vph)	868	94	89	575	476	626
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	943	102	97	625	517	680
RTOR Reduction (vph)	0	66	0	0	0	269
Lane Group Flow (vph)	943	36	97	625	517	411
Turn Type		Perm	Prot			custom
Protected Phases	4		2		3	8
Permitted Phases		4		2		
Actuated Green, G (s)	22.4	22.4	17.4	17.4	12.6	39.0
Effective Green, g (s)	22.9	22.9	17.9	17.9	12.6	39.5
Actuated g/C Ratio	0.35	0.35	0.27	0.27	0.19	0.60
Clearance Time (s)	4.5	4.5	4.5	4.5	4.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1202	554	940	969	682	1683
v/s Ratio Prot	c0.27		0.03		c0.15	0.15
v/s Ratio Perm		0.02		c0.18		
v/c Ratio	0.78	0.06	0.10	0.64	0.76	0.24
Uniform Delay, d1	19.0	14.1	17.8	20.9	25.0	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.0	0.0	1.5	4.8	0.1
Delay (s)	22.5	14.2	17.8	22.4	29.8	6.1
Level of Service	C	B	B	C	C	A
Approach Delay (s)	21.7			21.8	16.3	
Approach LOS	C			C	B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	5085	1551	3433	5085	1551
Volume (vph)	177	566	199	30	220	213	180	1124	115	386	1116	83
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	615	216	33	239	232	196	1222	125	420	1213	90
RTOR Reduction (vph)	0	0	154	0	0	178	0	0	86	0	0	59
Lane Group Flow (vph)	192	615	62	33	239	54	196	1222	39	420	1213	31
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.8	21.8	21.8	3.6	17.6	17.6	8.3	23.4	23.4	11.3	26.4	26.4
Effective Green, g (s)	7.8	22.3	22.3	3.6	18.1	18.1	8.3	23.9	23.9	11.3	26.9	26.9
Actuated g/C Ratio	0.10	0.29	0.29	0.05	0.23	0.23	0.11	0.31	0.31	0.15	0.35	0.35
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1024	449	160	831	364	370	1576	481	503	1774	541
v/s Ratio Prot	c0.06	c0.17		0.01	0.07		0.06	c0.24		c0.12	c0.24	
v/s Ratio Perm			0.04			0.04			0.02			0.02
v/c Ratio	0.55	0.60	0.14	0.21	0.29	0.15	0.53	0.78	0.08	0.83	0.68	0.06
Uniform Delay, d1	33.0	23.6	20.3	35.4	24.2	23.4	32.6	24.2	18.8	32.0	21.5	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	1.0	0.1	0.6	0.2	0.2	1.4	2.5	0.1	11.4	1.1	0.0
Delay (s)	34.9	24.6	20.4	36.0	24.4	23.6	33.9	26.6	18.9	43.4	22.6	16.7
Level of Service	C	C	C	D	C	C	C	C	B	D	C	B
Approach Delay (s)		25.6			24.8			26.9			27.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	3539	1553	3433	3539	1553
Volume (vph)	211	769	109	88	363	84	150	556	104	116	399	159
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	836	118	96	395	91	163	604	113	126	434	173
RTOR Reduction (vph)	0	0	79	0	0	63	0	0	82	0	0	125
Lane Group Flow (vph)	229	836	39	96	395	28	163	604	31	126	434	48
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.1	22.1	22.1	5.2	20.2	20.2	5.5	18.3	18.3	5.4	18.2	18.2
Effective Green, g (s)	7.1	22.6	22.6	5.2	20.7	20.7	5.5	18.8	18.8	5.4	18.7	18.7
Actuated g/C Ratio	0.10	0.33	0.33	0.08	0.30	0.30	0.08	0.28	0.28	0.08	0.27	0.27
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	1176	516	263	1077	473	278	978	429	273	973	427
v/s Ratio Prot	c0.07	c0.24		0.03	0.11		c0.05	c0.17		0.04	0.12	
v/s Ratio Perm			0.03			0.02			0.02			0.03
v/c Ratio	0.64	0.71	0.08	0.37	0.37	0.06	0.59	0.62	0.07	0.46	0.45	0.11
Uniform Delay, d1	29.2	19.8	15.5	29.8	18.5	16.7	30.2	21.5	18.2	29.9	20.4	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	2.1	0.1	0.9	0.2	0.1	3.1	1.2	0.1	1.2	0.3	0.1
Delay (s)	33.0	21.9	15.6	30.7	18.7	16.8	33.3	22.6	18.2	31.1	20.7	18.6
Level of Service	C	C	B	C	B	B	C	C	B	C	C	B
Approach Delay (s)		23.4			20.4			24.0			22.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		1.00	0.95	0.88
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4882		3433	3539	1544	3433	3282		1770	3539	2717
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4882		3433	3539	1544	3433	3282		1770	3539	2717
Volume (vph)	452	2041	609	317	1697	294	355	331	239	164	658	522
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	2218	662	345	1845	320	386	360	260	178	715	567
RTOR Reduction (vph)	0	45	0	0	0	109	0	111	0	0	0	208
Lane Group Flow (vph)	491	2835	0	345	1845	211	386	509	0	178	715	359
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	14.0	55.0		10.0	51.0	51.0	11.0	24.9		13.1	27.0	27.0
Effective Green, g (s)	14.0	55.5		10.0	51.5	51.5	11.0	25.4		13.1	27.5	27.5
Actuated g/C Ratio	0.12	0.46		0.08	0.43	0.43	0.09	0.21		0.11	0.23	0.23
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	401	2258		286	1519	663	315	695		193	811	623
v/s Ratio Prot	c0.14	c0.58		0.10	0.52		c0.11	0.16		0.10	c0.20	
v/s Ratio Perm						0.14						0.13
v/c Ratio	1.22	1.26		1.21	1.21	0.32	1.23	0.73		0.92	0.88	0.58
Uniform Delay, d1	53.0	32.2		55.0	34.2	22.6	54.5	44.1		52.9	44.7	41.1
Progression Factor	0.77	0.60		0.85	0.83	0.82	0.44	0.63		1.00	1.00	1.00
Incremental Delay, d2	108.7	116.4		108.0	99.7	0.6	113.2	1.7		43.2	11.1	1.3
Delay (s)	149.8	135.8		154.9	128.2	19.2	136.9	29.5		96.1	55.7	42.4
Level of Service	F	F		F	F	B	F	C		F	E	D
Approach Delay (s)		137.9			117.9			70.7			55.5	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	109.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3425		1770	3519		3433	3539	1544	1770	3539	1544
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3425		1770	3519		3433	3539	1544	1770	3539	1544
Volume (vph)	136	1600	363	177	1019	34	482	431	12	216	602	112
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	1739	395	192	1108	37	524	468	13	235	654	122
RTOR Reduction (vph)	0	16	0	0	2	0	0	0	10	0	0	95
Lane Group Flow (vph)	148	2118	0	192	1143	0	524	468	3	235	654	27
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	12.3	51.5		10.0	49.2		13.0	26.6	26.6	12.0	25.6	25.6
Effective Green, g (s)	12.3	52.0		10.0	49.7		13.0	27.1	27.1	12.0	26.1	26.1
Actuated g/C Ratio	0.11	0.44		0.09	0.42		0.11	0.23	0.23	0.10	0.22	0.22
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	1521		151	1494		381	819	357	181	789	344
v/s Ratio Prot	0.08	c0.62		c0.11	0.32		c0.15	0.13		0.13	c0.18	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.80	1.39		1.27	0.77		1.38	0.57	0.01	1.30	0.83	0.08
Uniform Delay, d1	51.2	32.5		53.5	28.7		52.0	39.9	34.7	52.5	43.4	36.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.5	180.7		163.8	2.4		184.7	1.0	0.0	168.7	7.2	0.1
Delay (s)	71.7	213.2		217.4	31.1		236.8	40.8	34.7	221.2	50.6	36.1
Level of Service	E	F		F	C		F	D	C	F	D	D
Approach Delay (s)		204.1			57.9			142.9			88.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	137.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	3433	3539	1553	3433	5085	1533	3433	5085	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	3433	3539	1553	3433	5085	1533	3433	5085	1553
Volume (vph)	126	409	133	108	420	108	72	843	156	149	756	130
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	445	145	117	457	117	78	916	170	162	822	141
RTOR Reduction (vph)	0	0	109	0	0	88	0	0	115	0	0	92
Lane Group Flow (vph)	137	445	36	117	457	29	78	916	55	162	822	49
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.2	15.3	15.3	5.1	15.2	15.2	3.7	19.9	19.9	5.5	21.7	21.7
Effective Green, g (s)	5.7	15.8	15.8	5.6	15.7	15.7	3.7	20.4	20.4	5.5	22.2	22.2
Actuated g/C Ratio	0.09	0.25	0.25	0.09	0.25	0.25	0.06	0.32	0.32	0.09	0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	883	388	304	878	385	201	1639	494	298	1783	545
v/s Ratio Prot	c0.04	0.13		0.03	c0.13		0.02	c0.18		c0.05	0.16	
v/s Ratio Perm			0.02			0.02			0.04			0.03
v/c Ratio	0.44	0.50	0.09	0.38	0.52	0.08	0.39	0.56	0.11	0.54	0.46	0.09
Uniform Delay, d1	27.3	20.4	18.2	27.2	20.5	18.2	28.7	17.7	15.1	27.7	15.9	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.5	0.1	0.8	0.6	0.1	1.2	0.4	0.1	2.0	0.2	0.1
Delay (s)	28.3	20.8	18.4	28.0	21.1	18.3	30.0	18.1	15.2	29.7	16.1	13.9
Level of Service	C	C	B	C	C	B	C	B	B	C	B	B
Approach Delay (s)		21.8			21.8			18.5			17.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1552	3433	3539	1552	3433	3539	1552	3433	3539	1552
Volume (vph)	85	321	63	164	549	124	31	804	113	170	966	117
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	349	68	178	597	135	34	874	123	185	1050	127
RTOR Reduction (vph)	0	0	51	0	0	100	0	0	78	0	0	77
Lane Group Flow (vph)	92	349	17	178	597	35	34	874	45	185	1050	50
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.2	17.6	17.6	5.6	18.0	18.0	3.3	25.3	25.3	5.6	27.6	27.6
Effective Green, g (s)	5.2	18.1	18.1	5.6	18.5	18.5	3.3	25.8	25.8	5.6	28.1	28.1
Actuated g/C Ratio	0.07	0.25	0.25	0.08	0.26	0.26	0.05	0.36	0.36	0.08	0.40	0.40
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	901	395	270	921	404	159	1284	563	270	1399	613
v/s Ratio Prot	0.03	0.10		c0.05	c0.17		0.01	0.25		c0.05	c0.30	
v/s Ratio Perm			0.01			0.02			0.03			0.03
v/c Ratio	0.37	0.39	0.04	0.66	0.65	0.09	0.21	0.68	0.08	0.69	0.75	0.08
Uniform Delay, d1	31.4	21.9	20.0	31.8	23.4	19.9	32.7	19.2	14.9	31.9	18.5	13.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3	0.0	5.7	1.6	0.1	0.7	1.5	0.1	7.0	2.3	0.1
Delay (s)	32.3	22.2	20.0	37.5	25.0	20.0	33.3	20.7	14.9	38.9	20.8	13.5
Level of Service	C	C	C	D	C	C	C	C	B	D	C	B
Approach Delay (s)		23.7			26.7			20.4			22.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1551	3433	3539	1551	3433	3539	1551	3433	3539	1551
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1551	3433	3539	1551	3433	3539	1551	3433	3539	1551
Volume (vph)	174	526	78	363	803	184	94	413	418	235	301	181
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	572	85	395	873	200	102	449	454	255	327	197
RTOR Reduction (vph)	0	0	61	0	0	129	0	0	194	0	0	141
Lane Group Flow (vph)	189	572	24	395	873	71	102	449	260	255	327	56
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.1	21.4	21.4	11.2	26.5	26.5	5.7	18.5	18.5	8.2	21.0	21.0
Effective Green, g (s)	6.1	21.9	21.9	11.2	27.0	27.0	5.7	19.0	19.0	8.2	21.5	21.5
Actuated g/C Ratio	0.08	0.29	0.29	0.15	0.35	0.35	0.07	0.25	0.25	0.11	0.28	0.28
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	1016	445	504	1252	549	256	881	386	369	997	437
v/s Ratio Prot	0.06	0.16		c0.12	c0.25		0.03	0.13		c0.07	0.09	
v/s Ratio Perm			0.02			0.05			c0.17			0.04
v/c Ratio	0.69	0.56	0.05	0.78	0.70	0.13	0.40	0.51	0.67	0.69	0.33	0.13
Uniform Delay, d1	34.2	23.1	19.7	31.4	21.1	16.7	33.7	24.6	25.9	32.8	21.7	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.7	0.1	7.8	1.7	0.1	1.0	0.5	4.6	5.5	0.2	0.1
Delay (s)	41.2	23.8	19.8	39.2	22.9	16.8	34.7	25.1	30.5	38.3	21.9	20.5
Level of Service	D	C	B	D	C	B	C	C	C	D	C	C
Approach Delay (s)		27.3			26.4			28.5			26.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1544	3433	3539	1544	3433	5085	1544	3433	5085	1544
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1544	3433	3539	1544	3433	5085	1544	3433	5085	1544
Volume (vph)	643	1200	301	131	1093	342	380	754	167	313	904	814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	699	1304	327	142	1188	372	413	820	182	340	983	885
RTOR Reduction (vph)	0	0	157	0	0	186	0	0	110	0	0	173
Lane Group Flow (vph)	699	1304	170	142	1188	186	413	820	72	340	983	712
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.0	43.6	43.6	7.9	33.5	33.5	12.0	35.5	35.5	16.0	39.5	39.5
Effective Green, g (s)	18.0	44.1	44.1	7.9	34.0	34.0	12.0	36.0	36.0	16.0	40.0	40.0
Actuated g/C Ratio	0.15	0.37	0.37	0.07	0.28	0.28	0.10	0.30	0.30	0.13	0.33	0.33
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	515	1301	567	226	1003	437	343	1526	463	458	1695	515
v/s Ratio Prot	c0.20	0.37		0.04	c0.34		c0.12	0.16		0.10	0.19	
v/s Ratio Perm			0.11			0.12			0.05			c0.46
v/c Ratio	1.36	1.00	0.30	0.63	1.18	0.43	1.20	0.54	0.16	0.74	0.58	1.38
Uniform Delay, d1	51.0	37.9	27.0	54.6	43.0	35.1	54.0	35.1	30.8	50.0	33.1	40.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	173.1	25.5	0.3	5.4	93.3	0.7	116.3	0.4	0.2	6.4	0.5	184.2
Delay (s)	224.1	63.5	27.3	60.0	136.3	35.7	170.3	35.4	31.0	56.4	33.5	224.2
Level of Service	F	E	C	E	F	D	F	D	C	E	C	F
Approach Delay (s)		106.6			107.9			74.2			113.5	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM Average Control Delay	102.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX K

SELMA GENERAL PLAN UPDATE
WATER SUPPLY ASSESSMENT

July 2009

Quad Knopf

SELMA GENERAL PLAN UPDATE
WATER SUPPLY ASSESSMENT

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July 2009

070214

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CHAPTER ONE – INTRODUCTION

CHAPTER ONE – INTRODUCTION

1.1 Introduction

The City of Selma is in the process of comprehensively updating its General Plan. The General Plan Update (project) will cover the planning period from 2007 to the year 2035, and will be utilized to guide the growth and development of the area within the adopted Planning Area boundary. The General Plan Update's Draft Goals, Objectives and Policies (excluding the Housing Element, which is being prepared separately from the Plan Update) can be found in Appendix A of the Draft Environmental Impact Report (DEIR). This Water Supply Assessment (WSA) has been prepared, pursuant to Water Code section 10910, for the General Plan Update DEIR to assess whether the projected water supply for the next 20 years, based on normal, single dry, and multiple dry years, will meet the demand projected for the project plus existing and planned future uses.

California Water Service Company (CWS) provides Selma with all of its potable water needs. CWS has prepared an Urban Water Management Plan (UWMP) for the City's water system (*2006 Urban Water Management Plan Selma District*, California Water Service Company, October 31, 2006). The UWMP will be revised and updated every five years per the California Urban Water Management Planning Act in years ending in five and zero. The UWMP is the foundational document for compliance with both SB 610 and SB 221 and is the primary source document for this Water Supply Assessment.

The project is located in south central Fresno County, California in the Central San Joaquin Valley. The geographic area covered by the project was determined by the Selma City Council to be the Planning Area as illustrated on Figure 1-1. The Planning Area includes land within the City limits of Selma and the unincorporated territory surrounding the presently incorporated City. Figure 1-1 shows Selma's Regional Location and Figure 1-2 shows Selma's current City limits, Sphere of Influence (SOI) and the project Planning Area.

The City of Selma is currently preparing an environmental impact report (EIR) for the General Plan Update in accordance with the requirements of the California Environmental Quality Act (CEQA).

Any development "project," defined in Water Code Section 10912, which is subject to CEQA, requires a city or county to consider a water supply assessment for that development to determine whether projected water supplies available to the proposed project are sufficient to meet the project's anticipated water demand. While a General Plan Update is not specifically defined as being a "project" under California Water Code section 10912, the General Plan Update will result in the development of more than 500 dwelling units and more than 250,000 square feet of commercial floor space. Therefore, in accordance with the requirements of Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221), effective January 1, 2002, a water supply assessment for this project has been prepared.

The Guide Book for Implementation of SB 610 and SB 221 of 2001, prepared by the California Department of Water Resources identifies the key question to be answered by the water supply assessment as:

"*Will the water supplier's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the proposed project, in addition to the water supplier's existing and planned future uses, including agricultural and manufacturing uses?"*

1.2 Population

Available data indicate that the City experienced an average annual population growth rate of approximately 3.1 percent between 1990 (14,757 persons) and 2000 (19,444 persons), and 2.4 percent annually between 2000 and 2008 (23,286 persons). The General Plan Update is using an average annual growth rate of 4% which would result in approximately 69,572 persons residing in Selma average by 2035. It is important to note that the 4% annual growth rate is being applied for planning purposes and may not accurately materialize as the actual growth rate over time.

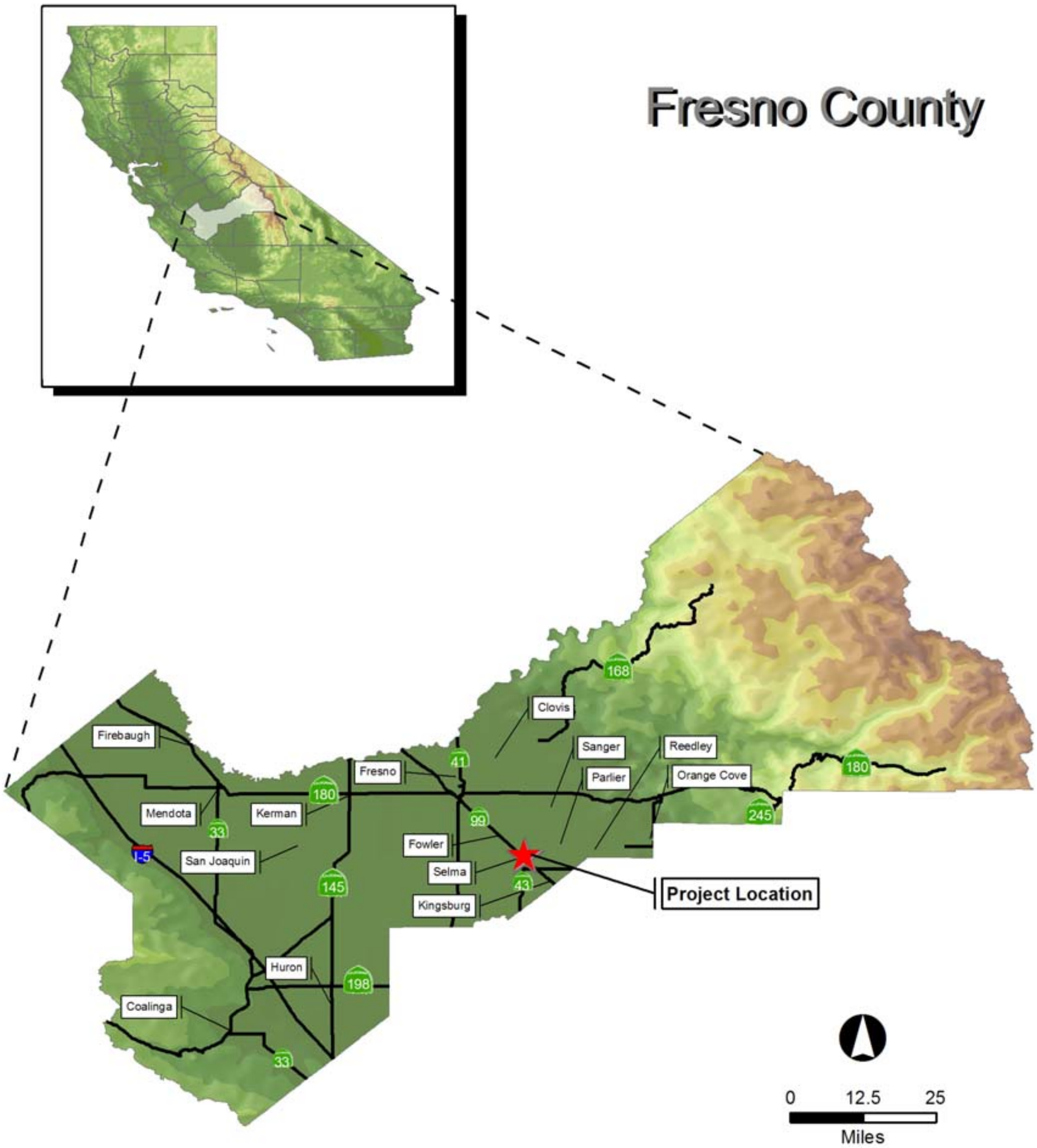
The key demographic factors that CWS and the City must consider in current and future water supply management planning are: changes in the City's population due to natural population growth and immigration/emigration; the development and adoption of the City's General Plan Update anticipated to be adopted in 2009 and the General Plan's effect on local population and economic growth rates. In addition to demographic factors, there may be changes in groundwater pumping due to: growth in dairy farming, agricultural crop production increases or decreases, changes in cultivation methods and irrigation requirements adjacent to the City that affect current and future water supply.

1.3 Climate

The project area has a Mediterranean climate. The warmest month of the year is July with an average maximum temperature of 96.6 degrees Fahrenheit, while the coldest month of the year is December with an average minimum temperature of 37.0 degrees Fahrenheit. Temperature variations between night and day tend to be relatively significant during summer with a difference that can reach 30 degrees Fahrenheit, and more limited during winter with an average difference of 18 degrees Fahrenheit. Selma's annual average precipitation is 10.91 Inches and the average temperature is 63.3 degrees Fahrenheit. The wettest month of the year is March with an average rainfall of 2.2 Inches.

The key climatic factors that affect the City's water supply management are the substantial year to-year variation in precipitation and evapotranspiration. Variations in precipitation affect runoff conditions in the Kings River Watershed, which includes the Kings River and directly affects Cal Water's groundwater supply. Variation in evapotranspiration can result in years with very high water use for landscaping, outdoor residential uses, and agricultural irrigation. This variation in supply and demand is a key factor that is considered in CWS's water supply management planning.

A topic of growing concern for water planners and managers is global warming and the potential impacts it could have on California's future water supplies. DWR's Draft California Water Plan Update 2005 contains an assessment of potential impacts. The Plan indicated that global warming could affect the State Water Project supply by creating higher variability and extremes in hydrologic conditions that exceed the current facility capabilities. There may be changes in Sierra snowpack patterns, hydrologic patterns, sea level, rainfall intensity, and statewide and/or regional water demand if global warming increases through time. The UWMP did not attempt to predict the specific impacts of global warming on CWS water supply because: 1) the rate of global warming is uncertain; 2) the impacts of global warming on groundwater recharge are unknown; and 3) given the geographic location of the City (i.e., remote from potential impacts of sea level rise), the natural hydrologic variability through the 2035 planning period is likely to mask any water supply impacts that may result from global warming.



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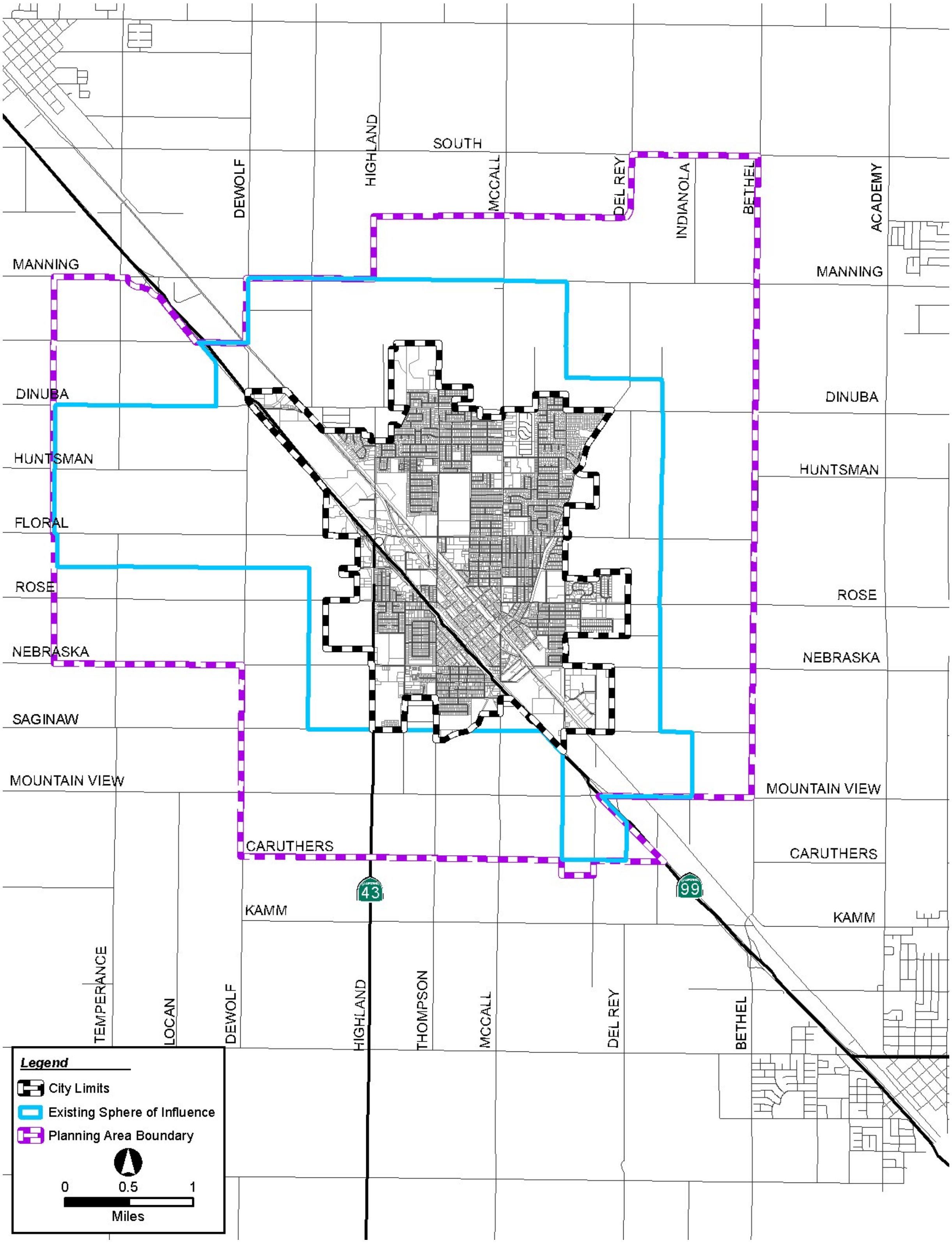
REGIONAL LOCATION

Figure 1 - 1



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SELMA CITY LIMITS, SOI AND PLANNING AREA

Figure 1 - 2

CHAPTER TWO – PROJECT DESCRIPTION

CHAPTER TWO – PROJECT DESCRIPTION

2.1 Project Description

The project for which this WSA has been prepared is the comprehensive General Plan Update of the City of Selma's General Plan (excluding the Housing Element which is being updated separately). California state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (§65300). The General Plan Update includes revised policies and standards for the Noise, Safety, Open Space, Conservation and Recreation, Circulation, Land Use, and the Public Services and Facilities Elements.

The General Plan Update is based on a long ranger planning horizon to the year 2035, and will be used to guide growth and development within the adopted Planning Area boundary. The General Plan Update effort includes a Background Report, Policy Document, EIR and Land Use and Circulation diagram. The draft Policy document and Land Use and Circulation diagram can be found in Appendix A of the DEIR.

The geographic expansion of urban land use designations defines the limits for extending City services and infrastructure to accommodate new development anticipated within the Planning Area to the year 2035. Policies in the proposed General Plan limit leap-frog development and provide for an orderly transition from rural to urban land uses.

Reference Chapter Two, Project Description of the DEIR for a more detailed project description and the General Plan Land Use and Circulation diagram.

2.2 Description of California Water Service Company (CWS)

CWS is the largest investor-owned American water utility west of the Mississippi River and the third largest in the country. Cal Water was formed in 1926, is based out of San Jose and serves more than 460,000 customers through 28 Customer and Operations Centers throughout California.

CWS is the largest subsidiary of the California Water Service Group, which also includes Washington Water Service Company, New Mexico Water Service Company, Hawaii Water Service Company, and CWS Utility Services. As a whole, the Group provides high-quality regulated and non-regulated utility services to approximately two million people in 100 communities.

CWS's Selma District was formed in 1962 with the purchase of the water system from Pacific Gas and Electric Company.

CWS's storage tank, booster pumps, 15 water wells, and 81 miles of pipeline pump can deliver 5.9 million gallons of water per day from deep beneath the ground to meet the needs of its approximately 6,100 customers.

CWS proactively maintains and upgrades its facilities to ensure a reliable, high-quality water supply. CWS is currently completing the installation of a new well, securing property for the installation of another new well, and installing a tank at a pumping station. CWS will also be securing more property this year for future use, and will be installing new wells in 2009 and 2010.

2.3 Service Area Population and Boundaries

According to CWS, the Selma District growth rate diminished in recent years. Growth in total services averaged 0.85% from 2001 to 2006 and 1.75% from 1996 to 2006.

Based on 2000 Census data, actual service connection growth, and the assumption that population density per service connection has remained unchanged since the census was conducted, CWS estimated that, as of December 2005, the service area population was approximately 23,500. A density of 3.79 persons per residential service (single-family services plus multifamily units) was used for this estimate.

The 2000 Census revealed that the Selma Service Area included 278 Census Blocks, a population of 20, 370 and 6,050 housing units. Estimate of the population serviced by CWS is based on overlaying the U.S. Census 2000 Block data with the CWS service area map.

CWS estimates the service area's population could reach 96,030 by 2030. Table 2-1 lists the population growth in 5 year increments.

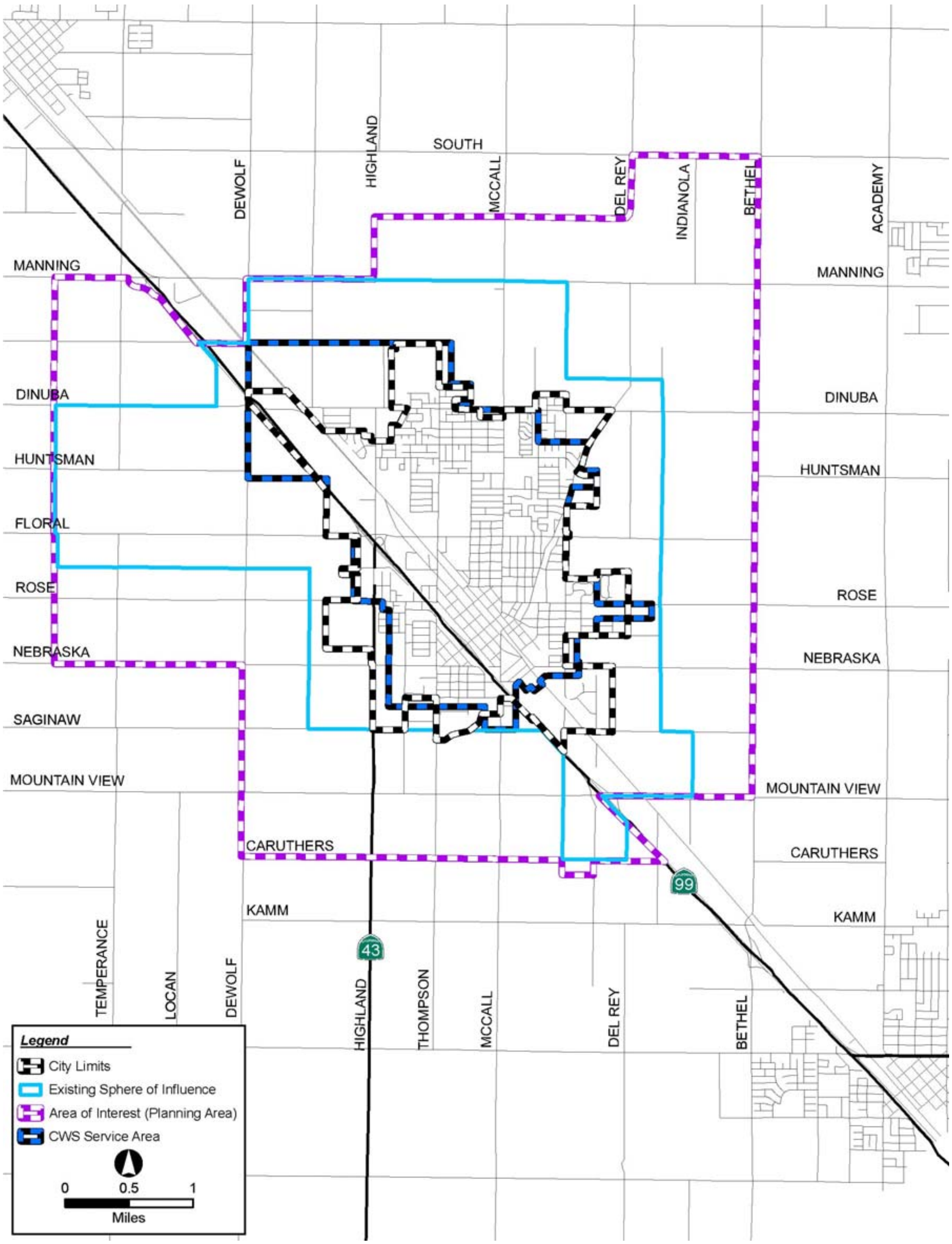
Table 2-1
Cal Water Population, Current and Projected, 2005-2030

	2005	2010	2015	2020	2025	2030
Service Area Population	23,500	58,720	66,400	75,090	84,920	96,030

Source: 2006 Urban Water Management Plan, California Water Service Company, October 31, 2006

The General Plan Update also includes population projections. The General Plan Update estimates that the City will reach 57,167 persons by the year 2030 and 84,621 persons by 2040. Figure 2-1 shows the CWS service area in relation to the City limits, existing SOI, proposed SOI and Planning Area.

CWS's service area is not coterminous with the Selma City limit; however, they are similar in size as the area within the City limits consists of 3,293 acres and the CWS service area consists of 3,317 acres. For reference, Selma's existing SOI and Planning Area are 8,298 and 15,183 acres in size respectively.



Quad Knopf	CWS SERVICE AREA, CITY LIMITS, SOI, PROPOSED SOI & PLANNING AREA	Figure 2 - 1

CHAPTER THREE – WATER DEMAND

CHAPTER THREE – WATER DEMAND

3.1 Distribution of Services

California Water Service Company (CWS) designates the different customers as residential, multifamily, commercial, industrial, government and other. CWS service connections for calendar year 2005 averaged 5,797 connections. Single-family residential services at 5,160 represented 89.06 percent of all services, multifamily residential services at 41 (1,036 units) represent 0.71 percent, and commercial at 469 services represents 8.09 percent, with all other service connection classes accounting for 2.14 percent.

3.2 Historical and Current Water Demand

Demand per service has been established by CWS as a function of historical sales and service data.

Growth in the CSW service area has historically occurred at a consistent rate with the growth rate in total services averaging 2.49 percent from 2001 to 2005.

The CSW system is surrounded by, and includes, large undeveloped parcels. Many of these have historically been used for agricultural purposes, but with the encroachment of urban development the use of this land for agriculture has diminished. A large corridor of land in the Selma District has been zoned for industrial activities as well.

A large portion (57%) of the single-family residential services in the CSW service area is unmetered. This percentage and the number of flat rate services have declined in recent years as all new construction is metered and some historical flat rate services have converted to metered service. In order to estimate the demand by the residential sector, unaccounted for water was fixed at eight percent of total production. This amount along with all metered sales was subtracted from total production to estimate the deliveries to the flat rate residential customers. This process revealed that the combined demand per service for all services fluctuates between 340,000 to 450,000 gallons per service per year. From 1995 to 2005 the combined demand per service remained below 400,000 gallons per service per year and averaged 374,000 gallons per service per year.

While overall sales have gradually increased as a result of increases in service connections, the demand per service on a customer class basis has fluctuated considerably. Curbing the increase in demand per service that has taken place will require the implementation of conservation measures. CSW has set a 10 percent reduction in demand goal (based on pre-drought levels). Achieving this goal in Selma would require maintaining the demand per service at the 400,000 gallons per service per year level. Implementation of Best Management Practices (BMPs) will assist in achieving this goal. In consideration of the 1995 to 2005 demand per service usage rates, it is apparent that CSW's customers have responded to achieving the CSW demand reduction goal, however, continued water conservation practices will be required to ensure long term service connection water demand reduction.

3.3 Per Capita Water Demand

Based on the 2005 year total demand, the per-capita water use in the CSW service area is summarized in Table 3-1. The per capita demand was 314.3 gallons per capita per day for all uses and 253.1 gallons per capita per day for residential uses only. In comparison, the statewide per capita demand was 190 gallons per day and the Sacramento Hydrological Region per capita demand was 301 gallons per capita per day in 2005.

Table 3-1
Per Capita Water Demand (2005)

Units	All User	Residential
Million Gallons	2,664	2,145
Estimated Population	2,322	23,220
Gallons/Person in Year	114,737	92,372
Gallons Per Capita Per Day	314.3	253.1
Gallons Per Capita Per Minute	0.218	0.176

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Single-family residential water use represents the smallest demand per service segment in the CSW service area at 262,000 to 378,000 gallons per service per year, with this category using 67.8 percent of the total demand. The multifamily residential use was 6.28 percent of the total demand with an average demand per service of 2,785,000 gallons per service per year. The combined residential sector component of demand is equal to 74.07 percent of total demand.

3.4 Historical and Projected Water Demand

CSW used a 2.49 percent average annual growth rate to estimate the 5-year average short term growth rate from 2001 to 2005. The 10-year average is the long-term growth rate, calculated from 1996 to 2005 period, which exhibited an overall annual average growth rate of 2.24 percent.

Although the City of Selma General Plan Update projects growth out to 2035, Water Code section 10910(c)(4) only requires that a WSA evaluate whether the total water supplies during a 20-year period will meet the projected water demand of the proposed project and future projects. To provide the community with a conservative view of future water supply reliability this WSA assumes full build out by 2030 consistent with the Urban Water Management Plan (UWMP).

CSW used three projection scenarios in the UWMP to develop a range of projected demand for the Selma District. For Scenario #1 the District's five-year average growth pattern was applied to the lowest recorded demand per service values from each customer class. Scenario #1 forecasts total demand for the Year 2030 at 21,142 AF (without system losses). This scenario provides a bottom end for the projected demand range. This scenario represents the level of demand CSW's customers could achieve if an emergency existed.

Scenario #2 combines the CSW service area five-year average growth pattern with the 10-year average demand per service for each customer class to project the most probable demand values through the Year 2030. This scenario forecasts total demand for the Year 2030 at 27,612 AF (without system losses). Scenario #2 represents the normal position of the demand range that should most likely occur provided the 10% conservation goal established by CSW is achieved and maintained. To accomplish this level of demand it will be essential to effectively promote and implement appropriate conservation programs.

Scenario #3 combines the CSW service area five-year average growth pattern with the highest recorded demand per service value for each customer class. This scenario forecasts demand for the Year 2030 at 33,827 AF (without system losses) and provides a top end for the projected demand range.

3.5 Basis for Capital Improvement

Based on the historic and projects housing unit growth rate, additional wells and booster pumps and storage tanks will need to be constructed to meet the future water demand within the CWS service area. Only the near term was considered in the UWMP, 2006 to 2010, and additional facilities would be required from 2010 to 2030. CSW is assumed to maintain average demand per service through this period. If the demand begins to approach high end demand per service, stricter conservation methods would be required or the proposed capital improvements schedule would need to be accelerated.

The UWMP estimated that 10 wells would need to be installed within the CWS service area between 2006 and 2010. The assumed design capacity of each well is 1,000 GPM. This would bring an additional capacity of 10,000 GPM or 14.40 MGD. If all 10 wells are installed, the total system capacity would be 18,900 GPM or 27.22 MGD by 2010.

In addition to new wells, additional tanks and boosters will be required to meet peak hour demands. The proposed tank and booster construction schedule from 2006 to 2010 is three. The boosters are to have similar capacity to the existing tank and pumps at Station 21, which are 1,800 GPM design capacity per unit. The duration of the peak periods will need to be estimated which will determine the capacity of the future tanks.

3.6 Summary

CSW does not provide water to other agencies, does not supply water for projects such as saline barriers or groundwater recharge, and does not currently plan to supply water for such purposes in the future. The only current CSW water source is groundwater wells.

The District system losses based on average demand projections are summarized in Table 3-2.

Table 3-2
Additional Water Uses and Losses, AF Year 2000-2030

Water Use	2000	2005	2010	2015	2020	2025	2030
Sales to Other Agencies	-	-	-	-	-	-	-
Saline Barriers	-	-	-	-	-	-	-
Groundwater Recharge	-	-	-	-	-	-	-
Conjunctive Uses	-	-	-	-	-	-	-
Raw Water	-	-	-	-	-	-	-
Recycled	-	-	-	-	-	-	-
Unaccounted-for System Losses	488	532	1,452	1,642	1,857	2,100	2,375
Total	488	532	1,452	1,642	1,857	2,100	2,375

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

The past, current, and projected water deliveries based on average projected consumption rate are presented in Table 3-3.

Table 3-3
Total Water Use, AF

Water Use	2000	2005	2010	2015	2020	2025	2030
Total	6,099	6,648	16,884	19,093	21,592	24,417	27,612

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

CHAPTER FOUR – WATER SUPPLY AVAILABILITY

CHAPTER FOUR – WATER SUPPLY AVAILABILITY

4.1 Introduction

The water supply for the customers of the California Water Service Company (CWS) is solely by groundwater wells. The CWS projected water supply/demand analysis is based on an average consumption rate of 6,944 AF in 2006 with a projected average consumption rate of 27,612 AF by 2030.

4.2 Purchased Water

CWS does not currently receive or have plans on purchasing water from a water agency.

4.3 Surface Water

CWS does not currently receive or have plans on receiving surface water.

4.4 Groundwater Supply

Water Code Section 10910 requires additional specific information if the water sources that will serve the project includes groundwater. Current groundwater data and information was obtained from the CWS UWMP and the Department of Water Resources. This WSA provides the required information as it relates to CWS's water system and the proposed project.

Groundwater is the sole source of water furnished to CWS service area customers. The supply is obtained from CWS owned wells and is pumped directly into the distribution system and a ground level steel tank. Groundwater extraction is accomplished using 13 active wells located throughout the district's service area. Four other wells are currently inactive or non-operational. Current design capacity for the operational wells is 10,200 GPM, equivalent to 14.69 MGD. Based on 2005 operating conditions, these wells produced 2,165.3 MG at a rate equivalent to 8,590 GPM.

Average static groundwater elevations in the district have remained relatively constant over the past 35 years. This trend is consistent with the levels recorded by the Consolidated Irrigation District (CID). Short periods of groundwater elevation decline and recovery have occurred during this period. The recent extended multi-year drought (prior to 2006) which reduced the availability of replenishment water, coupled with the high growth rate, caused a 45 foot decline in static groundwater elevation. The abundant storm runoff of the subsequent winters enabled an increase in groundwater recharge by the CID. As a result, the average static water level in CWS's wells has risen within 10 feet of pre-drought levels. Managing the quantity of water stored in the groundwater aquifers in the region will help perpetuate the availability of this resource, however, increasing demands will result in greater production and reliance on groundwater resources.

REQUIRED INFORMATION ON GROUNDWATER

Groundwater Management Plan

CID, in accordance with the Groundwater Management Act and AB 3030, has adopted a groundwater management plan which covers the community of Selma. The groundwater basin that CWS pumps from is an un-adjudicated basin. CWS has signed a Memorandum of Understanding with the CID to implement a Groundwater Management Plan under the provisions of Assembly Bill 3030. The CID is the lead agency in this effort. A copy of the Ground Water Management Plan is attached as Appendix B.

CID has historically focused on the conservation of flood flows of the Kings River for groundwater recharge and agricultural irrigation deliveries. The plan calls for annual reviews of groundwater conditions and as conditions dictate additional supplies will be acquired to augment current groundwater recharge operations.

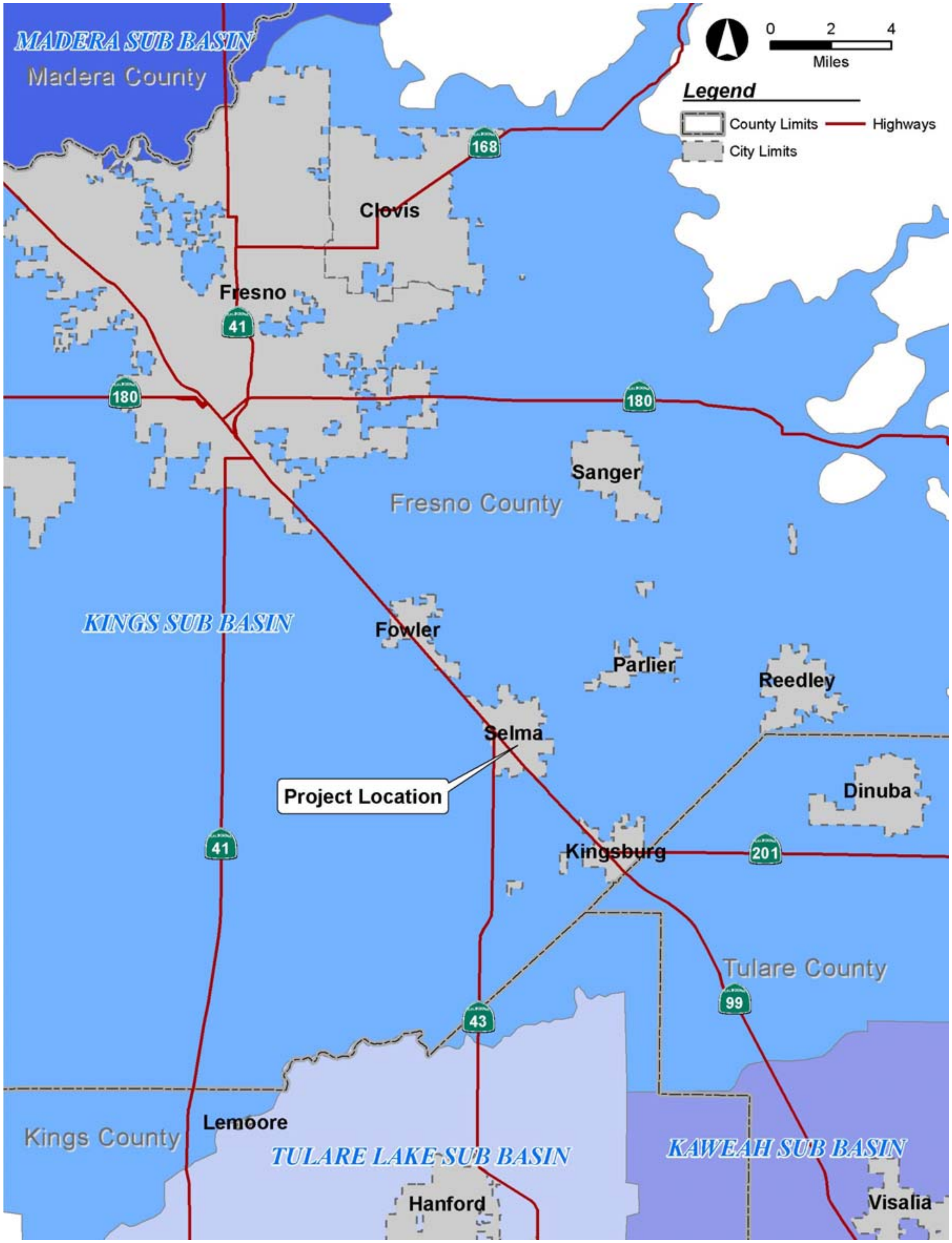
CID, along with other water agencies and local governments in the Kings River region, are coordinating efforts to manage groundwater and expand conjunctive use in an area that stretches over 1.2 million acres and includes more than 850,000 residents and water users. This effort is maintained by the King River Conservation District (KRCD). The
KRCD also maintains a Depth to Groundwater Report.

DESCRIPTION OF THE GROUNDWATER BASIN

Subbasin Boundaries and Hydrology

The following information is from the California Groundwater Bulletin 118 for the San Joaquin Valley Groundwater Basin (reference Appendix A). The groundwater underlying the City is within the Kings Subbasin which is part of the larger San Joaquin Valley Groundwater Basin comprised of a total of sixteen subbasins. Figure 4-1 shows the location of Selma within the Kings Subbasin (Subbasin 5-22.08). The Kings Subbasin is bounded on the north by the San Joaquin River. The northwest corner of the subbasin is formed by the intersection of the east line of the Farmers Water District with the San Joaquin River. The west boundary of the Kings Subbasin is coterminous with the eastern boundaries of the Delta-Mendota and Westside Subbasins. The southern boundary runs easterly along the northern boundary of the Empire West Side Irrigation District, the southern fork of the Kings River, the southern boundary of Laguna Irrigation District, the northern boundary of the Kings County Water District, the southern boundaries of Consolidated and Alta Irrigation Districts, and the western boundary of Stone Corral Irrigation District. The eastern boundary of the subbasin is the alluvium-granitic rock interface of the Sierra Nevada foothills.

The San Joaquin and Kings Rivers are the two principal rivers within or bordering the subbasin. The Fresno Slough and James Bypass are along the western edge of the subbasin and connect the Kings River with the San Joaquin River. Average annual precipitation values range from seven to 10 inches, increasing eastward (DWR, 2006).



Quad Knopf

KINGS GROUNDWATER SUBBASIN

Figure 4 - 1

Hydrogeologic Information

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide. It is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of lakes, sloughs, rivers and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

Water Bearing Formations

The Kings Subbasin groundwater aquifer system consists of unconsolidated continental deposits. These deposits are an older series of Tertiary and Quaternary age overlain by a younger series of deposits of Quaternary age. The Quaternary age deposits are divided into older alluvium, lacustrine and marsh deposits, younger alluvium, and flood-basin deposits.

The older alluvium is an important aquifer in the subbasin. It consists of intercalated lenses of clay, silt, silty and sandy clay, clayey and silty sand, sand, gravel, cobbles, and boulders. It is, generally, fine grained near the trough of the valley. Lacustrine and marsh deposits are interbedded with the older alluvium in the western portion of the subbasin.

The younger alluvium is a sedimentary deposit of fluvial arkosic beds that overlies the older alluvium and is interbedded with the flood-basin deposits. Its lithology is similar to the underlying older alluvium. Beneath river channels, the younger alluvium is highly permeable. Beneath flood plains, it may be of poor permeability. The flood-basin deposits occur along the Fresno Slough and James Bypass. They consist of sand, silt, and clay (DWR 2006).

Restrictive Structures

The lacustrine and marsh deposits contain silts and clays and restrict the vertical movement of water. The Corcoran Clay (E-clay) member of the Tulare formation is the most extensive of these deposits and occupies the western one-quarter to one-third of the subbasin. Its depth ranges from about 250-550 feet (DWR 1981) although much of the information shown on the map is indicated as inferred. The A-clay and C-clay are less extensive and lie above the Corcoran Clay. These clay layers cause confined groundwater conditions beneath them (DWR 2006).

Recharge Areas

Groundwater recharge occurs from river and stream seepage, deep percolation of irrigation water, canal seepage, and intentional recharge. The CID and others have recharge efforts in the subbasin.

Groundwater Level Trends

Groundwater flow is generally to the southwest. Most well water levels indicated a response to the 1976-77 drought. After the 1987-92 drought, wells in the northeast showed water levels from 10 to 40 feet below pre-1976-77 drought water levels. Water levels in the western subbasin experienced declines of 10 to 50 feet during the 1987-92 drought and are in various stages of recovery to mid-1980s levels. Water levels in the southeast have, generally, recovered to mid-1980s levels (DWR 2006).

Groundwater Storage

The groundwater basin bulletin 118 indicates that the groundwater in storage was 93,000,000 AF in 1961. This estimate was to a depth of 1,000 feet or less.

Groundwater Budget (Type C)

The potential exists for subsurface flows to the south and westward. Depending upon groundwater conditions in the Westside Subbasin, subsurface flows may occur in that direction. The potential for groundwater flow in either direction along the southern boundary exists. Groundwater depressions on either side of the boundary and groundwater mounding from recharge along the Kings River complicate flow patterns in the area.

Groundwater Quality

CWS service area groundwater is predominantly of bicarbonate type. In general, the quality of the groundwater within the service area has been suitable for public supply, except for DBCP and uranium in the shallow groundwater at some locations. Since 1983, new CWS Selma wells have been drilled to depths of at least 600 feet and the shallow groundwater sealed off. Other new water system wells have also been constructed in a similar manner.

The quality of groundwater below a depth of about 300 feet and above a depth of about 700 feet beneath the City of Selma plan area appears to be excellent for public supply. Shallower groundwater is generally of suitable quality for irrigation use.

4.5 Recycled Water

The recycling of wastewater offers several potential benefits to CWS and its customers. Perhaps the greatest of these benefits is to help maintain a sustainable groundwater supply either through direct recharge, or by reducing potable supply needs by utilizing recycled water for appropriate uses (e.g., landscape, irrigation) now being served by potable water. Currently, no wastewater is recycled for direct reuse from the domestic or industrial wastewater streams in the CSW service area. Indirect recycling occurs through the recharge of groundwater. The potential amount of recycled water that can be produced is proportional to the amount of wastewater that is generated within the CSW service area, and is discussed in the following sections.

4.5.1 WASTEWATER COLLECTION

The City of Selma operates and maintains the sewer system consisting of gravity sewers and pumping stations. The residential, commercial, and industrial wastewater is all conveyed to the Selma Wastewater Treatment and Disposal Facilities. The CWS's only industrial customer is Basic Vegetable Products.

4.5.2 ESTIMATED WASTEWATER GENERATED

The Selma Wastewater Treatment Plant provides the residential and industrial wastewater treatment service for Selma. The domestic wastewater is treated in 70 acres of stabilization ponds. The wastewater is then recharged to the groundwater basin by spray application on disposal fields. The industrial wastewater is treated at Basic Vegetable Products and then transmitted to the treatment plant for disposal on industrial spray disposal fields. The approximate area of all spray fields is 120 acres. The Selma treatment plant has a capacity to treat 1.2 MGD of domestic wastewater. Industrial wastewater treatment capacity varies during the year from 1 MGD during November through April to 2.4 MGD during May through October. As of 2005, approximately 900,000 gallons per day of domestic and 1.4 MGD of industrial wastewater is attributed to CWS‘s Selma service area.

4.5.3 POTENTIAL WATER RECYCLING

CWS does not anticipate acquiring recycled water customers for the Selma Wastewater Treatment and Disposal Facilities in the near future. Using recycled water is not considered economically viable given the anticipated extra costs for treatment and distribution. Therefore, the projected recycled water supply for CWS's Selma service area through the year 2030 is 0 acre-feet per year.

4.6 Desalinated Water

There are no opportunities for the development of desalinated water in the CWS service area.

4.7 Transfer or Exchange Opportunities

There are no water transfer or exchange opportunities for the District.

4.8 Water Supply Reliability

The average annual rainfall for the CWS service area has averaged 10.91 inches since 1980. The most recent driest year occurred in 1999 when the rainfall was 43.4% below average (6.2 inches). This is taken as the Single Dry Year shown in Table 4-1. The three Multiple Dry-Water Years used in this analysis are based on the most recent and consecutive lowest annual rainfall totals which occurred in 1988, 1989, and 1990. This period coincides with the drought conditions that California experienced during 1987-1992.

Table 4-1
Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	2001
Single-Dry Water Year	1999
Multiple-Dry Water Year	1988, 1989, 1990

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

The supply reliability is shown in Table 4-2 and shows that during below average rainfall periods, demand increases and has been met by the given supply.

Table 4-2
Water Supply Reliability, AF Year

Average/Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years		
		Year 1	Year 2	Year 3
6,228	6,128	6,652	6,912	7,032
% of Normal	98.4%	106.8%	111.0%	114.8%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Although the historical climatic record shows that the demand can be met by the supply, future climatic changes may present an obstacle. In addition, other factors which may threaten the reliability of the sole source include legal issues, water quality issues and climatic factors.

4.8.1 WATER QUALITY

The U.S. Environmental Protection Agency as authorized by the Federal Safe Drinking Water Act of 1974 sets drinking water standards. The drinking water delivered to customers in the CWS Selma service area, whether its source was groundwater or imported water, meets or surpasses all federal and state regulations.

4.9 Water Supply Projects

The makeup of the water supply delivered to the customers of CWS's Selma service area is not anticipated to change considerably in the future. The future water demand for the Selma service area will be satisfied by well production. Based on the previously discussed projected demand scenarios, it is anticipated that future demand within the District could require production of as much as 33,827 acre-feet per year. CWS will construct additional wells and distribution facilities to meet the anticipated increases in demand and to offset losses in supply sources resulting from water quality constraints.

CHAPTER FIVE – SUPPLY AND DEMAND DISCUSSION

CHAPTER FIVE – SUPPLY AND DEMAND DISCUSSION

5.1 Introduction

The adequacy of the California Water Service Company (CWS) ability to meet the water demands resulting from buildout resulting from the General Plan Update is evaluated below for a normal year, a critically dry year, and a series of dry years. The available water supply during each of these scenarios is compared to the anticipated demand, including those associated with the General Plan Update, to identify potential shortages in deliveries. The General Plan Update assumes less population growth by 2030 than the UWMP; therefore, the UWMP information for water supply availability is inferred to be representative of growth as a result of the General Plan Update. The analysis was conducted for the years 2010, 2015, 2020, 2025, and 2030.

The following information in this section has been excerpted from the UWMP (October 31, 2006).

5.2 Normal Year Comparison

Table 5-1 compares current and projected water supply and water demand based on average consumption (Scenario #2, reference Chapter Three). The projected increase in demand is 19% at year 2030 when compared to a normal year.

The table shows that CWS is able to meet the long term demand for the service area with a normal water supply. Because groundwater is the sole water supply source, supply will equal the demand.

Table 5-1
Projected Normal Year Supply and Demand Comparison – AF Year

	2010	2015	2020	2025	2030
Supply Totals	16,884	19,093	21,592	24,417	27,612
Demand Totals	16,884	19,093	21,592	24,417	27,612
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

5.3 Single Dry-Year Comparison

In General, and from operational records, the CWS's demand increases during a single-dry year more than in normal years. The water demand would increase due to maintenance of landscaping and other water users that would normally be supplied by precipitation. Table 5-2 compares the current and projected water supply and water demand based on a high consumption rate (Scenario #3, reference Chapter Three).

As with a normal year, since the single water supply source is groundwater, supply will equal the demand.

Table 5-2
Projected Single Dry-Year Supply and Demand Comparison – AF Year

	2010	2015	2020	2025	2030
Supply Totals	20,684	23,391	26,451	29,913	33,827
Demand Totals	20,684	23,391	26,451	29,913	33,827
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

5.4 Multiple Dry-Year Comparison

During a multiple dry-year scenario, demand will be met by stricter enforcement of CWS conservation methods.

Table 5-3 compares the projected water supply and water demand based on the low consumption rate (Scenario #1) occurring between 2006 and 2010 with a comparison to the average annual consumption projection (Scenario #2). The supply has been reduced proportionate with demand reduction because groundwater is the sole source of water supply. The demand is reduced by 17%, which is the lowest demand from the historical record for the District.

Table 5-3
Projected Supply and Demand Comparison to 2010
During Multiple Dry-Year Period – AFY

	2006	2007	2008	2009	2010
Supply Totals	6,944	8,757	10,571	12,386	14,202
Demand Totals	6,944	8,757	10,571	12,386	14,202
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Table 5-4 compares the projected water supply and water demand based on the low consumption rate (Scenario #1) occurring between 2011-2015 with a comparison to the average annual consumption projection (Scenario #2).

Table 5-4
Projected Supply and Demand Comparison to 2015
During Multiple Dry-Year Period – AFY

	2011	2012	2013	2014	2015
Supply Totals	14,556	14,918	15,290	15,670	16,061
Demand Totals	14,556	14,918	15,290	15,670	16,061
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Table 5-5 compares the projected water supply and water demand based on the low consumption rate (Scenario #1) occurring between 2016-2020 with a comparison to the average annual consumption projection (Scenario #2).

Table 5-5
Projected Supply and Demand Comparison to 2020
During Multiple Dry-Year Period – AFY

	2016	2017	2018	2019	2020
Supply Totals	16,460	16,870	17,290	17,721	18,162
Demand Totals	16,460	16,870	17,290	17,721	18,162
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Table 5-6 compares the projected water supply and water demand based on the low consumption rate (Scenario #1) occurring between 2021-2025 with a comparison to the average annual consumption projection (Scenario #2).

Table 5-6
Projected Supply and Demand Comparison to 2025
During Multiple Dry-Year Period – AFY

	2021	2022	2023	2024	2025
Supply Totals	18,614	19,078	19,553	20,040	20,539
Demand Totals	18,614	19,078	19,553	20,040	20,539
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

Table 5-7 compares the projected water supply and water demand based on the low consumption rate (Scenario #1) occurring between 2026-2030 with a comparison to the average annual consumption projection (Scenario #2).

Table 5-7
Projected Supply and Demand Comparison to 2030
During Multiple Dry-Year Period – AFY

	2026	2027	2028	2029	2030
Supply Totals	21,050	21,574	22,112	22,662	23,226
Demand Totals	21,050	21,574	22,112	22,662	23,226
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2006 Urban Water Management Plan Selma District, California Water Service Company, October 31, 2006

CHAPTER SIX – WATER CONSERVATION

CHAPTER SIX – WATER CONSERVATION

6.1 Water Conservation Best Management Practices

Water conservation is a method available to reduce water demands, thereby reducing water supply needs for the California Water Service Company (CWS). This chapter presents an overview of CWS's conservation best management practices (BMPs).

The unpredictable water supply and ever increasing demand on California's complex water resources have resulted in a coordinated effort by the Department of Water Resources (DWR), water utilities, environmental organizations, and other interested groups to develop a list of urban BMPs for conserving water. This consensus-building effort resulted in a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), as amended September 16, 1999, among parties, which formalizes an agreement to implement these BMPs resulting in a cooperative effort to reduce the consumption of California's water resources. Table 6-1 presents the BMPs as defined by the MOU. The California Urban Water Conservation Council (CUWCC) administers the MOU.

Table 6-1
Water Conservation Best Management Practices

No.	BMP Name
1	Water survey programs for single-family residential and multi-family residential connections.
2	Residential plumbing retrofit.
3	System water audits, leak detection and repair.
4	Metering with commodity rates for all new connections and retrofit of existing connections.
5	Large landscape conservation programs and incentives.
6	High-efficiency clothes washing machine financial incentive programs.
7	Public information programs.
8	School education programs.
9	Conservation programs for commercial, industrial, and institutional accounts.
10	Wholesale agency assistance programs.
11	Retail conservation pricing.
12	Conservation coordinator.
13	Water waste prohibition.
14	Residential ULFT replacement programs.

Source: Memorandum of Understanding Regarding Urban Water Conservation in California, California Urban Water Conservation Council, Amended December 10, 2008

The MOU requires that a water utility implement only the BMPs that are economically feasible. If a BMP is not economically feasible, the water utility may request an economic exemption for that BMP. The BMPs as defined in the MOU are generally recognized as standard definitions of water conservation measures. CWS is a signatory of the MOU and, as a signatory, CWS has agreed to implement the BMPs that are cost beneficial and complete such implementation in accordance with the schedule assigned each BMP. CWS proposes to run BMP's 2, 4, 5, 6, 7, 8, 9 and 14 at an annual cost of $37,920.

6.2 Internal Measures to Achieve Efficient Water Management

CWS also implements internal measures intended to achieve efficient water management as discussed below:

Distribution System Water Audit and Leak Detection Program: CWS has implemented an in-house water audit and leak detection program for its distribution systems. The program is administered by a company employee equipped with state-of-the-art leak detection equipment and trained in the methodology such as that described in the American Water Works Association's Manual of Water Supply Practices: Water Audits and Leak Detection. It is expected that each district would be audited once every three years.

The most recent survey in Selma was completed in June 1999. Thirty miles of main were surveyed, detecting 1 leak. This leak totaled 0.36 kgal (1,000 gallons) of water loss per day.

Water Efficient Landscape Guidelines: In 1992, water efficient landscape guidelines were developed (see Appendix C). These guidelines apply to all landscapes designed for CWS properties including renovations. For ease of adoption by districts with a multitude of climates and microclimates, the guidelines are generic. They do, however, adhere to water efficient landscape (Xeriscape) principles.

6.3 Overall District Goals

CWS recognizes the importance of conservation in managing its own water resources. While economic and regulatory constraints of integrating conservation into supply management have proven challenging, CWS is participating in efforts to develop demand management strategies, standards, and criteria by working with the California Urban Water Conservation Council. This Council was formed as part of the MOU primarily to oversee the implementation of the BMPs and to improve water conservation practices and analyses. CWS is committed to this process and the development of an integrated resource plan.

CWS's conservation programs are intended to assist customers in their efforts to use water efficiently as well as to educate them about their overall water supply. This will lead them to make informed decisions concerning the efficient use of water and enable them to better respond to required reductions in water use should a water shortage or emergency occur. During periods of water shortages, CWS's conservation programs can be expanded and may include more restrictive measures such as mandatory reductions, rationing, and penalties.

CHAPTER SEVEN – FINDINGS AND RECOMMENDATIONS

CHAPTER SEVEN – FINDINGS AND RECOMMENDATIONS

The following are the findings of the water supply assessment prepared for the Selma General Plan Update:

1. CWS provides the community of Selma with all of its potable water. CWS has estimated that its service area population would be 96,030 persons by 2030, whereas the General Plan is projecting a year 2030 population within the City of Selma Sphere of Influence (SOI) of 57,167.

2. CWS used three projection scenarios in the Urban Water Management Plan (UWMP) to develop a range of projected water demand for the Selma District. Scenario #1 forecasts total demand for the Year 2030 at 21,142 AF (without system losses). Scenario #2 forecasts total demand for the Year 2030 at 27,612 AF (without system losses). Scenario #3 forecasts demand for the Year 2030 at 33,827 AF (without system losses). CWS can meet the projected demand under each scenario.

3. The past, current, and projected water deliveries based on the average projected consumption rate is 27,612 AF by year 2030.

4. The projected water supply source and amount based on average consumption was estimated to be 6,944 AF in 2006 and projected to be 27,612 AF by 2030.

5. Groundwater is the sole source of water furnished to CWS service area customers. CWS does not receive any surface water or have plans on purchasing water from a water agency.

6. Average static groundwater elevations in the district have remained relatively constant over the past 35 years. This trend is consistent with the levels recorded by the Consolidated Irrigation District (CID). Short periods of groundwater elevation decline and recovery have occurred during this period.

7. According to the UWMP, the groundwater supply will be sufficient in a normal year, single dry year and multiple dry year scenarios.

8. The proposed project will have little to no impact on the overall water balance in the Kings subbasin.

9. CWS implements eight economically feasible BMPs to reduce water demands, thereby reducing water supply needs for the service area. The District also implements internal measures such as water audit and leak detection and water efficient landscape guidelines to achieve efficient water management.

It is concluded that the CWS water system has sufficient capacity to supply the City of Selma and other projected demands within it's service area as the 2035 Selma General Plan is implemented. Therefore, it is recommended that the City of Selma approve this water supply assessment and forward the report to the City of Selma Planning Department for inclusion in the EIR for the subject project.

CHAPTER EIGHT – REFERENCES

CHAPTER EIGHT – REFERENCES

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2. California Department of Water Resources, "California's Groundwater, Bulletin 118, Tulare Lake Hydrologic Region, San Joaquin Valley Groundwater Basin, January 20, 2006.

3. California Department of Water Resources, Groundwater Well Data. Accessed March 13, 2009. Available from the Department of Water Resources Site, http://www.sjd.water.ca.gov/groundwater/basin_maps/index.cfm.

4. California Water Service Company, *2006 Urban Water Management Plan Selma District Final Draft*, October 31, 2006.

APPENDICES

APPENDIX A

San Joaquin Valley Groundwater Basin
Kings Subbasin

- Groundwater Subbasin Number: 5-22.08
- County: Fresno, Kings, and Tulare
- Surface Area: 976,000 acres (1,530 square miles)

Subbasin Boundaries and Hydrology

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Kings Subbasin is bounded on the north by the San Joaquin River. The northwest corner of the subbasin is formed by the intersection of the east line of the Farmers Water District with the San Joaquin River. The west boundary of the Kings Subbasin is the eastern boundaries of the Delta-Mendota and Westside Subbasins. The southern boundary runs easterly along the northern boundary of the Empire West Side Irrigation District, the southern fork of the Kings River, the southern boundary of Laguna Irrigation District, the northern boundary of the Kings County Water District, the southern boundaries of Consolidated and Alta Irrigation Districts, and the western boundary of Stone Corral Irrigation District. The eastern boundary of the subbasin is the alluvium-granitic rock interface of the Sierra Nevada foothills.

The San Joaquin and Kings Rivers are the two principal rivers within or bordering the subbasin. The Fresno Slough and James Bypass are along the western edge of the subbasin and connect the Kings River with the San Joaquin River. Average annual precipitation values range from seven to 10 inches, increasing eastward.

Hydrogeologic Information

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide. It is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

Water Bearing Formations

The Kings Subbasin groundwater aquifer system consists of unconsolidated continental deposits. These deposits are an older series of Tertiary and Quaternary age overlain by a younger series of deposits of Quaternary age. The Quaternary age deposits are divided into older alluvium, lacustrine and marsh deposits, younger alluvium, and flood-basin deposits.

The older alluvium is an important aquifer in the subbasin. It consists of intercalated lenses of clay, silt, silty and sandy clay, clayey and silty sand, sand, gravel, cobbles, and boulders. It is, generally, fine grained near the trough of the valley. Lacustrine and marsh deposits are interbedded with the older alluvium in the western portion of the subbasin.

The younger alluvium is a sedimentary deposit of fluvial arkosic beds that overlies the older alluvium and is interbedded with the flood-basin deposits. Its lithology is similar to the underlying older alluvium. Beneath river channels, the younger alluvium is highly permeable. Beneath flood plains, it may be of poor permeability. The flood-basin deposits occur along the Fresno Slough and James Bypass. They consist of sand, silt, and clay.

The continental deposits of Tertiary and Quaternary age crop out beneath the extreme southeastern part of the subbasin and yield small amounts of water to wells. The deposits of Quaternary age are exposed over most of the area and yield more than 90 percent of the water pumped from wells (Page and LeBlanc 1969).

Page and LeBlanc (1969) indicate that the specific yields in the subbasin range from a low of 0.2 percent to 36 percent. To calculate storage capacity in the 10 to 200 foot depth range, Davis and others (1959) used a range of specific yields from approximately six percent to 18 percent. Williamson and others (1989) used an average specific yield of 11.3 percent in the area of the subbasin for computer modeling purposes.

Restrictive Structures

The lacustrine and marsh deposits contain silts and clays and restrict the vertical movement of water. The Corcoran Clay (E-clay) member of the Tulare formation is the most extensive of these deposits and occupies the western one-quarter to one-third of the subbasin. Its depth ranges from about 250-550 feet (DWR 1981) although much of the information shown on the map is indicated as inferred. The A-clay and C-clay are less extensive and lie above the Corcoran Clay. These clay layers cause confined groundwater conditions beneath them.

Recharge Areas

Groundwater recharge occurs from river and stream seepage, deep percolation of irrigation water, canal seepage, and intentional recharge. The Cities of Fresno and Clovis, Fresno Irrigation District, and Fresno Metropolitan Flood Control District have a cooperative effort to utilize individually owned facilities to recharge water in the greater urban area. Fresno Irrigation District, Consolidated Irrigation District, and others have recharge efforts in the subbasin. The Fresno-Clovis metropolitan area uses a regional sewage treatment facility that disposes of water in percolation ponds southwest of Fresno.

Groundwater Level Trends

Groundwater flow is generally to the southwest. Two notable groundwater depressions exist. One is centered in Fresno-Clovis urban area. The other is centered approximately 20 miles southwest of Fresno (DWR 2000) in the Raisin City Water District.

Most well water levels indicated a response to the 1976-77 drought. After the 1987-92 drought, wells in the northeast showed water levels from 10 to 40 feet below pre-1976-77 drought water levels. Water levels in the western subbasin experienced declines of 10 to 50 feet during the 1987-92 drought and are in various stages of recovery to mid-1980s levels. Water levels in the southeast have, generally, recovered to mid-1980s levels.

Groundwater Storage

Groundwater in Storage.
Williamson (1989) indicates that the groundwater in storage was 93,000,000 af in 1961. This estimate was to a depth of 1,000 feet or less.

Groundwater Budget (Type C)

The potential for subsurface flows south and westward exists. Depending upon groundwater conditions in the Westside Subbasin, subsurface flows may occur in that direction. The potential for groundwater flow in either direction along the southern boundary exists. Groundwater depressions on either side of the boundary and groundwater mounding from recharge along the Kings River complicate flow patterns in the area.

Groundwater Quality

Characterization. The groundwater is predominantly of bicarbonate type. The major cations are calcium, magnesium, and sodium. Sodium appears higher in the western portion of the subbasin where some chloride waters are also found (Page and LeBlanc 1969).

Page and LeBlanc (1969) noted that the TDS of groundwater in the Fresno area seldom exceeds 600 mg/L although at greater depths, 2,000 mg/L groundwater has been encountered. A typical range of groundwater quality in the basin is 200 to 700 mg/L.

DHS data indicates an average TDS of 240 mg/L from 414 samples from Title 22 water supply wells. These samples ranged from 40 to 570 mg/L.

Impairments. Dibromochloropropane (DBCP), a soil fumigant nematicide, and nitrates can be found in groundwater along the eastern side of the subbasin. Shallow brackish groundwater can be found along the western portion of the subbasin. Elevated concentrations of fluoride, boron, and sodium can be found in localized areas of the subbasin.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	457	8
Radiological	443	24
Nitrates	463	23
Pesticides	495	105
VOCs and SVOCs	468	17
Inorganics – Secondary	457	41

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: – 20-3,000 (Page And LeBlanc 1969)	Average: 500-1,500
	Total depths (ft)	
Domestic	Range: - Not determined	Average: Not determined
Municipal/Irrigation	Range: - 100-500 (Page and LeBlanc 1969 Table 14)	Average: 210

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR and Cooperating Agencies	Groundwater levels	909 Semi-annually
Local Agencies	Miscellaneous water quality	Varies
Department of Health Services and Cooperators	Title 22 Water quality	722 Varies

Basin Management

Groundwater management:	The County of Fresno has an adopted groundwater management ordinance. The following entities have adopted AB3030 management plans: Alta Irrigation District, Consolidated Irrigation District, County of Fresno, Fresno Irrigation District, James Irrigation District, Kings River Conservation District, Kings River Water District, Liberty Canal Company, Liberty Water District, Liberty Mill Race Company, Mid Valley Water District, Orange Cove Irrigation District, Raisin City Water District, and Riverdale Irrigation District.
Water agencies	
Public	City of Fresno, City of Clovis, Alta I.D., Consolidated I.D., Fresno I.D., Hills Valley I.D., James I.D., Kings River Conservation District, Kings River Water District, Laguna I.D., Liberty Water District, Mid-Valley W.D., Orange Cove I.D., Raisin City W.D., Riverdale I.D., and Tri-Valley I.D.
Private	California Water Service Co., Bakman Water Company

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Errata

Updated groundwater management information and added hotlinks to applicable websites. (1/20/06)

APPENDIX B

Appendix I: CID Ground Water Management Plan

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CONSOLIDATED IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

JULY 26, 1995

Summers Engineering, Inc.
Consulting Engineers
Hanford, California

CONSOLIDATED IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

REGISTERED PROFESSIONAL ENGINEER
ROGER L. REYNOLDS
NO. 28198
Exp. 3-31-98
CIVIL
STATE OF CALIFORNIA

JULY 26, 1995

Summers Engineering, Inc.
Consulting Engineers
Hanford, California

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INTRODUCTION

The Consolidated Irrigation District (District), was organized on September 8, 1921, in accordance with the Irrigation District Law of the State of California as outlined in the Water Code. The District is located in the San Joaquin Valley, principally in Fresno County, with minor portions in Kings and Tulare Counties. The City of Fresno is approximately five miles northwesterly of the District's northern boundary. A District map is attached as Plate 1. This map shows the District boundary along with the principal conveyance facilities. At present, the irrigable acreage in the District is approximately 140,000 acres. Nearly 92,000 acres (gross) are capable of receiving a surface water supply derived from Kings River water rights. The balance of the District, approximately 53,000 acres (gross), obtains its water supply solely from groundwater. In years when a minimal surface supply is available, District landowners have the capability of pumping groundwater to meet their irrigation requirements. The District does not own or operate any production wells. All lands that obtain a supply from groundwater, do so by the use of private wells.

GROUNDWATER MANAGEMENT PLAN GOALS

The Consolidated Irrigation District held a public hearing on August 5, 1993 to discuss the District's intent to prepare a groundwater management plan in accordance with AB 3030 (California Water Code Section 10750 et seq.). The proposed plan would expand upon the existing and ongoing groundwater management of the District. The objective of the plan is to monitor and analyze groundwater use and trends and to recommend any necessary actions for the wise use of groundwater resources within the exterior boundaries of the service area. In developing and implementing a groundwater management plan, the District will consider the plan's impact on business activities including its impact on agricultural operations.

The AB 3030 legislation authorized local agencies that provide water service in a groundwater basin to adopt and implement a groundwater management plan. Several local communities are located within the District boundaries as indicated on Plate 1. Incorporated cities include Sanger, Fowler, Selma, Kingsburg, and Parlier. Unincorporated communities include Caruthers, Del Rey, and other rural residential clusters. The District encompasses all of these communities and it is the District's goal to develop a groundwater management plan which addresses agricultural water supply concerns and issues as well as the water quality and supply issues which are of concern to the cities and rural communities. The desire is to have a groundwater management plan developed, managed, and monitored by a local agency rather than a mandated groundwater management plan administered by the State of California.

There is recognition by local agencies that the availability and recharge of groundwater supplies is dependent on the availability and delivery of surface water supplies by the District. The District plans to implement a coordinated groundwater management plan for the area. In compliance with AB 3030 requirements, the District will meet at least once each year to coordinate its groundwater management plan with local agencies in the basin that have also prepared such a plan.

The preparation and implementation of this groundwater management plan shall not be interpreted as authorizing the District to make a determination of groundwater rights for any person or entity. The groundwater management plan, as adopted, will not authorize the District to limit or suspend any groundwater extractions unless the District has determined through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proven insufficient or infeasible in lessening the demand for groundwater.

AB 3030 provides procedures for funding and implementation of groundwater management plans. The plan, at this time however, does not authorize the District to levy any fees to fund the implementation of the plan. The District's ongoing groundwater management program has always been funded as part of the District's annual budget and at this time no new fees are proposed for the implementation of the groundwater management plan. It is anticipated the actual costs for sampling and testing the groundwater quality throughout the

District will be shared between the District and the participating cities and other local agencies within the District. If future activities warrant the need for additional funding to implement the groundwater management plan, the District will hold an election to determine whether or not it will be authorized to levy a groundwater management assessment or fix and collect fees for the replenishment or extraction of groundwater pursuant to the requirements outlined in AB 3030.

HISTORICAL MANAGEMENT OF GROUNDWATER RESOURCES

The District, in an average year, supplies approximately two-thirds of its irrigable acreage with surface water from rights on the Kings River. The remaining one-third of the irrigable acreage obtains its supplies solely from groundwater. Because of the variability in surface supplies, landowners typically have wells to help meet their irrigation demand. This dependence on groundwater together with declining groundwater levels following District formation in the 1920's caused the District to be acutely aware of the need to manage its groundwater resources. Shortly after formation, the District began operating a groundwater monitoring program which continues to this day. At this time, the program consists of the monitoring of approximately eighty-two observation wells located on a 2-mile grid throughout the District. Water level measurements for these observation wells are made and recorded monthly. A summary of the historic annual average depth to groundwater in the District is indicated graphically by Plate 2.

There are approximately 4,500 irrigation wells within the District, owned by landowners. In addition, there are at least an equivalent number of domestic wells in operation. Recognizing the need to artificially recharge groundwater in the basin, the District in the early 1930's began purchasing land which could be used as recharge basins to augment the groundwater supply during years of surplus water. This surplus supply, when available, is obtained from the Kings River or excess Friant-Kern Canal supplies. At this time, the District owns or has easements for forty-six recharge basins with a surface area of approximately 1,300 acres. The recharge basins are indicated on Plate 1. In addition to the recharge basins, the District owns and/or operates approximately 350 miles of unlined channels that also provide recharge to the groundwater basin.

Over the past forty years, the District has recharged approximately two million acre feet in its recharge basins and canals. During 1969, it is estimated 308,000 acre feet were recharged to the groundwater basin by direct discharge into the District's recharge basins. In 1978, approximately 180,000 acre feet were recharged and in the 1982-83 period it is estimated that 300,000 acre feet were also recharged into the groundwater basin. When excess flood flows or flood releases occur on the Kings River, the District can initially divert up to 1,100 cubic feet per second into its recharge basins. As the basins fill and the soils become saturated, the District's recharge capability reduces but usually a long-term recharge rate of approximately 700 cubic feet per second (1,400 acre feet per day) can be maintained.

With its existing surface supply and recharge basins, the Consolidated Irrigation District manages one of the oldest and largest conjunctive use programs in the San Joaquin Valley. The foresight of the District's Board of Directors and staff in purchasing, constructing, and maintaining the recharge basins, as well as implementing a groundwater monitoring program throughout the District has had a major impact on the beneficial use and management of groundwater resources in the area. Despite its recharge efforts, however, the District is still water deficient and continues to look for every opportunity to increase the acreage of its recharge basins and to obtain additional surface water supplies for recharge purposes.

GEOLOGY AND GROUNDWATER RESOURCES

Portions of the easterly and southeasterly boundary of the District follow the existing alinement of the Kings River. The Kings River has deposited an alluvial fan throughout the area. The apex of the fan lies near the northeast corner of the District and the fan deposits have spread out radially to the southwest on lands that now make up the Consolidated Irrigation District. A major portion of the District lands are permeable to moderately permeable younger alluvial deposits from granitic rock eroded and washed down from the Sierra Nevada.

An alluvial fan is formed over geologic time by a river that has often changed its course through the years. Sands and gravels are deposited by high velocity flows during times of flood while lower velocity flows deposit silts. The coarsest materials are typically deposited in the stream and river channels while fine sand and silt are carried further downstream and away from the channels during times of flood where they are deposited on the adjacent flood plains. In the District, the alluvial deposits of sand and silt are somewhat heterogeneous and there are no specific confining clays that create a confined or semi-confined aquifer within the District. As expected, the deposits become progressively finer grained the further the distance from the apex of the fan.

U.S. Geological Survey Water Supply Paper 1469, prepared in 1959, is a report on "Groundwater Conditions and Storage Capacity in the San Joaquin Valley, California." The USGS collected and reviewed available information on the hydrogeology of specific hydrologic units or areas in the Valley, one of which is the Kings River unit. The Consolidated Irrigation District comprises approximately 26% of the northeast portion of this unit. Information on the geology and character of water bearing deposits, groundwater movement, water level fluctuations, and estimated groundwater storage capacity was obtained and evaluated by the USGS. They determined, following a review of drillers' logs, that in the 10 to 200 foot depth, sand and gravel make up approximately 38% of the soil profile. This is the highest average in the valley. Most of the coarse grained material is sand. Less than 3% is gravel. Gravel is prevalent, as expected, near the apex of the Kings River alluvial fan, but is nearly nonexistent elsewhere. The average specific yield of the deposits in the District for the 10 to 200 foot depth range is also quite high, with an average value of 13.4 percent. The specific yield is a technical term defining the percentage of water that will freely drain by gravity from a volume of soil.

The shallowest alluvial deposits are found near the apex of the fan north easterly of Sanger and extend at this location to a depth of approximately 100 feet, while to the west and southwest they become much deeper. Wells drilled in the District vary from approximately 80 to 400 feet in depth with the average irrigation well approximately 200 feet deep. The specific capacity for wells in the District varies from approximately 40 to 70 gallons per minute per foot of drawdown with well yields typically varying in the range of 500 to 800 gallons per minute.

As indicated by Plate 2, there has been some fluctuation in water levels, but there has also been a gradual lowering of groundwater levels through the years. The Department of Water Resources in Bulletin 118-80, "Groundwater Basins in California," defines the District's groundwater supplies as being located in a basin "subject to critical conditions of overdraft." Summers Engineering, Inc. (1973) in a report prepared for the District estimated there was an annual average overdraft in the District of approximately 53,000 acre feet. Without the District's recharge program this amount would be much higher. Plate 2 indicates that during years of above normal Kings River supply, a significant replenishment and recharge to the groundwater basin occurs. This is evident following the 1968-69 and 1978 thru 1986 water years. During years of minimal surface runoff, landowners increase groundwater pumping to supplement their irrigation requirements. The increased groundwater pumping and the resultant lowering of groundwater levels during the 1987 through 1992 six-year California drought is clearly depicted in the graph on Plate 2.

GROUNDWATER MANAGEMENT PLAN COMPONENTS

Monitoring of Groundwater Levels and Storage

One of the primary objectives of the proposed groundwater management plan is to monitor and analyze groundwater use and trends in order to be able to recommend any necessary actions for the wise use of the groundwater resources in the service area. As mentioned, the District has eighty-two monitoring wells located on a 2-mile grid throughout the District. Depth to groundwater measurements have been made monthly through the years. Under the proposed groundwater management plan, the District will continue monitoring the existing groundwater levels throughout the District. This data will be entered into a computer data base that can be utilized to create hydrographs for individual wells and groundwater contour maps of the District. Included as Plate 3 is a map showing the April 1994 Groundwater Elevation Contours. Plate 4 shows Depth to Groundwater Contours for April 1994. This information will be used to calculate changes in groundwater storage from year to year. The District will maintain a data base evaluating annually the changes in groundwater storage and recommend, if necessary and feasible, any actions to protect and maintain the groundwater resources in the service area. The Kings River Conservation District also monitors wells in the District and in adjacent areas.

Water Quality Monitoring

The District also proposes monitoring groundwater quality on a rotating basis using existing wells in the District service area. Groundwater quality is generally excellent throughout the District for irrigation purposes. For potable water supplies, a major groundwater quality problem and concern is contamination by dibromochloropropane (DBCP), a soil fumigant used for many years to control nematodes in orchards and vineyards. This contamination has not impacted groundwater use for irrigation, but some groundwater used for domestic purposes where there is DBCP contamination may require costly filtration equipment to remove the contaminants. Monitoring the groundwater quality at select wells throughout the service area will provide regional information on existing groundwater quality and help identify the potential for any future degradation or unanticipated movement of poor quality groundwater.

Water Well Construction and Abandonment Policy

The Consolidated Irrigation District is located in Fresno, Kings and Tulare Counties. Each county has an existing water well ordinance regulating the construction, reconstruction, destruction, and inactivation of water, cathodic protection and monitoring wells within the respective counties. Individuals constructing a well are required to obtain a permit from their respective county for the construction of such a well. Each county has adopted by reference the minimum standard for the construction or destruction of wells as specified in Department of Water Resources Bulletins 74-81 and 74-90. Properly constructed or destroyed wells normally do not cause groundwater contamination. However, when wells have been improperly sealed or have been left abandoned or in disrepair, they can serve as conduits by which contaminates can directly enter groundwaters. The District shall urge county authorities to enforce and strengthen their ordinances. The District will develop additional construction guidelines, if needed, to further minimize water quality contamination concerns related to the construction of new wells or the abandonment of existing wells.

Facilitate Conjunctive Use Operations

Conjunctive use is the planned management and coordination of two or more water resources to accomplish the greatest long term benefit. As discussed under the section, Historical Management of Groundwater Resources, the

Consolidated Irrigation District has practiced throughout its history a conjunctive use operation. While the district's primary responsibility is the delivery of surface water for irrigation, the District's forty-six recharge basins covering over 1,300 acres also provide the District with the ability to percolate additional surface water supplies, when available, into the groundwater basin. Although the goal of conjunctive use management is to balance the recharge and extraction of groundwater over a given time period, there continues to be a gradual lowering of groundwater levels throughout the District. Without the District's conjunctive use program, however, groundwater levels would have lowered significantly below what they presently are throughout the District.

The District will continue to maintain and operate their existing recharge basins to facilitate groundwater recharge when additional surface supplies are available. It will also continue to review the feasibility of purchasing additional lands to increase the size and number of recharge basins when appropriate lands become available for purchase.

Mitigation of Groundwater Overdraft

The groundwater basin in the District has been defined by the Department of Water Resources as a basin subject to critical conditions of overdraft. The economy of the area, however, is dependent on groundwater pumping. Any restrictions placed on groundwater pumping to mitigate groundwater overdraft may create a significant impact on the local economy. The District will make every effort to increase its conjunctive use operations when feasible and possible, by pursuing the purchase or transfer of additional surface water supplies to reduce its dependence on groundwater pumping. The District will prohibit the transfer of water out of the District's exterior boundaries except for potential water banking arrangements determined to be beneficial to the District. Landowners within the District will also be encouraged to use surface water whenever possible "in lieu" of groundwater to further minimize the depletion of existing groundwater supplies.

Replenishment of Groundwater Extractions

As summarized under the section "Historical Management of Groundwater Resources" the Consolidated Irrigation District since its early formation has pursued the purchase and construction of recharge basins on lands adjacent to its existing distribution system. The basins will continue to be operated and maintained to recharge the groundwater basin by using additional surface water supplies from the Kings River, purchasing or transferring supplies which may become available from the Friant-Kern Canal, or by purchasing or transferring any additional surface water supplies which could be delivered to the District. As mentioned, the District will continue to consider the construction of additional recharge basins to further increase its recharge capabilities when appropriate lands become available for purchase. The District will also explore the possibility of water banking if it is determined to be feasible.

The Development of Relations with State and Federal Regulatory Agencies

The District will strive to maintain its working relationship with the California Department of Water Resources and the State and Regional Water Quality Control Boards that oversee and provide direction for California's groundwater protection efforts. National policy and direction relating to groundwater protection efforts are provided by the Environmental Protection Agency. The District will evaluate information provided by both the State and Regional Water Quality Control Boards and also the Environmental Protection Agency regarding planning efforts to further improve and protect groundwater resources.

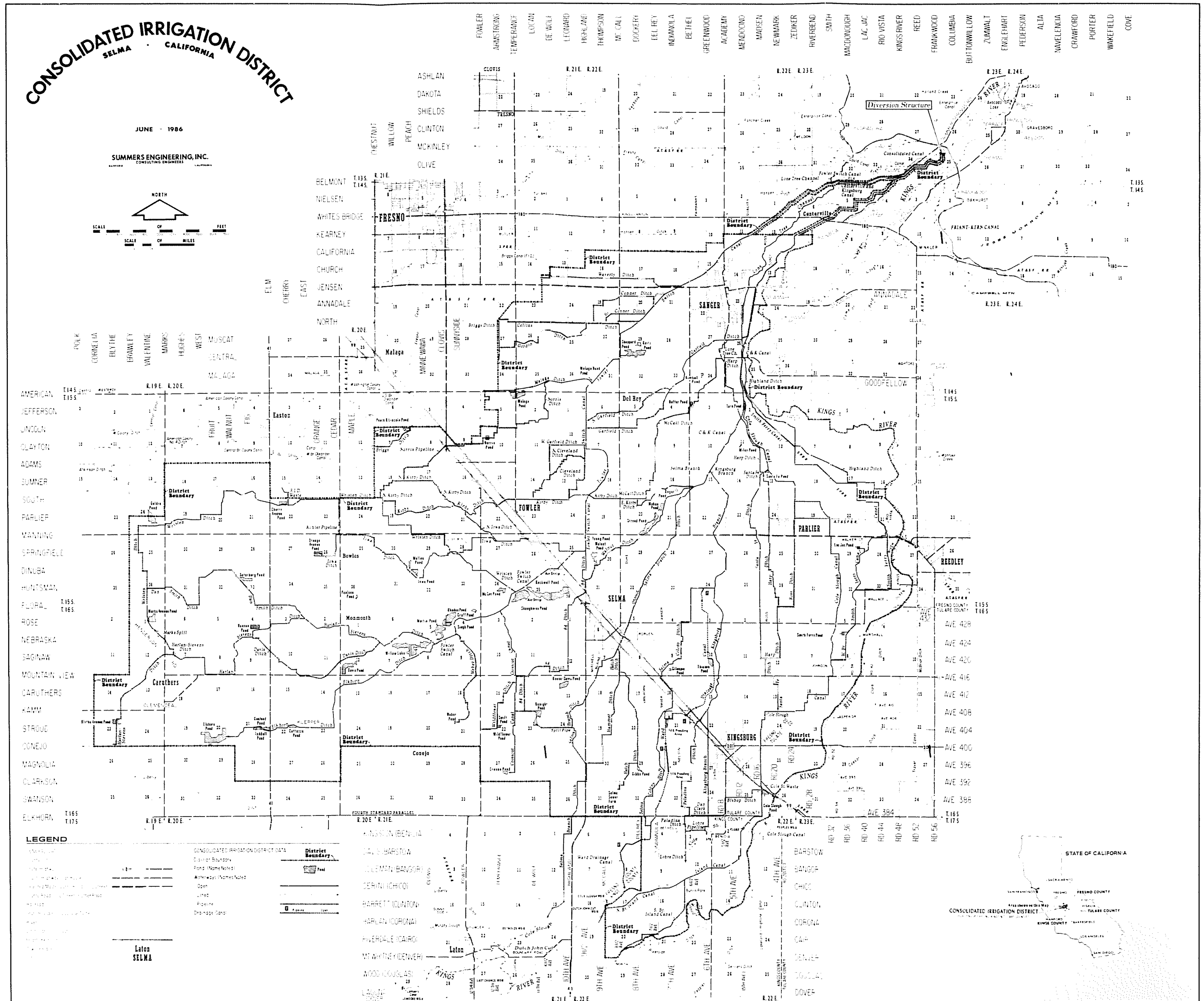
Coordination with Local Agencies

The Consolidated Irrigation District strives to maintain a strong working relationship with all public entities within its service area. As stated, it is the goal of the District to develop a groundwater management plan which addresses not only District concerns regarding agricultural water supply and availability but also the concerns of the cities and rural communities within the District that obtain their potable water supplies from groundwater. The District will continue to interact with all applicable agencies in the County to develop a coordinated groundwater management plan which is acceptable by all. As outlined in Water Code Section 10755.2, and if feasible, the District will work with all public or private water purveyors in the service area to enter into a Memorandum of Understanding regarding the adoption and implementation of a coordinated groundwater management plan pursuant to AB 3030.

The goal of this plan is to protect and wisely use the valuable groundwater resources within the service area of the Consolidated Irrigation District. Therefore, the District will encourage public agencies within the service area to establish guidelines for the development of a planning methodology for the review of proposed developments or industries which have the potential to seriously impact the existing groundwater supplies.

IMPLEMENTATION OF GROUNDWATER MANAGEMENT PLAN

Following approval and adoption of the groundwater management plan, the District will adopt "rules and regulations" to implement and enforce the plan pursuant to Water Code Section 10753.8.


CONSOLIDATED IRRIGATION DISTRICT
SELMA · CALIFORNIA
JUNE · 1986
SUMMERS ENGINEERING, INC.
CONSULTING ENGINEERS
NORTH
LEGEND
Diversion Structure
FRESNO
SANGER
Centerville
Malaga
Del Rey
FOWLER
SELMA
PARLIER
REEDLEY
KINGSBURG
Caruthers
Bowles
Easton
Monmouth
Conejo
KINGS RIVER
District Boundary
FRIANT-KERN CANAL
STATE OF CALIFORNIA
CONSOLIDATED IRRIGATION DISTRICT
FRESNO COUNTY
TULARE COUNTY
KINGS COUNTY
ASHLAN
DAKOTA
SHIELDS
CLINTON
MCKINLEY
OLIVE
BELMONT
NIELSEN
WHITES BRIDGE
KEARNEY
CALIFORNIA
CHURCH
JENSEN
ANNADALE
NORTH
AMERICAN
JEFFERSON
LINCOLN
CLAYTON
ADAMS
SUMNER
SOUTH
PARLIER
MANNING
SPRINGFIELD
DINUBA
HUNTSMAN
FLORAL
ROSE
NEBRASKA
SAGINAW
MOUNTAIN VIEW
CARUTHERS
KAMM
STROUD
CONEJO
MAGNOLIA
CLARKSON
SWANSON
ELKHORN
MUSCAT
CENTRAL
MALAGA
GOODFELLOW
AVE 428
AVE 424
AVE 420
AVE 416
AVE 412
AVE 408
AVE 404
AVE 400
AVE 396
AVE 392
AVE 388
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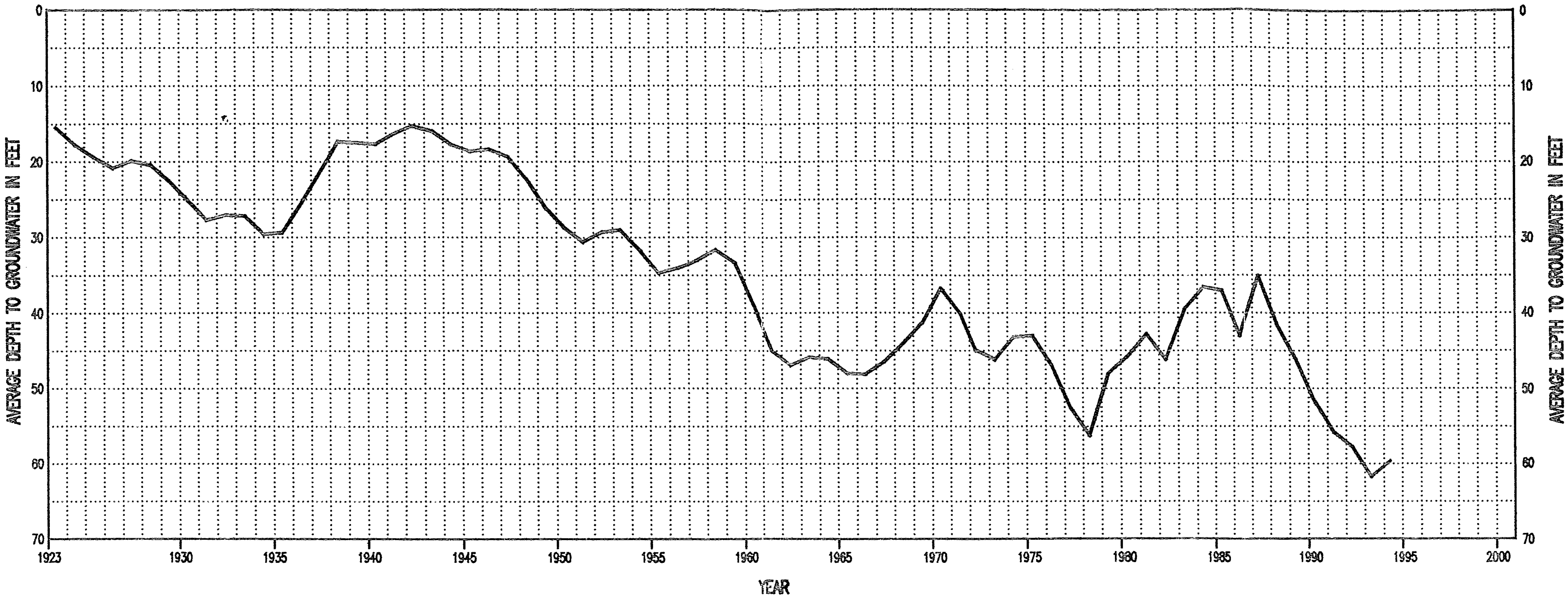
BARSTOW
BANGOR
CHICO
CLINTON
CORONA
CAIRO
DENVER
DOUGLAS
DOVER
Laton
SELMA



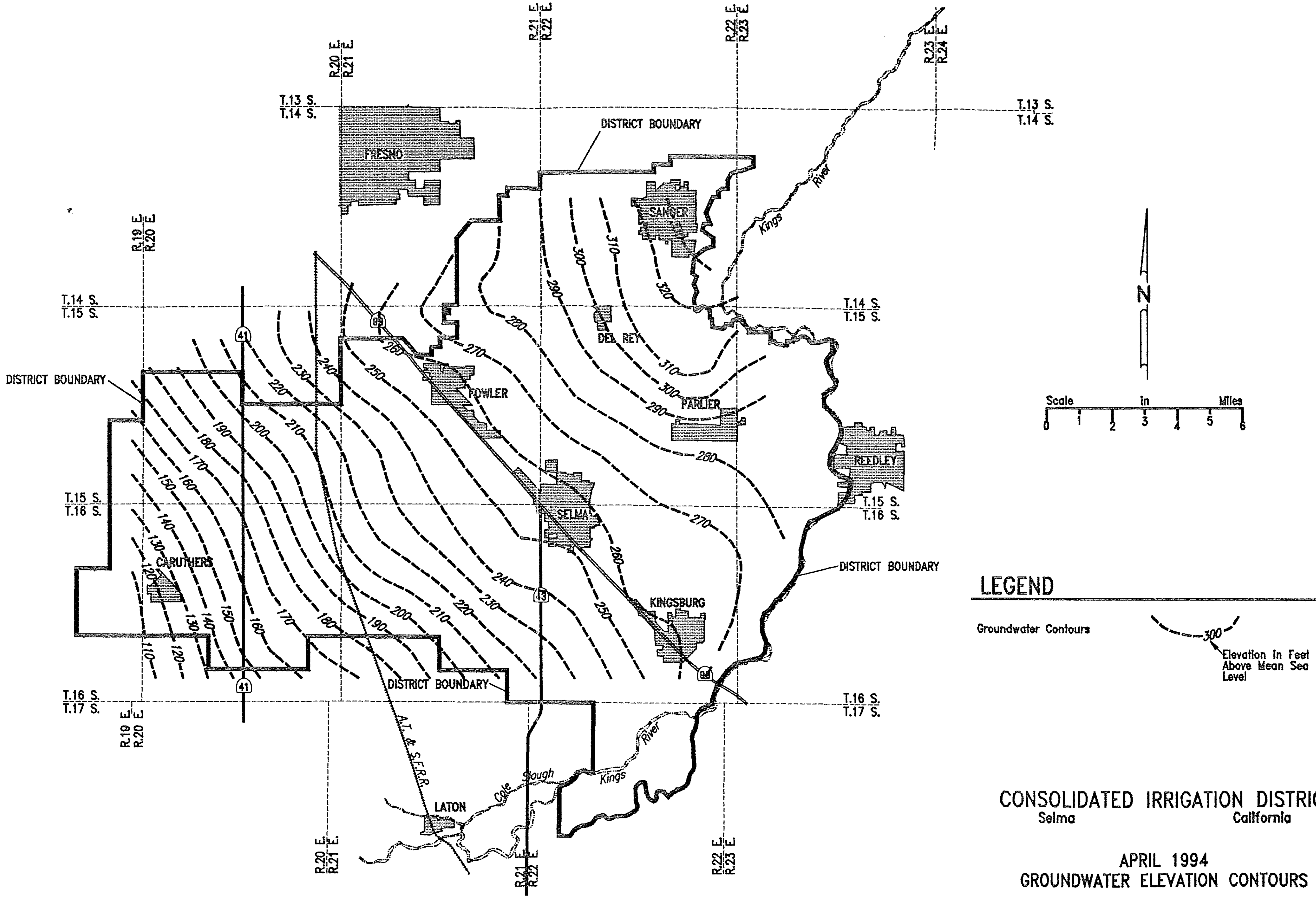
CONSOLIDATED IRRIGATION DISTRICT
Selma California

Average Annual
April Depth to Groundwater

SUMMERS ENGINEERING, INC.
Consulting Engineers
HANFORD CALIFORNIA

April 1995

PLATE 3

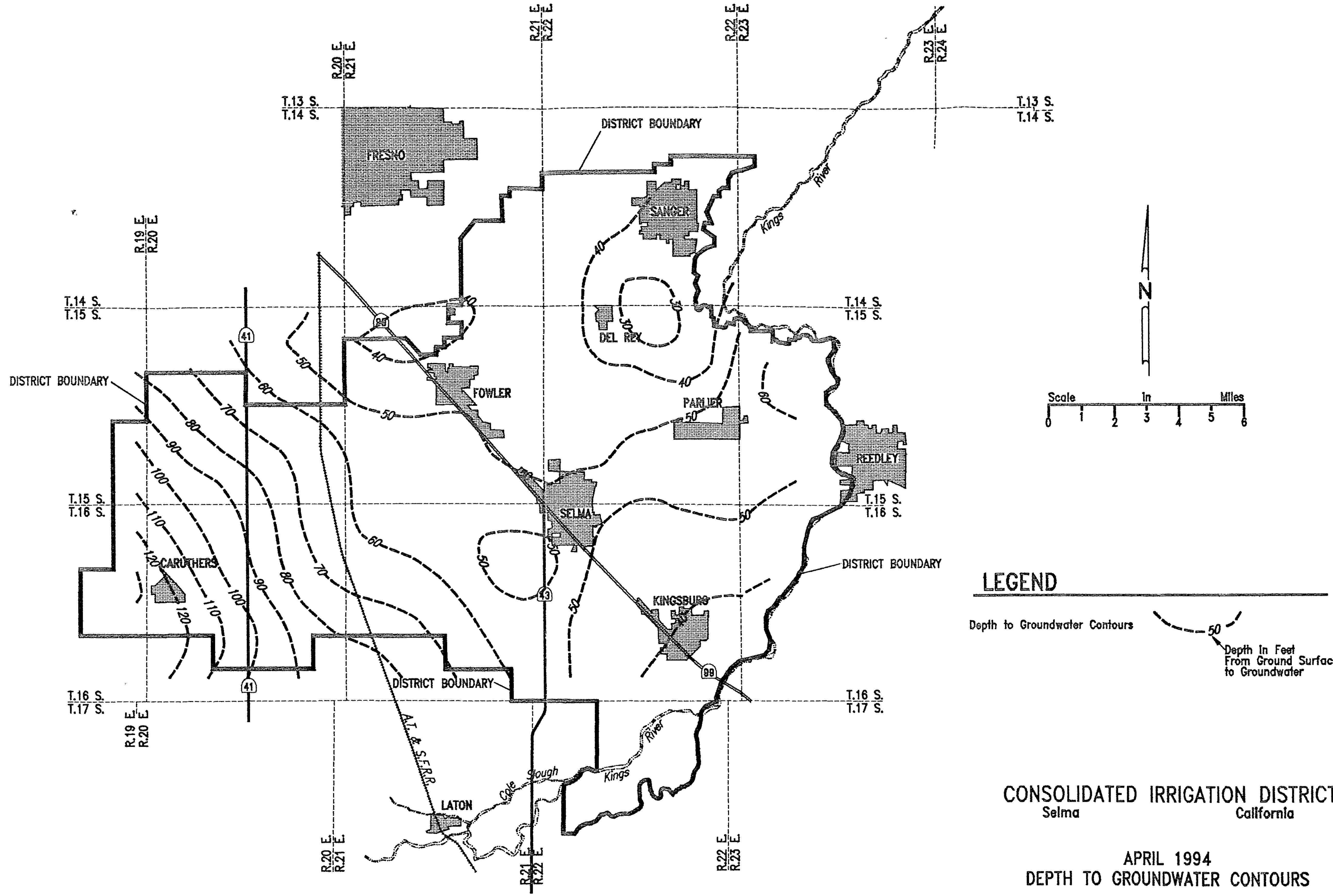


CONSOLIDATED IRRIGATION DISTRICT
Selma California

APRIL 1994
GROUNDWATER ELEVATION CONTOURS

SUMMERS ENGINEERING, INC.
Consulting Engineers
HANFORD CALIFORNIA

May 1995



CONSOLIDATED IRRIGATION DISTRICT
Selma California

APRIL 1994
DEPTH TO GROUNDWATER CONTOURS

SUMMERS ENGINEERING, INC.
Consulting Engineers
HANFORD CALIFORNIA

May 1995

APPENDIX C

CALIFORNIA WATER SERVICE COMPANY

LANDSCAPE GUIDELINES

The Water Conservation Landscape Guide is intended to apply to all Cal Water landscape projects. As Cal Water has been active in promoting water conserving landscaping to its customers, so should those same principles be adopted and applied within, to company projects involving landscape installations and renovations.

Although these guidelines will apply in most cases, some flexibility may be allowed to accommodate individual site constraints and changes in technology that are rapidly developing in the landscape industry.

Whether your landscape project is put out to bid or performed by district personnel, landscape designs should include the following considerations:

I. Design - Addresses site planning considerations, plant material selection, and earthwork/mounding as they impact water use on-site.

II. Soils - Specifies soil testing (if needed), preparation and amendment requirements to make the best use of the water delivered to the plant material. Soil preparation is an important element in assuring the success of drought-tolerant, low water use planting designs.

III. Irrigation Management - Addresses the key irrigation considerations which produce a design capable of delivering the amount of water appropriate to the plant materials in the most efficient way possible. In addition, this section addresses concerns relative to the long-term operation and maintenance of the irrigation systems by establishing long-term operational schedules.

WATER CONSERVATION LANDSCAPE GUIDELINES

I. DESIGN

a) Site Planning - Landscape planting is required for erosion control, fire clearance zones, screening, solar control, etc., as well as for design continuity and aesthetic enhancement of the individual site and its surrounding area. If feasible, the design may incorporate existing, established on-site plant material into the new design.

b) Plant Material Selection - Drought tolerant plant materials (xeriscape) should be provided in all projects. Plant materials shal1 he capable of healthy growth in their specific location and capable of producing the desired effect. Plant materials should be grouped by water needs for maximum irrigation efficiency. Little or no turf should be included in the design. If turf is included, a drought tolerant species should be considered.

c) Earthwork - Lawn should be discouraged on bermed areas. Terracing of large mounds or slope areas should be reviewed as a design possibility to reduce irrigation water runoff.

II. SOILS

a) A determination of soil type, depth, and uniformity present on-site should be made at which time soil amendment consistent with findings should be addressed. Decomposed organic matter or polymer water retention products should be incorporated in the soil to improve water infiltration and retention on all sites.

b) Two or three inches of organic mulch should be added on top of non-turf planted areas to reduce evaporation, moderate soil temperatures, and discourage weeds. Sheet plastic and other non-porous materials should not be placed under the mulch.

WATER CONSERVATION LANDSCAPE GUIDELINES (cont)

III. IRRIGATION MANAGEMENT

a) All irrigation systems should be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures.

b) The design of the irrigation system should take into account the soil's water holding capacity to determine appropriate water application rates, timing, and quantities.

c) All landscaped areas should be serviced by an automatic irrigation system operated by a multiple programmable controller. Irrigation plans and specifications should include watering schedules for each zone area and valve system based on the actual needs of the plant material and the zone climatic conditions. Schedules should call for early morning watering.

d) The irrigation design should utilize separate valve systems for high water use and low water use areas and sprinkler headtypes (spray heads, bubblers, drip emitters, etc.) capable of emitting the amount of water appropriate to the plant material zone.

e) Adjustments in watering schedules should be made for the establishment of new plant materials, maintenance of plant material after the initial establishment period, and weather changes.

f) Irrigation plans should include provisions for the long-term maintenance of the systems including periodic inspection to assure long-term water use efficiency.