AMBERWOOD SPECIFIC PLAN

DRAFT

ENVIRONMENTAL IMPACT REPORT

SELMA, CALIFORNIA

SCH NO. 2007051003

Prepared By

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July 1, 2011

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FOR

THE AMBERWOOD SPECIFIC PLAN

SCH NO. 2007051003

Prepared For

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EXECUTIVE SUMMARY

INTRODUCTION

Under the provisions of 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 proposed project may cause a significant environmental impact. Section 15123 of the CEQA Guidelines requires that the EIR contain a brief summary of the proposed actions and its consequences. It was determined by the Lead Agency, after the completion of an Initial Study, that the development of the Amberwood Specific Plan Project could have a significant effect on the environment. Therefore, the City of Selma, acting as the Lead Agency, determined that an Environmental Impact Report must be prepared. This document, and the environmental impact analysis contained herein, outlines in detail the anticipated significant environmental impacts of the Amberwood Project.

In addition to providing an analysis of the anticipated potential environmental impacts of the project, CEQA also requires that *Feasible Mitigation Measures* be included to reduce the identified significant impacts to a level of insignificance whenever possible. This document includes numerous mitigation measures that pertain to each specific environmental impact issue area. 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 ways to mitigate (i.e., reduce, avoid, or eliminate) those impacts through special mitigation measures, or alternatives to the proposed project. Alternatives for the Amberwood Project are discussed in Chapter 5 of this document. CEQA intends for the preparation of an EIR to be a public process that provides meaningful opportunities for public input with regard to the potential environmental effects. Prior to certification of this EIR by the City Council, a public hearing is required.

Other CEQA requirements mandate that the Cumulative Impacts of the proposed project be discussed, that the Growth Inducing Impacts of the proposed project be discussed, and that the Unavoidable and Irreversible Impacts of the proposed project be discussed. These issues are addressed in this document in Chapters 6, 7, and 8. Cumulative Impacts include other projects that may be constructed within the City of Selma and southeastern Fresno County region, that when combined with the Amberwood project, increase the environmental impacts in specific areas, such as Traffic Impacts or Air Quality Impacts. Air Quality Impacts in particular are regional in nature, since air pollution is not subject to physical boundaries, and air pollutants can travel and be dispersed by wind and temperature inversions. In addition, irreversible

changes to the environment, such as the permanent loss of prime farmland, and the continuing overdraft of groundwater resources, must also be discussed in the EIR.

The Amberwood EIR is considered a project level EIR. The Amberwood EIR uses the 2035 General Plan Update Certified Program EIR as a major reference document.

PROJECT DESCRIPTION

The Amberwood Specific Plan Project is a mixed use residential and commercial development project planned for a 690.7 acre site located in the northeastern portion of the Selma Sphere of Influence, east of Orange Avenue, and between Manning Avenue and Floral Avenue. The Project Site Plan and Proposed Land Uses are depicted in Figure 1, and the location of the project site in relation to the City of Selma Sphere of Influence is depicted in Figure 2. A Regional Vicinity Map is also included herein as Exhibit 1.

The Amberwood project will be constructed in up to 20 phases over a period of up to 25 years. The exact timing for full buildout will be totally dependent upon future housing market conditions within the Selma area. A conservative projection is for an average of approximately 102 new homes per year to be constructed over approximately 25 years. The project will contain the following land uses:

- A 7.5 acre neighborhood commercial site.
- A 10.8 acre elementary school site.
- A 3 acre site for a new public safety facility (police and fire).
- 54.3 acres for public park areas.
- 15.2 acres for private park areas.
- 30.2 acres for private lake areas.
- 122.9 acres for low density residential uses.
- 258.3 acres for medium low density residential uses.
- 108.1 acres for medium density residential uses.
- 80.4 acres for public and private streets.

A total of 2,558 detached dwelling units are planned for the project, and 131,200 square feet of neighborhood commercial uses is also anticipated. The new elementary school will accommodate up to approximately 700 students. A new community center building will be located within the linear park area. The detached dwelling units will be constructed on twelve (12) individual lot types which will range in minimum lot sizes from 3,480 square feet to 8,450 square feet. Both single story and two story homes are anticipated. No rental apartment units will be constructed within Amberwood. The project will include two (2) private lakes with approximately 192 lake front lots. A primary feature of the Amberwood project will be a large

linear park to be located within the central portion of the project area. The linear park will include a meandering creek for aesthetics, aquifer recharge, and storm drainage purposes. Assuming a population density of approximately 3.5 persons per household, the Amberwood project could contain a population of approximately 8,953 persons at full buildout.

The project will include an on-site wastewater treatment plant which will provide high quality tertiary treated wastewater. The treated wastewater will be deposited into the two private lakes to be located at the southern end of the project. The treated and disinfected wastewater will be recycled via a purple pipe system for irrigation of the public and private park and open space areas. The private lakes will also be unlined, thus allowing for recharge of the underground aquifer. Aquifer recharge is important in order to help prevent further overdraft of the underground water resources. The project will receive potable drinking water from deep wells operated by the California Water Service Company, a private for profit water provider.

The Amberwood project will include local private streets which will be owned and maintained by the Amberwood Homeowners Association. Arterial streets and collector streets will be dedicated to the City of Selma, and the City will be responsible for maintenance of these streets. Individual neighborhoods within Amberwood may be gated for security purposes at the discretion of the developer.

The Amberwood Specific Plan will contain detailed design guidelines and development regulations. The design guidelines will pertain to the following items:

- Walls and Fences
- Neighborhood Entryways
- Street and Park Furniture
- Street Signs and Boat Docks
- Monuments and Signage
- Street Lighting and Utilities
- Pedestrian Walks and Bike Paths
- Parks and Open Space
- Landscaping

The development regulations will control items such as building height, setbacks, lot coverage, and off street parking requirements. Activities to be allowed on the private lakes will include boating (non-powered boats only such as sailboats and rowboats), and fishing. Swimming will not be allowed. It is anticipated that the lakes will be stocked with an appropriate species of fish. Allowable activities on the private lakes will be controlled and enforced by the Amberwood Homeowners Association.

PURPOSE OF THE AMBERWOOD SPECIFIC PLAN

The purpose of the Amberwood Specific Plan is to implement the City of Selma General Plan in a comprehensive and detailed manner with respect to the development of the Amberwood project site. To accomplish this objective, the Specific Plan establishes the land uses, infrastructure, public services, and financing methods to direct future development within Amberwood. In summary, the purpose of the Specific Plan is to accomplish the following:

- Establish the land uses, development standards, and zoning for development.
- Establish design provisions and guidelines to stimulate responsible project design while still allowing flexibility for changing trends in building architecture and design.
- Provide detailed plans for infrastructure, public facilities, and services to support these land uses.
- Finance the development, operation, and maintenance of the public infrastructure, facilities, and utilities, thereby resulting in no adverse economic impacts to the City of Selma.
- Describe and outline implementation measures, including project phasing, service levels, and administration of the Amberwood Specific Plan.
- Provide appendix references for design guidelines.

The further purposes of the Amberwood Specific Plan, in conjunction with the development agreement, is to provide long term development assurances to the developer regarding other entitlement actions which will be consistent with the Amberwood Specific Plan. The related entitlements will include a Vesting Tentative Tract Map, annexation of the project site into the City of Selma, and approval and certification of the Final EIR.

Proposed Actions

The proposed entitlement actions for the project include the following:

- Approval of the Specific Plan, including the Development Standards/Design Guidelines.
- Approval of the Development Agreement.
- Approval of the Vesting Tentative Tract Map.
- Approval of the Annexation of the project site.
- Approval of a Sphere of Influence Amendment.
- Approval of the Pre-Zoning Ordinance.
- Approval of the Project Phasing Plan.
- Approval of the on-site Wastewater Treatment Plant.
- Approval of the Final Maps for each phase of the project.
- Approval and Certification of the Final EIR.

Known Areas of Controversy

Section 15123 (b)(2) of the CEQA Guidelines requires that the Lead Agency identify and outline areas of controversy known to the Lead Agency, including issues raised by other agencies and the public. Known areas of controversy are as follows:

- Groundwater Overdraft. This issue was raised by the Consolidated Irrigation District.
- Loss of Prime Farmland. This issue was raised by the County of Fresno.
- Air Quality Impacts. This issue was raised by the SJVAPCD.
- Traffic Impacts. This issue was raised by Caltrans.
- Stormwater Deposition. This issue was raised by the Consolidated Irrigation District.
- Need for Aquifer Recharge. This issue was raised by the Consolidated Irrigation District.

The environmental impact issue areas outlined above, and the proposed mitigation measures, are discussed in depth in Chapter Four of this Environmental Impact Report.

Significant Environmental Impacts

The Amberwood Specific Plan project will cause potentially significant environmental impacts in the following areas:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Population and Housing
- Public Services
- Recreation and Parks
- Traffic and Transportation
- Utilities and Service Systems

Environmental Impact Issue Areas found to be Less than Significant

The following Environmental Impact Issue Areas were found to be Less than Significant:

- Geology and Soils
- Land Use and Planning (project is consistent with the 2035 updated General Plan)
- Noise

Environmental Impact Issue Areas found to have NO Impact

The project was determined to have NO environmental impacts in the following areas:

- Hazards and Hazardous Materials
- Mineral Resources

Environmental Impacts Determined to be Significant and Unavoidable

The development of the Amberwood project will cause significant and unavoidable impacts in the following areas:

- Permanent Loss of Prime Agricultural Land from Conversion to Urban Uses.
- Increased Traffic and the Reduction in Levels of Service (LOS) at key intersections.
- Increased Air Pollution and Degraded Air Quality, primarily from motor vehicles.
- Cumulative Unavoidable Significant Impacts to Groundwater Overdraft.
- Increases in Ambient Noise Levels in the project area and off site, primarily from increased motor vehicle traffic.
- Hydrology Impacts from Stormwater Runoff, and Pumping of Groundwater for potable drinking water and landscaping irrigation uses.
- Unavoidable Impacts to the Selma Unified School District, and the need for a new Elementary School.
- Significant and Unavoidable additional demands for Electricity and Natural Gas Utilities.
- Significant and Unavoidable increases in the Population of the City of Selma from the construction and occupancy of an additional 2,558 dwelling units.
- Significant and Unavoidable impacts to Public Safety Services (Police and Fire) from increased calls for service.
- Significant and Unavoidable increases in Solid Waste Generation.

Regarding the above outlined significant and unavoidable impacts, the permanent loss of prime agricultural land, additional significant project generated traffic, significant air quality impacts, primarily from traffic, and significant demand for groundwater resources are most notable. Regarding air quality, the San Joaquin Valley Air Basin is a non-attainment area for ozone and particulate matter. Therefore, any increases in these air pollutants from the project is considered to be significant and unavoidable.

Mitigation Measures

Mitigation measures have been proposed by the City of Selma which will reduce the identified environmental impacts to a Less than Significant Level for many of the significant

environmental impact areas outlined above. These mitigation measures are outlined and summarized in Tables ES-1 and ES-2 below.

Table ES-1

Proposed Mitigation Measures

ENVIRONMENTAL IMPACT ISSUE AREA	PROPOSED MITIGATION MEASURES	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Aesthetics	• Prepare a lighting intensity diagram and lighting improvement plans for City approval. • Limit illumination in commercial parking lots to a uniform of 1.0 foot candle. • Require the developer to adhere to the design guidelines as contained in the Amberwood Specific Plan. • Require outside highly directional lighting fixtures and proper shielding on all outdoor lighting to minimize the transmission of light off site.	Potentially Significant	Less than Significant
Agricultural Resources	• The City shall require adequate buffers between the project site and adjacent agricultural lands. In addition, adequate setbacks and a 7 ft high perimeter masonry wall shall be provided. • City shall use	Significant and Unavoidable	Significant and Unavoidable

	urban development boundaries and growth phasing policies to delay conversion of ag lands to urban uses in areas adjacent to the project site. • City shall encourage developer to actively farm land within the project site until phasing and housing market condition determine that agricultural land should be converted to urban uses. • Land located within the project site but outside of the sphere of influence shall remain zoned County AE-20 until such time as the City SOI is revised by LAFCO, and the land is pre-zoned and annexed into the City. • City shall require the developer to record right to farm covenants in order to place future owners on notice regarding the potential environmental impacts of adjacent area farming operations and as a notice of the right of area		

	farmers to continue their farm operations.		
Air Quality	• Prior to receiving an occupancy permit, each non-residential facility in the project shall install bicycle parking facilities within 50 feet of main entrances. A minimum of 1 bicycle parking space for each 20 vehicle spaces shall be installed. • Prior to occupancy, shower and locker facilities shall be installed in commercial buildings to encourage employees to bike and/or walk to work. One shower and three lockers for each 25 employees is considered adequate. • The project developer shall install display cases or kiosks displaying transportation information in prominent areas accessible to employees, residents, and visitors. Display locations to include parking lots and garages, the elementary school, and the commercial	Potentially Significant	Significant and Unavoidable

	shopping center, along with the community center. • Automated lights and thermal controls shall be installed in all non-residential facilities. • Daylight systems shall be installed in all non-residential building including skylights, light shelves, and interior transom windows. • The project architect shall design, and the builder shall install roofing technologies such as high albedo and low emissive roofs, EPA "Energy Star" approved roofing materials, and "Green Roof" and LEED technology systems. • Parking lots shall be designed to include clearly marked and shaded walkways between public transit facilities, adjacent sidewalks, and commercial building entrances. • "Cool Paving" shall be installed to the maximum extent feasible. • Proposed commercial land		

	uses that have the potential to emit Toxic Air Emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors (homes, schools, churches) in accordance with the ARB Air Quality and Land Use Planning Handbook. Specifically, the architect shall design an adequate buffer between any dry cleaning operation and any sensitive receptors, and between any gasoline dispensing facility and any sensitive receptors. • Prior to development of the on-site wastewater treatment plant, the developer shall consult with the SJVAPCD small business assistance office to determine Air Permit Issues and to develop an Odor Mitigation Plan, if one is required. The following items shall be addressed in the Odor Mitigation		

	Plan: i) The WWTP must be appropriately sized and engineered to serve the proposed volume of wastewater generated by the project; ii) the WWTP facilities must incorporate odor control measures in order to minimize potential odor impacts to surrounding residences, and iii) The WWTP shall be constructed on a selected site that minimizes potential exposure of sensitive receptors to odors. • The project shall reuse and recycle construction and demolition waste, including, but not limited to: soils, vegetation, concrete, lumber, asphalt, metal, and cardboard. • The project shall provide interior and exterior storage areas for recyclables, and adequate recycle containers located in areas accessible to the public.		
Biological Resources	• The City shall require and	Potentially Significant	Less than Significant

	enforce special mitigation measures for special status species as follows: i) For the Burrowing Owl, all protocol requirements of the CDFG shall be followed before any construction begins on site and during all construction. Prior to the start of any construction, including clearing and grading, a pre-construction biological field survey shall be completed by a qualified biologist to identify any active nests or burrows. The biological field survey shall be conducted during both the breeding season and non-breeding season within 30 days of the onset of any ground disturbance. Should burrowing owls occur on-site, the ultimate final mitigation protocol shall be approved by the CDFG. • For Swainson's Hawk, any construction disturbances during the breeding season could result in		

	the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbances that result in nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. In order to mitigate any potential impacts to the Swainson's Hawk or other birds of Prey, a qualified biologist shall conduct a field survey of the project site prior to the start of any construction activities, including clearing and grading of the site. The biologist shall note the location of any active nests on site, and a construction buffer shall be provided according to CDFG guidelines to prevent disturbances to or destruction of any observed nestsor nestlings. • For the San Joaquin Kit Fox, no mitigation is required for this species due to the lack of any suitable habitat		

	on site, and lack of any suitable on site prey base. No Kit Foxes or Kit Fox dens were observed on the project site during the biological field survey. • For the Pallid Bat, prior to the demolition and removal of any structures on the project site, a qualified biologist shall conduct a field survey of such structures to note the location of any active Pallid Bat roosting areas. If active roosting areas are noted, demolition activities shall not begin until alternate roosting are identified and provided in accordance with CDFG guidelines. The mitigation protocol shall be approved by the CDFG. • End of Section.		
Cultural Resources	• If during any construction activities on the project site, including excavating and grading, any archaeological resources or suspected human remains are discovered, all	Less than Significant Impact	Less than Significant Impact

	work shall cease immediately until the resource and/or remains are evaluated by a qualified archaeologist. If the remains appear to be human, the County Coroner shall be contacted immediately. In addition, if the remains appear to be Native American, then the Native American Heritage Commission shall be contacted as well. In addition, the lake excavation areas shall be closely monitored for possible uncovered artifacts and/or human remains during all construction phase activities.		
Geology and Soils	• In order to prevent soil erosion by wind, the project site shall be watered down regularly during construction activities in accordance with the Dust Control Plan approved by the SJVAPCD. • A Stormwater Pollution Prevention Plan shall be prepared	Less than Significant Impact	Less than Significant Impact

	and be submitted to the Regional Water Quality Control Board. The subject SWPPP shall include plans and provisions to minimize soil erosion during normal rainfall and also during major storm events. • A Grading and Drainage Plan for the project site shall be prepared by a qualified civil engineer. The subject plan shall include plans and provisions to minimize soil erosion and minimize transmission of sediment off site during major storm events.		
Hydrology and Water Quality	• The Amberwood project design shall include two (2) private lakes containing approximately 30.2 acres of surface area. The private lakes shall be unlined, and shall be designed to maximize underground aquifer recharge volumes. • The CID open canal located along the eastern side of Orange Avenue shall be placed underground by	Potentially Significant Impact	Significant and Unavoidable

	the developer with an appropriately sized and designed piping system between the north side of Lincoln Middle School and Dinuba Avenue. • The on-site wastewater treatment plant shall be designed to provide a tertiary treatment process and high quality treated wastewater, which meets Title 22 water quality standards, and which will drain into the private lake areas. The treated wastewater shall recharge the underground aquifer and provide recycled water for landscape irrigation of the public and private park areas, thereby conserving water. • The on-site WWTP shall be dedicated to the City by the developer. The City shall obtain a discharge permit from the Regional Water Quality Control Board. • Before being deposited into		

	the two private lake areas, project related stormwater shall be treated and be filtered as required by the Regional Water Quality Control Board to prevent contamination of the underground aquifer drinking water supply. • The City of Selma, as a condition of approval for the project, shall require the Amberwood Homeowners Association to implement strict water conservation measures, which shall limit the amount of water used on a monthly basis by each individual dwelling unit to an average of approximately 12,000 gallons per household per month on an annual basis. This shall be accomplished by requiring all homes to have water meters, and by requiring the Amberwood Homeowners Association to implement and enforce strict rules for outdoor watering of landscape areas.		

	The subject rules shall strictly limit the time of day for landscape watering to early morning and evening hours only, and shall also limit the duration of time when automatic sprinkler systems are activated to no more than 30 minutes per day in the summer months and 15 minutes per day in the winter months. The limit shall be 20 minutes per day in the fall and spring months. • The Amberwood Homeowners Association shall establish a rule that requires that water softeners that rely on salt not be allowed within the Amberwood project area.		

Table ES-2

Proposed Mitigation Measures (Continued)

ENVIRONMENTAL IMPACT ISSUE AREA	PROPOSED MITIGATION MEASURES	LEVEL OF SIGNIFICANCE BEFORE MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Noise	• Increase the setbacks of noise sensitive structures and outdoor activity areas from arterial	Potentially Significant Impact	Significant and Unavoidable

	roadways as required to avoid areas and structures being exposed to greater than 65 db DNL noise levels. • Construct a minimum 6 foot high decorative sound wall between noise sensitive structures and noise sensitive outdoor activity areas and arterial roadways. • Limit residential structures to single story when located adjacent to or along major arterials which are subject to substantial traffic noise. (above 65 db DNL). • City shall ensure the interior noise levels of residential structures does not exceed 45 dB DNL through the use of increased insulation, reduced window areas, and other approved design and construction methods where required for proper noise attenuation. • During the site planning process for commercial or institutional uses, ensure buildings are set back a sufficient distance from noise sensitive land uses such that the outdoor activity areas of noise sensitive uses does not exceed a noise level of 65 dB DNL. • Require the use of engineered sound walls between		

	commercial and institutional uses and noise sensitive uses as needed for proper noise attenuation. • Require use of equipment enclosures for commercial and institutional mechanical equipment, and proper shielding to reduce noise transmission off site. • Implement policy 3.9 of the General Plan Noise Element, which specifies additional preferred mitigation measures to be considered during the design review of new commercial or institutional uses that may effect nearby noise sensitive uses. • For off-site traffic noise impacts to existing uses, the construction of effective sound walls may not be feasible. Therefore, these impacts will remain significant and unavoidable. • Noise and vibration impacts from building activities can be mitigated, and are not usually considered to be significant if the construction occurring near noise sensitive uses is limited to daytime hours only, extraordinary noise producing activities such as pile driving are not anticipated, and construction equipment is		

	adequately maintained and muffled. City shall enforce Policy 3.1 of the General Plan Noise Element which provides effective mitigation for construction related noise and vibration impacts		
Public Services	• Developer/Builder shall pay development impact fees as adopted by the City prior to the issuance of building permits for new homes and commercial buildings. • Developer shall dedicate the community center building and surrounding land to the City for public recreational use. • Developer shall pay required School Impact Fees to the Selma Unified School District prior to the issuance of building permits by the City. • Developer shall agree to participate in a lighting and landscaping assessment district which will be formed for Amberwood by City Council action. • In order to minimize the impacts to the City Public Works Department for street maintenance, all local streets located within Amberwood shall be private streets, and the Amberwood Homeowners	Potentially Significant Impact	Less than Significant Impact

	Association shall be responsible for maintenance of all of the private streets.		
Recreation and Parks	• Developer/Builder shall pay park impact mitigation fees of $5,011 per dwelling unit prior to the issuance of building permits by the City. • The Developer shall construct required infrastructure within and around the perimeter of each private and public park site. The subject required infrastructure shall include paved streets, curbs, gutters, sidewalks, street lighting, interior park security lighting, and required landscaping in accordance with a City approved landscape plan.	Potentially Significant Impact	Less than Significant Impact
Traffic and Transportation	• The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Northbound off ramp at the Manning Avenue intersection. Fair share cost is estimated at 7.3%, which represents the project percentage of the PM peak hour entering volume for the Existing + Project Scenario. • The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Southbound off ramp at Mountain View	Potentially Significant Impact	Significant and Unavoidable

	Avenue. The Fair Share cost is estimated at 6.6%, and this represents the project percentage of the PM peak hour entering volume for the Existing + Project scenario. • The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Manning Avenue intersection. This would mitigate the project impacts to a Less than Significant Level for the Existing +Approved+Project Scenario. • The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the Bethel and Manning Avenue intersection. The Fair Share cost is estimated at 10.1%, which represents the project percentage of the PM peak hour entering volume for Existing+Approved+ Project Scenario. • The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the Golden State and Dinuba Avenue intersection. The Fair Share cost is estimated at 18.3%, which represents the project percentage of the PM peak hour entering volume for Existing+Approved+		

	Project Scenario. • The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the McCall and Dinuba Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn plus through lane. The Fair Share cost is estimated at 27.5%, which represents the project percentage of the PM peak hour entering volume for Existing+Approved+ Project Scenario. • The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Dinuba Avenue intersection. All four approaches to the intersection should be designed to provide a separate left turn lane and a combined through plus right turn lane. This would mitigate the project impacts to a Less than Significant Level for Existing+Approved+ Project Scenario. • The Amberwood project will contribute the entire cost of installing traffic signals at the Orange and Floral Avenue intersection. The two Floral Avenue approaches to the intersection should be		

	modified to provide a separate left turn lane, and a combined through plus right turn lane. This would mitigate the project impacts to a Less than Significant Level for Existing+Approved+ Project Scenario. • The Amberwood project will contribute the entire cost of installing traffic signals at the Dockery and Floral Avenue intersection. The two Floral Avenue approaches to the intersection should be modified to provide a separate left turn lane, and a combined through plus right turn lane. This would mitigate the project impacts to a Less than Significant Level for Existing+Approved+ Project Scenario. • The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Southbound off ramp intersection at Second Street. The Fair Share cost is estimated at 15.1%, which represents the project percentage of the PM peak hour entering volume for Existing+Approved+ Project Scenario. In addition, the project will also contribute a Fair Share of the cost for the installation of traffic signals on the SR 99 Northbound off		

	ramp intersection at Second Street. The Fair Share contribution for these improvements shall be determined by Caltrans. This would mitigate the project impacts to a Less than Significant Level for Existing+Approved+ Project Scenario. • The Amberwood project will contribute the entire cost for installing traffic signals at the Orange and Dinuba Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. These improvements would mitigate the project impacts to a Less than Significant Level. • The Amberwood project will contribute the entire cost for installing traffic signals at the Rose and Amber Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. This would mitigate the project impacts to a Less than Significant Level. • The following mitigation measures, as outlined in the Traffic Impact Study, are recommended to		

	reduce the impacts of the Amberwood project traffic on rail safety at the Floral Avenue railroad crossing: (a) Installation of street median separation to prevent vehicles from driving around the railroad crossing gates. If installation of a median is feasible, the Amberwood project should contribute a Fair Share of the cost of this improvement, (b) Installation of vandal resistent fencing or walls to limit the access of pedestrians onto the railroad right of way at this location. The developer and the City should investigate the feasibility of this measure, and if feasible the developer should contribute a Fair Share toward the cost of implementing this improvement, (c) The City of Selma shall consider implementing a rail safety awareness program to educate the public about the hazards of at grade railroad crossings. The City of Selma Website and informational media resources, such as Operation Lifesaver, can be utilized for public educational purposes. The Amberwood project should contribute a Fair Share toward the cost of implementing this		

	program, and (d) The City should consider including rail crossing improvements in its development impact fee program, whereby a mechanism can be provided for new developments to pay a Fair Share of the costs for rail crossing improvement measures, such as those outlined above. The City of Selma updated 2035 General Plan recommends a grade separated railroad crossing at the Mountain View Avenue location. If not already included, this improvement should be considered for inclusion in the City of Selma development impact fee program for transportation capital facilities.		
Utilities and Service Systems	No Mitigation Measures are available to reduce these impacts to a Less than Significant Level.	Potentially Significant Impact	Significant and Unavoidable

Regarding *Population and Housing Impacts*, due to the shear magnitude and projected population density of the Amberwood project (8,953 persons), there are no mitigation measures available to reduce these impacts to a Less than Significant Level. These impacts will therefore remain Significant and Unavoidable.

Feasible Alternatives to the Project

The only feasible alternative is a *Downsized Project Alternative*. This alternative would result in a smaller Amberwood project, with a total of 1,898 residential units. The commercial uses, elementary school, community center complex, and the two (2) private lakes located at the southern end of the project site would remain as currently depicted in the land use plan. Only those lands in the project area located within the existing City of Selma Sphere of Influence

would be developed under this alternative. The environmental impacts under this alternative would be reduced as follows:

- Traffic Impacts would be reduced by approximately 5,280 ADT (average daily trips) for the residential uses, assuming 8 ADT per dwelling unit. This is due to a reduction of 660 dwelling units (2,558 du - 1,898 du = 660 du). VMT (vehicle miles traveled) would also be reduced under this alternative.
- Air Quality Impacts from project operations, vehicles, and construction activities would be reduced.
- Approximately 110 acres of Prime Agricultural Land would not be developed, and would be preserved for current and future agricultural uses.
- Impacts to City Services and calls for service (Police and Fire) would be reduced.
- Impacts to Electrical and Natural Gas Utilities (PG&E) would be reduced.
- Impacts to the Selma Unified School District would be reduced (fewer new students).
- Potable water demand and uses for drinking water and landscaping irrigation would be reduced.
- Potential Biological Impacts to special status species, such as the Burrowing Owl, would be reduced due to the fact that 110 acres of existing potential agricultural habitat would not be disturbed.
- The amount of wastewater generated by the project would be reduced by approximately 161,700 gallons per day due to 660 fewer dwelling units.
- Off Site and On Site Traffic Noise Impacts would be reduced, due to the lower volumes of on and off site traffic that would be generated by a downsized project.
- Impacts to other City Services, such as Community Services, Transit Operations, Building Inspections, Code Enforcement, Public Works, and the Senior Center would be reduced due to the decreased project population (2,310 fewer residents) with the downsized project alternative.

Although the Downsized Project Alternative would reduce the environmental impacts of the Amberwood project, this alternative would still result in significant environmental impacts, and would still require the implementation of mitigation measures for the following impacts:

- Aesthetics
- Air Quality
- Traffic
- Biological Resources
- Parks and Recreation
- Public Services
- Utilities and Service Systems

- Hydrology and Water Quality
- Cultural Resources
- Agricultural Resources, and
- Noise

Mitigation measures for these impacts, as outlined in Chapter Four, would still be needed with a downsized project alternative. This alternative would still allow the City of Selma to substantially meet its obligations for construction of new housing in the moderate and upper income categories under the Fresno COG Regional Housing Needs Allocation (RHNA) model.

Issues to be Resolved

The lead agency (City of Selma) has to resolve several issues regarding the Amberwood project. The most critical issues to be decided include the following:

- Approve the project as submitted.
- Approve a downsized project alternative within the existing Sphere of Influence.
- Select the No Project alternative, under which the project would not be approved or built.

Mitigation Measures are available, and are outlined herein to reduce or eliminate specified significant environmental impacts. If the City approves either the submitted project, or the downsized project alternative, the outlined mitigation measures would be adopted, and would be included in the Certified Final EIR for the Amberwood project.

CHAPTER 1

INTRODUCTION, PURPOSE, AND ENVIRONMENTAL SETTING

Introduction and Purpose of the Amberwood Specific Plan

1.0 Introduction

The Amberwood Specific Plan outlines graphically and in text, the proposed Land Uses, Circulation System, Public Safety Facilities, Open Space, Schools, Lake areas, Public and Private Park areas , Development Standards, Design Guidelines, and Zoning Regulations for a master planned residential and commercial mixed use project to be developed in the City of Selma. The project site is located on approximately 690.7 acres of land in the northeastern portion of the Selma Sphere of Influence. The project will include approximately 2,558 detached residential units to be located on twelve (12) individual lot types, which range in minimum lot sizes from 3,480 square feet to 8,450 square feet. The project also includes the following:

- A 7.5 acre Neighborhood Commercial site.
- A 10.8 acre Elementary School site.
- A 3 acre site for a new Public Safety Facility (Police and Fire).
- 54.3 acres for Public Park sites.
- 15.2 acres for Private Park areas.
- 30.2 acres for Private Lake areas.

The land use areas outlined above are approximate. The project could include up to 20 individual neighborhoods. Each individual neighborhood will have a distinct typical lot size and configuration, which will accommodate distinctive housing sizes and types. As a result, a distinct variety of lot types is provided within the Specific Plan area that will accommodate a wide range of housing objectives , buyer needs, and income levels. The Amberwood project will assist the City of Selma in meeting its target numbers for its share of the regional housing needs in the moderate and above moderate income categories. The various housing types will include both single story and two story units, with some lot types being alley (lane) accessed for the on site garage parking facilities. This provides select neighborhoods with a street scene of continuous landscaped front yard areas with no visible driveways and garages. There will also be approximately 192 lake front lots which will be located in the southern portion of the

planning area. The lake front lots will be a minimum of 8,450 square feet, with many of the Cul De Sac lots exceeding 10,000 square feet in area. The lake front neighborhood will be designed for above moderate income and upper income homes. The lakes will be private and will be owned and maintained by an HOA (homeowners association). The lakes will provide for passive recreational opportunites for the residents of the lakefront neighborhood. These include fishing from the bank areas and from small boats. No gasoline powered boats will be allowed. No swimming will be allowed in the lakes. In addition to providing recreational opportunities and a pleasant visual amenity, the lakes will also accept stormwater and treated wastewater from the on-site wastewater treatment units. The on-site wastewater treatment units will accept all wastewater from the homes , commercial uses, and other uses which will be located within the project area. The wastewater will be treated and be disinfected to tertiary treatment standards, thereby providing for a very high quality of treated wastewater. The reader should refer to the Preliminary Engineering Report included in the appendix of this document for detailed technical information regarding the on-site wastewater treatment process.

It is anticipated that the Amberwood project will be built out in up to 20 phases over a period of up to 25 years, depending upon future market demand for new housing. The first two phases of the project development will begin at the southern end of the project site, and will include the private lake areas. The project will then be completed in a south to north direction. The last phases of the project will include the areas east of Amber Avenue. It is anticipated that the Amberwood Project Site will be annexed into the City of Selma in two separate annexations. The first annexation area will include that portion of the project site that is located within the existing City of Selma Sphere of Influence. Prior to the annexation of the project areas located east of Amber Avenue, a Sphere of Influence amendment will be required.

The existing farmland which currently comprises the Amberwood project site is located within the boundaries of the Consolidated Irrigation District (CID), and currently has surface water irrigation rights through the CID. It is proposed that upon annexation of the project site to the City of Selma that the project site will remain within CID, and will not be deannexed from CID. Under this scenario, the Amberwood project would retain the right to obtain surface water from CID. This surface water, when it is available, could then be used to replenish the water in the lakes, and could also be used to recharge the underground aquifer. This would help conserve water and decrease the overdraft of the underground aquifer.

The neighborhood commercial uses will most likely include a 60,000 square foot grocery store, a 20,000 square foot drug store, and other businesses which are service and professional oriented, such as a coffee shop, barbershop, real estate office, medical offices, and dental offices. Some smaller retail uses such as a bookstore, gift store, and hobby/craft shop are also anticipated. Total commercial square footage is estimated to be 131,200 square feet.

The 10.8 acre elementary school site will be dedicated by the developer to the Selma Unified School District. The developer, in return for the dedication, will receive credit from the Selma Unified School District for school impact fees when building permits are issued. The credits provided by the district will equal the fair market value of the 10.8 acre site. Under this scenario, the Selma Unified School District will have the required property for the new school at the time it is needed and when enrollment in the District justifies the building of the new school.

The developer will also dedicate an approximate 3 acre site located on the north side of Floral Avenue to the City of Selma for use as a Police sub-station and Fire sub-station public safety facility. The anticipated 10,000 square foot public safety building to be constructed on the site by the City could also serve as administrative and training offices for the Selma Police and Fire departments. This building may also house the emergency operations center for the City.

The public park areas located at specific sites throughout the Amberwood project area will be dedicated to the City when individual final subdivision maps are submitted to the City for approval. In addition to the public and private park areas, Amberwood will provide a network of bike paths and pedestrian walkways throughout the project site. The development approach is to ensure Amberwood is a pedestrian and bicycle oriented community to discourage use of the automobile to the extent feasible and thereby decrease the Green House Gas emissions produced by the project. For example, residents traveling to and from the neighborhood commercial area from within the project site may elect to ride their bicycles or walk when shopping for small grocery items at the grocery store or to obtain a haircut at the barber shop or a newspaper or book from the neighborhood book store.

The Amberwood Specific Plan also provides detailed Design Guidelines for such items as:

- Walls and Fences
- Neighborhood Entryways
- Site street and park furniture
- Street Signs and Boat Docks
- Monuments and Signage
- Street Lighting and Utilities
- Pedestrian Walks and Bike Paths
- Parks and Open Space

Assuming a population density of approximately 3.5 persons per dwelling unit, the Amberwood project could contain a population of approximately 8,953 persons at full buildout.

In summary, Amberwood provides an opportunity to develop a new residential and mixed-use community for the future development of the City of Selma with the goal to secure the physical, social, and economic advantages that are obtained through systematic master planning of land and resources.

1.1 Purpose of the Amberwood Specific Plan

The purpose of the Amberwood Specific Plan is to implement the City of Selma General Plan in a comprehensive and detailed manner with regards to the development of the Amberwood project site. To accomplish this objective, the Specific Plan establishes the land uses, infrastructure, public services, and financing methods to direct future development within Amberwood. The Amberwood Specific Plan includes zoning regulations and development standards that are unique to Amberwood. These regulations include specific lot types and sizes, setbacks, parking standards, maximum building heights, maximum lot coverage, minimum lot widths, density, and landscaping.The Amberwood Specific Plan provides a resource to be used by both builders and the City staff when formulating or reviewing plans for new construction within the Amberwood project area. In summary, the purpose of the Amberwood Specific Plan is to accomplish the following:

- Establish the land uses, development standards, and zoning for development.
- Establish design provisions and guidelines to stimulate responsible project design while still allowing flexibility for changing trends in building architecture and design.
- Provide detailed plans for infrastructure, public facilities, and services to support these land uses.
- Finance the development, operation, and maintenance of the public infrastructure, facilities, and utilities, thereby resulting in no adverse economic impacts to the City of Selma.
- Describe and outline implementation measures, including project phasing, service levels, and administration of the Amberwood Specific Plan.
- Provide appendix references for design guidelines.

The further purposes of the Amberwood Specific Plan, in conjunction with the development agreement, is to provide long term development assurances to the developer regarding other entitlement actions which will be consistent with the Amberwood Specific Plan. The related entitlements will include a Vesting Tentative Tract Map, annexation of the project site into the City of Selma, and approval and certification of the Final EIR.

The Amberwood Specific Plan may be revised and modified as allowed under State law if unforeseen market conditions emerge. These modifications may involve an increase in the size of the neighborhood commercial site and/or the types of commercial uses to be

accommodated on the commercial site. In addition, the architectural elevations, as shown in the specific plan, are for illustrative purposes only and may be modified or revised at the time of official building plan submittals.

1.2 Environmental Setting and Location

Section 15125 of the California Environmental Quality Act Guidelines outlines the information to be included in the environmental setting section of an EIR. In accordance with this section, the following information is provided.

The Amberwood project site is located immediately east of the existing city limits of the City of Selma. The majority of the project site is located within the existing Sphere of Influence for the City of Selma, as approved by the Fresno County Local Agency Formation Commission (LAFCO). The City of Selma is located in Fresno County, approximately 17 miles south of the City of Fresno, 3 miles north of the City of Kingsburg, and 4 miles south of the City of Fowler. The City and the project site is situated in the central San Joaquin Valley, at an elevation of approximately 310 feet above sea level. The project site topography slopes gradually from north to south with the elevation being approximately 320 feet in the northern portion of the site and falling to approximately 310 feet at the southern end of the site.

From a Regional perspective, Fresno County is located in the approximate center of the State of California. Fresno County is bordered by San Benito, Merced, Madera, Mono, Inyo, Tulare, Kings, and Monterey Counties.

Over 60% of Fresno County's total population, and approximately 80% of the incorporated population resides in the two largest cities, Fresno and Clovis. Interstate 5, State Route 99, and State Highways 41, 43, and 33 are the main north/south transportation routes in Fresno County, while the major east/west routes include State Highways 168 and 180. State Highway 99 bisects the City of Selma and State Highway 43 from Hanford terminates in Selma at its junction with State Route 99. State Route 99 is a four to six lane freeway within Fresno County, while State Highways 168, 41, and 180 are freeways within the Fresno metropolitan area and two lane rural highways outside of the Fresno metropolitan area. Fresno County is the top ranked agricultural producing county in the United States. The Fresno County contains a total land area of approximately 6,000 square miles. Incorporated cities include approximately 2.5 percent of the total land area of Fresno County.

At the present time, most of the Amberwood project site (approximately 690.7 acres) is either planted in active agricultural crops (grapes) or in tree fruit orchards (nectarines). Approximately 140 acres of the project site is currently fallow, but could be planted with grapes or other crops. A potential significant impact will be the removal of approximately 531 acres of active

agricultural land from production (as of June 2010), and its conversion to urban uses. The project site and all of Fresno County is located within the San Joaquin Valley Air Pollution Control District (SJVAPCD). The San Joaquin Valley Air Basin has been designated by the Federal Environmental Protection Agency (EPA) as a non-attainment area for both ozone and particulates (PM-2.5). On September 25, 2008, the EPA redesignated the San Joaquin Valley Air Basin as an attainment area for PM-10. As such, the SJVAPCD has adopted a significant number of local rules and regulations to decrease air pollution within the San Joaquin Valley Air Basin. Much of the local air pollution is caused by automobiles and trucks. The Amberwood project could cause a significant cumulative impact on air quality within the SJVAPCD air basin due to the significant number of average daily trips generated by cars and light trucks going to and from the Amberwood project site. This impact, and the traffic impacts, are fully analyzed in the air quality technical report and the traffic study, both of which are contained within the appendix of this document. Outlined within the air quality impacts section are potential mitigation measures to ensure compliance with the goals of AB-32 and SB-375. The overall goal of these air quality mitigation measures is to reduce VMT (vehicle miles traveled), thereby reducing greenhouse gases from vehicle emissions. Encouraging the use of public transportation systems and car pooling are two methods of reducing VMT.

The climate of the San Joaquin Valley includes cool, wet, winter months, and dry and hot summer months. Average highs in December and January are 50-60 degrees and temperatures in June, July, and August can exceed 100 degrees, with the average high being approximately 95 degrees. Lows in the winter months average 35-45 degrees, although freezing temperatures are not uncommon. Average annual rainfall is highly variable from year to year but averages approximately 11 inches, with most of the rainfall occurring from November through March. Because of the low elevation on the San Joaquin Valley floor, it very rarely snows. The mild climate makes the San Joaquin Valley ideal for the growing of agricultural crops and tree fruit. During the winter months a temperature inversion typically exists which traps air pollutants close to the ground. This results in unheathful air quality conditions, and in restrictions being enforced by the SJVAPCD on wood burning fireplaces and stoves.

The City of Selma and other cities within the Central San Joaquin Valley utilize the underground aquifer for their potable water supply. Drinkable water is obtained for the Selma area by the California Water Service Company, which utilizes several deep wells. A significant potential environmental impact is the overdraft of the groundwater basin by urban and agricultural uses. The mitigation of this overdraft condition through aquifer recharge basins and water conservation programs is therefore a high priority for all water users in the area. Conservation and aquifer recharge is necessary in order to ensure an adequate water supply for the future for both urban and agricultural users. Groundwater overdraft within the Kings River Basin is a regional impact and therefore must also be addressed by other agencies in addition to the City

of Selma. These other agencies include the County of Fresno, the Kings River Conservation District, and the Consolidated Irrigation District. New homes and businesses constructed within the Amberwood project will be required to use water conserving toilets and other fixtures to conserve household water use.

With the project site being currently planted in agricultural crops (vineyards) and orchards, there are no unique wildlife habitats on the site and no riparian wetland areas. The agricultural lands that dominate the project site provide unsuitable habitat for all special status plant species and most special status animal species known to occur regionally. Raptors may nest in tall trees surrounding residences on the site. Ground squirrel burrows along the margins of the vineyards and fallow fields provide potentially suitable habitat for the burrowing owl. The project site provides unsuitable denning and foraging habitat for the San Joaquin Kit Fox. Prior to the start of any construction on the site a pre-construction survey will need to be conducted by a qualified biologist to determine the presence of any active burrowing owl burrows, San Joaquin Kit Fox or raptor nests. A biological constraints analysis study was completed for the Amberwood project site by Live Oak Associates. This report is included within the appendix of this document.

The soils comprising the Amberwood project site are sandy and well drained, with surface permeability ranging from moderately rapid to rapid. The project site contains five soil types from three soil series (Hanford, Hesperia, and Tujunga). Like most soils of the San Joaquin Valley, the soils of the project site consist of alluvium derived primarily from granitic rock. Conversion of the project site from agricultural to urban uses will result in the construction of impervious surfaces (streets, parking lots, building pads etc.). This will potentially increase the amount and rapidity of surface water runoff during rainfall events and could result in soil erosion. This potential impact will be analyzed in the environmental impacts section of this document and appropriate mitigation measures will be discussed to mitigate the impacts to soils from the project.

Regarding wastewater treatment, there is currently no sanitary sewer main which can serve the project site. A new 42 inch sanitary sewer main is depicted on the S-K-F (Selma-Kingsburg-Fowler) County Sanitation District master plan. This sewer main would have to be constructed within Amber Avenue well in advance of any homes being built within Amberwood. As an alternative, the project proposes to utilize on-site wastewater treatment facilities, using an activated sludge package plant concept. The treated wastewater would be treated to tertiary treatment standards, and the treated wastewater would be drained into the private lake areas. The treated and disinfected wastewater would also be pumped by pipe lines throughout the Amberwood project site to be used to irrigate the landscaping within the project. The treated wastewater would also recharge the underground aquifer through the private lake system. The

potential environmental impacts of the on-site wastewater treatment system is outlined in the environmental impacts section. An engineering feasibility report for the on-site wastewater treatment system is contained within the appendix of this document.

There is currently no on-site stormwater drainage system within the Amberwood project area. During very heavy prolonged rain events, stormwater currently sheet flows from north to south following the natural slope of the land. The sandy soil absorbs light rain on site due to the high percolation rates of the sandy soil. During construction of the project, a complete on site storm drain system will be installed which will convey stormwater to the private lakes. During severe storms (10 year storm, 50 year storm, 100 year storm), the private lakes will have an emergency 12-18 inch outflow pipe which will convey overflow stormwater off site to the City of Selma master stormwater basin to be located east of Amber Avenue. The private lakes will be designed to accommodate and retain stormwater from normal rainfall events, and will have a minimum of 12 inches maintained between minimum and maximum water surface elevations to allow for acceptance of stormwater flow.

Regarding potable water, there is currently no potable water supply within the project site that can serve the needs of the project. Therefore, the entire project site will be provided with drinkable water from a private water company, the California Water Service Company. The California Water Service Company will drill several new deep wells to serve the project site. These wells will be drilled to an approximate depth of 1,000-1,200 feet. In addition to providing Title 22 drinking water, the on site domestic wells will also provide fire flows for fire fighting purposes. Fire flows of up to 1,500 GPM are anticipated within the project area.

The Amberwood project site is located adjacent to existing compatible land uses. Existing residential uses and a middle school (Lincoln Middle School) are located to the west of the project site on the west side of Orange Avenue. Residential uses are also located to the south of the project site. Existing agricultural land uses are currently located to the north and east of the project site. The Amberwood project land uses are included in the updated City of Selma General Plan, and the Amberwood project is therefore fully consistent with the updated City of Selma General Plan.

The Amberwood project site is currently located in the unincorporated Fresno County. The County of Fresno General Plan currently designates the project site as Agriculture, and the current County Zoning is AE-20 (agriculture minimum 20 acre parcels). Upon annexation of the project site to the City of Selma, the area will be designated for urban uses as outlined in the Amberwood Specific Plan and the updated City of Selma General Plan.

Other Regional Plans which include the project area include the Fresno Council Of Governments Regional Transportation Plan and Blueprint plan, and the San Joaquin Valley Air Pollution

Control District Air Quality Attainment Plans for Ozone and PM 2.5. It is anticipated the Amberwood project will be compatible with and help to implement these other regional plans. As previously mentioned, Amberwood will be designed as a pedestrian friendly walkable community with pedestrian trails and bicycle paths. This should reduce vehicle miles traveled within the project site, and assist in the implementation of the air quality goals of the San Joaquin Valley Air Pollution Control District.

CHAPTER 2

PROJECT DESCRIPTION AND CEQA REQUIREMENTS

2.0 CEQA Requirements

Section 15124 of the CEQA guidelines outlines the information to be included in the project description. This section of the CEQA guidelines states as follows:

The description of the project shall contain the following information but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact.

(a) The precise location and boundaries of the proposed project shall be shown on a detailed map, preferably topographic. The location of the project shall also appear on a regional map.

(b) A statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the Lead Agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project.

(c) A general description of the project's technical, economic, and environmental characteristics, considering the principal engineering proposals ,if any, and supporting public service facilities.

(d) A statement briefly describing the intended uses of the EIR. This statement shall include the following to the extent known by the Lead Agency:

1. A list of the agencies that are expected to use the EIR in their decision-making.

2. A list of permits and other approvals required to implement the project.

3. A list of related environmental review and consultation requirements as required by federal, state, or local laws, regulations, or policies.

If a public agency must make more than one decision on a project, all its decisions subject to CEQA should be listed, preferably in the order in which they will occur.

In consideration of Section 15141 of the CEQA Guidelines, which discusses recommended page limits for Draft Environmental Impact Reports, an effort has been made herein to limit the main body of text of this DEIR in accordance therewith, while still providing a complete discussion of the potential environmental impacts of the project.

In compliance with the above listed requirements of Section 15124 of the CEQA guidelines, the following Project Description is hereby provided for the Amberwood project.

2.1 Project Description

The Amberwood project is a mixed use residential and commercial development project to be developed on a site comprising approximately 690.7 total acres. The Project Site Plan and Proposed Land Uses are depicted in Figure 1, and the location of the project site in relation to the City of Selma Sphere of Influence is depicted in Figure 2. A Regional Vicinity Map is also included herein as Exhibit 1.

The project will be developed under the requirements of the Amberwood Specific Plan, which will be adopted by the Selma City Council. The Amberwood Specific Plan will be fully consistent with the goals and objectives of the updated Selma General Plan. The Amberwood project will consist of the following types and approximate acreages of land uses as depicted below and as outlined below in Table II-1:

- A 7.5 acre Community Commercial project site.
- A 10.8 acre Elementary School site.
- A 3 acre site for a new Police and Fire public safety facility.
- 54.3 acres for Public Park area.
- 15.2 acres for Private Park areas.
- 30.2 acres for two Private Lake areas.
- 80.4 acres of streets.
- 489.3 acres of residential lots of various sizes from 3,480 to over 14,000 square ft.

Table II-1

Land Use Summary

Land Use Designation	Acres	Planned Dwelling Units	Planned Square Footage
Low Density Residential	122.9	432	
Medium Low Density Residential	258.3	1,332	
Medium Density Residential	108.1	794	
Community Commercial	7.5	0	131,200
Parks/Open Space*	99.7		
Elementary School	10.8		
Streets/Public Facilities**	83.4		

Totals	690.7	2,558	131,200

*Includes Private Lake Areas **Includes 3 acre Police and Fire Facility

The Overall Objectives of the Amberwood development project are as follows:

- To implement the Goals and Objectives of the Selma General Plan with a comprehensive approach to future development of Amberwood and the development of this area of the City's Sphere of Influence.
- To provide for a range of *housing types and lot sizes* for City residents which can serve various housing needs groups and *future moderate/upper income homeowners*.
- To provide for a future Elementary School facility.
- To provide additional recreational opportunities for City residents through the new Community Center Recreational facility.
- To provide for development of a Master Planned Community with a comprehensive set of Community Design Guidelines, Zoning Regulations, and Development Standards.
- To develop a pedestrian and bicycle friendly community and decrease dependence on the automobile, thereby reducing Green House Gases and Vehicle Miles Traveled.
- To provide convenient Community Commercial Facilities for residents of the project.
- To develop a compact community immediately adjacent to the developed areas of the City.
- To provide unlined Lake areas which can serve a dual purpose of boating and fishing recreation in addition to recharging of the underground aquifer.
- To treat and recycle project wastewater on-site to conserve water for landscaping irrigation uses and aquifer recharge.
- To install water conserving low flow toilets and fixtures in all new homes and commercial buildings.
- To encourage use of Solar Energy systems in all new homes and businesses.
- To provide public transit shelters and bus stops at activity centers located throughout the project area to enhance access to and encourage the use of public transportation systems.

The Amberwood project will include 12 (twelve) different residential lot types. The planned residential lots will include alley loaded lots, lake front lots, and conventional lots with garage access from the street. Both single story and two story residences will be constructed. Lot sizes will range from a minimum of 3,480 square feet for lot type eleven to a minimum of 8,450 square feet for lot type one. Various home sizes and configurations will be developed dependent on the lot type. Cul-De-Sac lots, due to their unusual shape and buildable area requirements, will normally exceed the lot size minimums. All dwelling units will be single family detached units. No apartments or attached condominium units will be constructed

within Amberwood. Lake front lot owners will be allowed to construct a small private dock designed for a small unpowered fishing type boat. No powered boats will be allowed on the private lakes, and no swimming will be allowed in the lakes. The Amberwood project will be constructed in up to 20 phases, dependent upon future market conditions. Full buildout is expected to take up to 25 years. The schedule for construction of the new elementary school will be totally dependent on the future enrollment needs of the Selma Unified School District, and the availability of school district and State funding.

The first phase of homes will be constructed at the south end of the project site and will include the first of two planned private lakes. This is necessary in order to provide a lake facility for deposition of treated wastewater and a lake facility for deposition of stormwater. The buildout of the project will then procede in a south to north direction.

The Amberwood project will be designed with an on site sanitary sewer pipeline collection system. It is proposed to treat project wastewater on site through an activated sludge on site wastewater treatment plant. The treated wastewater will be high quality and will be deposited into the two private lakes. The treated wastewater will also be piped throughout the project site for use as landscaping irrigation water. The private lakes will be unlined and will provide for recharge of the underground aquifer. The reader is referred to the Utilities Section of this document, and the Technical Engineering Report located in the appendix of this document for additional information on the wastewater treatment process and methodology.

The private lake areas will also accept stormwater runoff from the project site. A minimum of 12 inches of freeboard will be maintained between the minimum and maximum lake levels to allow for acceptance of stormwater from normal storm events. A 12-18 inch overflow pipeline will be provided from the private lakes to the off site master stormwater basin, which is to be located east of Amber Avenue. The master stormwater basin will be constructed and maintained by the City of Selma and will be designed to accept stormwater flows from 100 year storm events. The on site storm drainage system will be designed to collect stormwater runoff from individual neighborhoods, and convey it to a central water feature via a traditional inlet and pipe system. The central water feature will be a small meandering creek running north to south through the central linear park to the private lakes located at the southern end of the Amberwood project. The creek will drain into the private lakes through an outfall structure and sediment trap. Residential lots with frontage on the lakes will have a portion of their backyards sheet flow drain directly into the lakes. Depressed drainage swale areas located at various locations along the central meandering creek will collect and detain water, thereby providing for additional aquifer recharge opportunities.

Potable water for the project will be provided through a series of deep wells to be constructed, operated, and maintained by the California Water Service Company. California Water Service

Company is a private for profit corporation. Fire hydrants will be located throughout the project site at locations to be determined by the Selma Fire Chief. All hydrants will provide a minimum of 1,500 gallons per minute of fire flow. The project will provide an approximate 3 acre site for a new City of Selma public safety facility. The new public safety facility will contain both police and fire public safety services.

The Amberwood project will provide for a minimum 7.5 acre Community Commercial shopping center site. It is anticipated this center will have such uses as a coffee shop, barbershop, book store, real estate office, supermarket, drug store, and other retail and service commercial uses designed to serve the residents of the Amberwood project and the surrounding area.

The Amberwood project site will contain abundant acreage designated for public and private park areas. Approximately 69.5 acres of the project site will be designated as public and private park area. A linear park of approximately 41 acres extends through the middle of the entire Amberwood community, running from the northern limits to the southern limits of Amberwood. A public recreation center building located within the linear park area will be dedicated to the City by the developer. A lake oriented private recreation center will also be provided for homeowners residing in the lake subdivision areas. This facility will be owned and maintained by a Homeowners Association.

All streets within the Amberwood project site will be designed and constructed to City of Selma standards. Amber Avenue will be a newly constructed four lane major arterial, with a total right of way width of 124 feet with a 16 foot center landscaped median. Amber Avenue will also have an 8 foot meandering Class 1 bicycle and pedestrian path located on both sides of the street. Local streets and alleys (lanes) will be private, and will be owned and maintained by the Amberwood Homeowners Association. Selected neighborhoods within Amberwood will be private gated communities.

The intended use of this EIR will be for all entitlement approvals of the City of Selma. This EIR will also be used by the Fresno County Local Agency Formation Commission for the Sphere of Influence amendment and for the annexation of the project site to the City of Selma. Other public agencies reviewing the document will include the following:

- County of Fresno Planning Department
- City of Fowler
- City of Parlier
- City of Kingsburg
- Selma Unified School District
- San Joaquin Valley Air Pollution Control District
- Consolidated Irrigation District

- Kings River Conservation District
- Selma-Kingsburg-Fowler County Sanitation District
- Fresno County Council of Governments
- California Regional Water Quality Control Board
- County of Fresno Environmental Health Department
- California Waste Management Board
- California Department of Fish and Game
- California Department of Conservation
- California Department of Transportation
- California Air Resources Board
- County of Fresno Agricultural Commissioner
- California Native American Heritage Commission

The Amberwood development project will require the following entitlement approvals from the City of Selma City Council:

- Approval of the Amberwood Specific Plan including Development Standards
- Approval of Pre-Zoning Ordinance
- Approval of a Vesting Tentative Subdivision Tract Map
- Approval of a Development Agreement
- Approval of Sphere of Influence Amendment
- Approval of Annexation of the site to the City of Selma
- Approval of Project Phasing Plan
- Approval of On-Site Wastewater Treatment Plant
- Approval of Final Maps for each phase of the project

The Amberwood Project will require the following approvals from the Fresno County Local Agency Formation Commission:

- Approval of Sphere of Influence Amendment
- Approval of Annexation to City of Selma

The Amberwood Project, prior to the start of any construction, will require permits from the San Joaquin Valley Air Pollution Control District as follows:

- Dust Control Plan approval

The Amberwood Project will require the following permits and coordination with the Regional Water Quality Control Board:

- Approval of a Discharge Permit for the On-Site Wastewater Treatment Plant
- Prior to start of construction, prepare and submit a Notice of Intent to comply with the general NPDES statewide permit and prepare a Stormwater Pollution Prevention Plan.

The Amberwood Project will not require any permits or approvals from the Consolidated Irrigation District due to the fact that no stormwater from the project will be disposed of in any CID canal or drainage facility. The Amberwood project site will not be deannexed from the Consolidated Irrigation District and the property comprising Amberwood will retain its surface water rights for beneficial uses such as aquifer recharge.

The project site ***will not*** be annexed into the Selma-Kingsburg-Fowler County Sanitation District due to the fact the Amberwood Project will not dispose of wastewater or treat wastewater through any S-K-F treatment plant or other facility. All wastewater from the project, as previously outlined, will be disposed of and treated on site.

The required contents of an Environmental Impact report are outlined in the State CEQA Guidelines (Article 9, Sections 15120 through Section 15132). This Environmental Impact Report (EIR) complies with all of these requirements.

CHAPTER 3

POTENTIALLY SIGNIFICANT ENVIRONMENTAL ISSUES AND IMPACTS

3.0 Identification of Potentially Significant Environmental Issues and Impacts

Section 15063 of the State CEQA Guidelines outlines the requirements for an Initial Environmental Study. This section states as follows: "If the Lead Agency can determine that an EIR will clearly be required for the project, an Initial Study is not required, but may still be desirable". In the case of the Amberwood project, an EIR was clearly required. A full Initial Environmental Study was therefore not prepared. However, an abbreviated Initial Study document was completed on April 24, 2007, by Valley Planning Consultants. This abbreviated Initial Study was distributed for public and agency review on April 24, 2007, along with the Notice of Preparation for the Draft EIR. The public review period for the Notice of Preparation and abbreviated Initial Study was from April 24, 2007 to May 25, 2007. The abbreviated Initial Study document identified project issues that could have a significant or potentially significant impact on the environment. Based upon written responses to the NOP (Notice of Preparation) from various State and Local Agencies, and from input obtained during the Public Scoping Meeting held at the Selma City Hall on June 20, 2007, significant or potentially significant environmental impacts were identified by the City of Selma acting as Lead Agency. In addition, the Amberwood project is clearly a project of Regional Significance under CEQA Section 15206 (b) (2) (A), due to the fact that the Amberwood project contains more than 500 residential dwelling units.

3.1 Written Responses Received to the Notice of Preparation and Initial Study

Written responses to the NOP were received by the following Agencies:

- County of Fresno Development Services Division
- San Joaquin Valley Air Pollution Control District
- State of California Department of Conservation
- State of California Public Utilities Commission
- County of Fresno Department of Community Health
- State of California Native American Heritage Commission
- State of California Department of Transportation District 6
- Fresno Local Agency Formation Commission
- Selma Cemetery District
- Consolidated Irrigation District
- S-K-F County Sanitation District

3.2 Identified Significant or Potentially Significant Environmental Issues and Impacts

The abbreviated Initial Study document identified the following Environmental Issues and Impacts. These potential impacts will be fully evaluated and analyzed in Chapter 4 of this EIR.

(a) Aesthetics/Visual Impacts

Conversion of Agricultural Land into Urban Development Land *will result in additional light and glare from new homes and businesses, and from the new elementary school.*

(b) Agricultural Land Resources

Conversion of approximately 690.7 acres of prime farmland to urban uses. Potential cancellation of Williamson Act contracts. A farmland impact analysis will be undertaken in the Draft EIR.

(c) Air Quality Impacts

Construction and operation of approximately 2,558 residential dwelling units, 131,200 square feet of commercial uses, a new elementary school, a new public safety building, and new community center building over a period of up to 25 years. Significant Traffic generation which will cause additional Greenhouse Gas Emissions. The project will create the need for additional transportation facilities and public transit facilities. Energy conservation implementation and implementation of Air Quality Regulations. An Air Quality Impact Study will be undertaken as part of the Draft EIR.

(d) Archeological/Historic Cultural Resources

Potential for undiscovered buried historical artifacts. A study of cultural and archeological resources on the project site will be included in the Draft EIR.

(e) Biological Resources and Vegetation

Potential loss of habitat and foraging areas for wildlife. A biological resources study will be included in the Draft EIR.

(f) Noise Impacts

An increase in ambient noise levels in the project area due to new urban development. Potential Impacts to sensitive noise receptors along major transportation corridors. A noise study will be prepared and will be included in the Draft EIR.

(g) Land Use and Planning

Expansion of the City of Selma Sphere of Influence to the east towards the City of Parlier. Introduction of smaller lot development neighborhoods. Potential land use conflicts with existing agricultural land uses located to the east. Need to revise the Selma General Plan to be consistent with the Amberwood development project. Preparation and approval of the Amberwood Specific Plan.

(h) Population and Housing

Potential revisions to the future growth projections for the City of Selma. Provision of an adequate supply of moderate income housing to meet the City's share of the Regional Housing Needs Allocation. Potential impacts of higher density housing development and the need to reduce vehicle miles traveled by residents of the project to commercial shopping areas, jobs, and schools.

(i) Local Economy and Jobs

Although this is a social impact rather than an environmental impact, the additional new population residing within the Amberwood project will generate a need for additional jobs and employment opportunities within the City of Selma.

(j) Water Supply, Wastewater Treatment, and Groundwater Impacts

The private water company serving the Selma area will need to drill additional wells to supply the Amberwood project with potable water. A water supply assessment and hydrology study will be completed, which will include a recharge analysis for the existing aquifer. An engineering feasibility report will be completed to assess the potential for wastewater treatment and recycling for irrigation uses on site.

(k) Water Quality, Stormwater Drainage, and Absorption.

Potential impacts on groundwater quality from stormwater discharge and treated wastewater. Undergrounding of CID canal along Orange Avenue.

(L) Public Services and Facilities

Adequacy of existing City facilities to accommodate future growth. Planned expansion of City police and fire facilities. Financial responsibilities of developer for expansion.

(m) Sewer and Wastewater Treatment Plant Capacity

Availability of adequate treatment capacity. Feasibility of on-site wastewater treatment plant. Construction of new sewer collection system for the project. Financial responsibility of the developer to provide for construction of adequate treatment facilities and sewer collection system.

(n) Solid Waste

Availability of adequate solid waste disposal company and approved disposal landfill. Necessary and required recycling programs.

(o) Recreation and Parks

Adequacy of proposed community and neighborhood parks. Maintenance of planned park facilities and developer financial responsibility. Maintenance of private Open Space areas and formation of a Homeowners Association by the developer.

(p) Schools

Adequacy of existing schools and the need for additional schools and classrooms. A new elementary school is proposed on the project site. Financial responsibilities of the developer for the new school.

(q) Traffic and Circulation

Increased traffic generated by the project will impact local streets and County roads, along with State (Caltrans) facilities. A traffic study will be prepared for the project ,and the traffic study will be prepared to Caltrans standards and will be included in the Draft EIR. The traffic study scope will be reviewed by Caltrans, and will propose feasible mitigation measures, identify financial responsibilities, and outline timing for construction of the proposed transportation improvements. The traffic study will use the FCOG traffic model as updated for this project.

(r) Fiscal Impacts

The City of Selma retained MuniFinancial to prepare a fiscal impact study for the Amberwood project.

(s) Cumulative Impacts

As required by CEQA Guidelines (Section 15130), cumulative impacts of other known projects will be discussed in the Draft EIR.

(t) Growth Inducing Impacts

Growth of the City of Selma to the east outside of the existing Sphere of Influence. Growth to the north towards Dinuba Avenue, and to the south towards Mountain View Avenue.

3.3 Environmental Impacts Checklist

Table III-1

Environmental Issue	Potentially Significant	Less than Significant	Mitigation Required	No Impact
Aesthetics	X		X	
Agricultural Resources	X		X	
Air Quality	X	X*	X	X**
Biological Resources	X		X	X***
Cultural Resources	X		X	X****
Geology and Soils		X	X	X*****
Hazards and Hazardous Materials				X
Hydrology and Water Quality	X		X	X******

* for sensitive receptors (schools) ** For objectionable odors

*** for riparian habitats, sensitive natural communities, or wetlands.

**** for paleontological resources, geologic resources, and human remains.

***** for Earthquake Fault Zones, Expansive Soils, and Landslides.

****** for Housing within a delineated 100 year flood hazard boundary map.

The above outlined environmental issues and topics with asterisks were found to have No Impact or a Less Than Significant Environmental Impact.

Table III-1 (Continued)

Environmental Issue	Potentially Significant	Less than Significant	Mitigation Required	No Impact
Land Use and Planning		X		X To Habitat Conservation Plans
Mineral Resources				X
Noise		X	May be Required	
Population and Housing	X			
Public Services	X		X	
Recreation and Parks	X	For Construction of Recreational Facilities X	X	
Traffic and Transportation	X		X	To Air Traffic Patterns X
Utilities and Service Systems	X	For Adequate Water Supplies to serve the project and for Wastewater Treatment X	X	

Note: Noise mitigation for traffic related noise may be required dependent upon noise study analysis results.

As outlined above in Table III-1, there will be No Impacts to any Habitat Conservation Plans or to the Airport Traffic Pattern of the Selma Aerodrome.

3.4 Explanations and Discussion for Environmental Impacts Checklist Answers

(A) AESTHETICS

(a) Would the project have a substantial adverse effect on a scenic vista? No. The topography of the project site is essentially flat. There are no State, Federal, or County designated scenic vistas on the site or in the immediately surrounding area. The Sierra Nevada mountains and the Sierra foothills are visible to the east from the site. However, with all structures being limited to two stories in height, no blockage of these mountain viewsshould occur. (No Impact).

(b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? No. There are no rock outcroppings or historic buildings on the site. There is no State designated scenic highway traversing the project site or adjacent to the project site. (No Impact).

(c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings? No. The site is currently farmland planted in orchards and vineyards. Upon development of the site with the Amberwood project, all homes and businesses would be new construction, and be constructed to strict design standards as outlined in the Amberwood Specific Plan. Visually attractive features are included in the project. These include two private lakes, a meandering creek running through the center of the project site, and very ample park land and landscaped open space areas. *No Impact.*

(d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? Yes. The development of the 2,558 homes and the commercial uses could create a substantial source of new light and glare due to street lighting, parking lot lighting, and normal lighting associated with residential dwellings. *Potentially Significant Impact.*

(B) AGRICULTURAL RESOURCES

(a) Would the project convert prime farmland, unique farmland, or farmland of statewide importance , as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use? Yes. The project would convert approximately 690 acres of prime farmland to urban uses. *Potentially Significant Impact.*

(b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract? Yes. The project site is currently zoned by Fresno County for agricultural use (County AE-20 zoning). *Potentially Significant Impact.*

(c) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural uses? Yes. The project will construct an on-site wastewater treatment plant which may have additional capacity to serve other new development projects in the area. The potential for conversion of other farmlands to urban uses therefore exists. *Potentially Significant Impact.*

(C) AIR QUALITY

(a) Would the project conflict with or obstruct the implementation of the applicable air quality plan? No. The project will include mitigation measures for PM-10 and PM-2.5, and will be required to comply with all the applicable rules and regulations of the San Joaquin Valley Air Pollution Control District for implementation of all adopted air quality plans. Potentially Significant Impact. Mitigation required.

(b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? Yes. The project could contribute substantially to ozone concentrations and carbon monoxide concentrations in the project area due to the significant level of new vehicle traffic generated with full buildout of the project. Potentially significant impact. Mitigation required.

(c) Would the project 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? Yes. The project could contribute to significant increases in ozone levels and carbon monoxide levels in the region due to the significant increase in project related traffic. Potentially significant impact. Mitigation required.

(d) Would the project expose sensitive receptors to substantial pollutant concentrations? No. Sensitive receptors in the immediate project area include two public schools. However, the level of pollutant concentrations from project traffic should not be significant. Less than significant impact.

(e) Would the project create objectionable odors affecting a substantial number of people? No. The Amberwood project is a residential project with some commercial uses. None of these uses will generate objectionable odors. The on-site wastewater treatment plant will be in an enclosed building, and will contribute a tertiary treatment process wastewater to the private lakes, and to the on site irrigation system, which will meet all Title 22 requirements of the State Health Department. No objectionable odors from the treated wastewater in the private lakes should occur. No Impact.

(D) BIOLOGICAL RESOURCES

(a) Would the project 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? Yes. The project could potentially disrupt or destroy nests of the Burrowing Owl, and potentially effect the foraging habitat of other raptors (Swainson's Hawk, Cooper's Hawk) during the construction process. It is highly unlikely that any San Joaquin Kit Fox will be found on the site due to the on-going agricultural operations, which have effectively removed any suitable biotic habitat for the Kit Fox from the site. Potentially significant impact. Mitigation required. A biological constraints analysis report has been completed for the Amberwood project by Live Oak Associates and this report is included in the appendix.

(b) Would the project 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 the U.S. Fish and Wildlife Service? No. There is no riparian habitat or sensitive natural community habitat located on the project site. The site has been and continues to be in active agricultural use and cultivation which has precluded any natural sensitive habitat from the site. No Impact.

(c) Would the project 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 land, vernal pools, coastal waters, etc.) through direct removal, filling, hydrological interruption, or other means? No. There are no federally designated wetlands located on the project site. The project site is in active agricultural cultivation. No Impact.

(d) Would the project 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? No Impact. There are no rivers, streams, or lakes currently in the project area. Therefore, there is no impact to fish species. Migratory birds will not be affected by the project. There are no identified wildlife corridors in the project area.

(e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Potentially Yes. The only local policy or ordinance applicable is a City of Selma Tree Ordinance calling for the conservation of mature and healthy trees whenever feasible, and for the protection of trees within the vicinity of structures slated for removal. Mature and healthy trees located on-site should be conserved and protected to the maximum extent practicable according to the City Ordinance. Potentially significant impact. Mitigation required.

(f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? No. There are no adopted habitat conservation plans applicable to the project site. No Impact.

(E) <u>CULTURAL RESOURCES</u>

(a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5? Potentially Yes. During construction of the project, and specifically during the deep excavations required for the private lakes, existing subsurface historical artifacts or archeological resources may be discovered. Potentially significant impact. Mitigation may be required. A Cultural

Resources Survey Report has been prepared for this project by Sierra Valley Cultural Planning and this report is included in the appendix.

(b) Would the project cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5? Potentially Yes. Particularly during the deep excavations for the lake areas, archeological resources may be discovered. Potentially significant impact. Mitigation may be required.

(c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? No. During the cultural resources survey, no historic properties (properties eligible for listing in the National Register of Historic Places or the California Register) or paleontological resources were identified as a result of the surface inspection of the project site. Therefore, it is unlikely that development of the project will have an effect on important paleontological or geologic resources. No Impact.

(d) Would the project disturb any human remains, including those interred outside of formal cemeteries? No. There are no burial sites or cemeteries known to exist within the project area. However, the EIR will be distributed to the Native American Heritage Commission for review. No Impact. No mitigation required unless human remains are discovered during excavation. If human remains are discovered the County coroner shall be contacted immediately.

(F) GEOLOGY AND SOILS

(a) Would the project 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 as issued by the State Geologist for the project area or based on other substantial evidence of a known fault? No. The project site is not located in an Alquist-Priolo Earthquake Fault Zone according to the Fault Zone Map published by the State of California Geological Survey. No Impact.

ii) Strong Seismic Ground Shaking? No. The project site is not located in close proximity to a known earthquake fault. The project site is located greater than 40 miles from the Great Valley Fault System and greater than 50 miles from the Foothills Fault System. During moderate to severe earthquakes, some ground shaking at the project site will likely occur. However, the intensity of shaking would likely be moderate not strong given the distance to active faults in the region. Less than significant impact.

iii) Seismic related ground failure, including liquefaction? No. Based on the soil types, depth to groundwater at the site, and the expected levels of seismic shaking

(moderate), the potential for liquefaction at the project site may be considered low. Less than Significant Impact.

iv) Landslides? No. The topography of the project site is essentially flat, thereby precluding any risks for landslides. No Impact.

(b) Would development of the project result in substantial soil erosion or the loss of topsoil? No. The project involves the development of homes, commercial businesses, and other public facility uses (school, community center etc.). These structures, and the associated impervious surfaces created (streets, parking lots, driveways, etc.), will prevent the erosion of topsoil. The project will also include extensive landscaped park areas and landscaped open space areas which will also prevent soil erosion. However, during construction of the project, soil erosion could occur due to wind and rain. Mitigation measures to control dust and wind caused soil erosion, such as daily watering of the construction sites, will be required and will minimize soil erosion from wind. A grading and drainage plan will be prepared by a registered civil engineer. This plan will include provisions to minimize soil erosion due to stormwater flows. Less than Significant Impact.

(c) Would the project 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? There is a potential, albeit low, that some areas of the project site could be unstable in the upper 2-4 feet due to buried debris or undocumented fill material. A geotechnical report and subsurface soil investigation will be completed prior to the start of construction to document any subsurface soil conditions that are problematic for the projected uses. Mitigation measures will be developed to minimize these impacts. Less than Significant Impact.

(d) Would the project be located on expansive soils, thereby creating substantial risks to life or property? No. The soils comprising the project site are granular and sandy in nature and do not have a high clay content. They are not expansive type soils. No Impact.

(e) Would the project 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 waste water? No. The soils comprising the project site are sandy in nature and have a high rate of permeability. The project proposes to utilize an on-site wastewater treatment plant. No Impact.

(G) <u>HAZARDS AND HAZARDOUS MATERIALS</u>

(a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? No. The project is residential and

retail commercial in scope, with other uses such as a school and community center. These uses do not involve the handling or transport of hazardous materials. No Impact.

(b) Would the project 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? No. The project is residential and retail commercial in scope and does not involve the transport, use, or storage of hazardous materials. No Impact.

(c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one quarter mile of an existing or proposed school? No. No Impact.

(d) Would the project 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? No. The project site is not located on a list of hazardous materials sites according to the EPA CERCLIS database search. No Impact.

(e) For a project located within an Airport Land Use Planning area, and within two miles of a public use airport, would the project result in a safety hazard for people working or residing in the project area? No. The Amberwood project site is located more than two miles from the Selma Aerodrome. No Impact.

(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? No. Quinn Caterpillar airport is a private airstrip but it is located over 2 miles from the Amberwood project site. No Impact.

(g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? No. No Impact.

(h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are located adjacent to urbanized areas or where residences are intermixed with wildlands? No. There are no wildlands located on the project site or adjacent to the project site. The current land uses are agricultural uses. No Impact.

(H) <u>HYDROLOGY AND WATER QUALITY</u>

(a) Would the project violate any water quality standards or waste discharge requirements? No

The Amberwood project will utilize an on site wastewater treatment plant. The wastewater will be disposed of in the two private lakes which will be located at the south end of the project site. The treated wastewater will be very high quality, will be disinfected, and will meet all Title

22 State Health Department requirements. A waste discharge permit will be required from the Regional Water Quality Control Board. Refer to the Engineering Feasibility Report located in the appendix for technical details and analysis. Potentially Significant Impact. Mitigation required.

(b) Would the project 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 land uses for which permits have been granted)?. Potentially Yes. The Amberwood project, when fully developed with 2,558 housing units, a new school, and new commercial uses, could potentially affect the groundwater table level in the project area. However, although the project will use a substantial amount of groundwater, the project will recharge the existing aquifer through the treated wastewater to be disposed of in the two private lakes, which will be unlined. A hydrology report was completed for the updated City of Selma 2035 General Plan, and this report is included in the appendix. Potentially Significant Impact. Mitigation Required.

(c) Would the project substantially alter the existing drainage patterns 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? Potentially Yes. Although the project will not alter the course of any stream or river, the construction of the project will create many impervious surfaces such as building pads, streets, and parking lots. These surfaces will increase the rate of flow for stormwater runoff during storms. Stormwater will be accepted into the two private lakes, and during severe storm events (100 year storm), the stormwater overflow from the lakes will flow by outfall pipe into a master stormwater detention basin. Potentially Significant Impact. Mitigation Required.

(d) Would the project 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? Potentially Yes. A grading and drainage plan will be prepared by a registered civil engineer. The grading and drainage plan will include design provisions to minimize flooding during severe storms. An on site stormwater collection system will be constructed which will convey stormwater to the two private lakes. Potentially Significant Impact. Mitigation Required.

(e) Would the project 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? Potentially Yes. A Stormwater Pollution Prevention Plan for the Amberwood project will be required, and will be prepared by a qualified civil or environmental engineer. Potentially Significant Impact. Mitigation Required.

(f) Would the project otherwise substantially degrade water quality? No. As previously stated in this document, all wastewater generated by the project will be treated and be disinfected on site and will meet all Title 22 water quality standards.

(g) Would the project place housing within a 100 year flood hazard area as mapped on a Federal Flood Hazard Boundary Map or Federal Flood Insurance Rate Map or other Flood Hazard Delineation Map? No. According to FEMA Flood Hazard Boundary Map No. 2675H the project site is not within a 100 year flood hazard area or Zone A flood hazard area. No Impact.

(h) Would the project place within a 100 year flood hazard area structures which would impede or redirect flood flows? No. None of the project site is located within a flood hazard area. No Impact.

(i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as the result of the failure of a levee or dam. No. The project site is not subject to flooding from a dam or levee failure. No Impact.

(j) Would the project expose people or structures to a significant risk of loss, injury, or death by inundation due to seiche, tsunami, or mudflow? No. The project site is not located in a coastal area or in a mountainous area. No Impact.

(I) LAND USE AND PLANNING

(a) Would the project physically divide an established community? No. The project site is located at the eastern edge of the City of Selma. Less than Significant Impact.

(b) Would the project 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? No. The Amberwood project is consistent with the adopted Selma General Plan and with the adopted Amberwood Specific Plan. Less than Significant Impact.

(c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? No. There is no adopted habitat conservation plan that applies to the project area. No Impact.

(J) MINERAL RESOURCES

(a) Would the project 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? No. There are no known mineral resources located within the project area. The project site is currently farmland. No Impact.

(b) Would the project 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? No. There are no mineral resource recovery sites located within the project area that are delineated on any local land use plan. No Impact.

(K) NOISE

(a) Would the project result in the 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? No. The project is residential in scope with some community commercial land uses, a school, and a community center. Noise levels will not be excessive with these types of land uses. Less than Significant Impact.

(b) Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? No. Project is residential in nature. Less than Significant Impact.

(c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Potentially Yes. The development of urban uses (residences, commercial uses, elementary school, community center) will permanently increase the ambient noise levels in the vicinity of the project. At times, these noise levels could be substantial, especially around the school when children are outside playing or during sporting events such as soccer games. However, these types of noise impacts are temporary in nature. The development of Amber Avenue as a major 4 lane arterial could substantially increase traffic related noise levels. Mitigation measures such as noise buffer walls may be required, dependent upon the noise analysis in the Noise Study. Potential noise impacts are projected to be less than significant with mitigation incorporated.

(d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? Potentially Yes. During school activities or sporting events, temporary substantial increases in ambient noise levels could occur. However, these impacts, because of the temporary duration, are considered to be less than significant.

(e) For a project located within an airport land use planning area 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? No. The project site is located more than two miles from the Selma Aerodrome. No Impact.

(f) For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? No. The project is located more than two miles from the Quinn Caterpillar private airstrip. No Impact.

(L) POPULATION AND HOUSING

(a) Would the project induce substantial population growth in the area, either directly by proposing new homes and businesses, or indirectly through the extension of roads or other infrastructure? Yes. Full buildout of the Amberwood project with 2,558 housing units will significantly increase the population in the project area and within the City of Selma. The Amberwood project could also induce other new development adjacent to and in the vicinity of the project site. Potentially significant unmitigated impact.

(b) Would the project displace substantial numbers of existing housing units, necessitating the construction of replacement housing units elsewhere? No. The project site is primarily in agricultural uses with a few widely dispersed older housing units. No significant impact.

(c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? No. No significant impact.

(M) PUBLIC SERVICES

(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service levels, response times, or other performance objectives for any of the following public services? Yes. Potentially significant impact. Mitigation measures will be required as indicated below.

(i) Fire Protection? A new fire substation will be needed to serve the project area.

(ii) Police protection? A new police substation will be needed to serve the project area.

(iii) Schools? A new elementary school site is included within the Amberwood project.

(iv) Parks? Several new park sites are included within the Amberwood project.

(v) Other public facilities? A new community center building will be needed. A new on site wastewater treatment plant will need to be constructed. A new master stormwater detention basin will need to be constructed.

(N) 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? Potentially Yes. The Amberwood project, when fully built out, will contain several thousand new residents. These new residents could significantly impact other nearby park and recreational facilities. However, the Amberwood project itself will provide approximately 69.5 acres of new public and private owned parks, including a new community center building, and a new lake recreational area to be located at the south end of the project. These new facilities should mitigate the impacts from the Amberwood project to park and recreational facilities. In addition, during issuance of building permits for new homes, park impact mitigation fees will be paid to the City of Selma. Potentially significant impact. Mitigation measures will be required.

(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? No. The Amberwood project will require the construction of new park and open space areas. However, the construction of these facilities is not anticipated to have any adverse physical effects on the environment. Less than significant impact.

(O) TRAFFIC AND TRANSPORTATION

(a) Would the project 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)? Yes. The Amberwood project, with the planned 2,558 dwelling units, commercial uses, and school will generate a significant number of daily vehicle trips, and will impact the City street system and intersections within the City. State facilities and County roads will also be impacted. A traffic study, prepared to Caltrans standards, will be included in the EIR appendix, and mitigation measures for traffic related impacts will be developed. Potentially Significant Impact. Mitigation is required.

(b) Would the project exceed, either individually or cumulatively, a level of service standard established by the County Congestion Management Agency for designated roads and highways? Potentially Yes. A traffic study will be prepared. Potentially Significant Impact. Mitigation is required.

(c) Would the project result in a change in air traffic patterns, including either an increase in air traffic levels or a change in location that results in substantial safety risks? No. The project development will not effect the air traffic patterns of any nearby airports. No Impact.

(d) Would the project substantially increase hazards due to a design feature such as sharp curves or dangerous intersections, or incompatible uses such as farm equipment? No. The project design does not include any dangerous or potentially dangerous roads or intersections. No Impact.

(e) Would the project result in inadequate emergency access? No. All streets will be City standard streets with the proper width and design to accommodate all emergency vehicles. No Impact.

(f) Would the project result in inadequate parking capacity? No. All required parking lots and parking areas will be designed and be constructed to City standards. No Impact.

(g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation methods such as bus turnouts and bicycle paths? No. On the contrary, the Amberwood project will encourage alternative forms of transportation, including public transportation and bicycle transportation. The project will also include provisions for bus stops/turnouts, bicycle paths, and pedestrian trails. No Impact.

(P) UTILITIES AND SERVICE SYSTEMS

(a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? Potentially Yes. The Amberwood project will be designed to include an on-site wastewater treatment plant ("package plant"). The proposed plant will be designed to provide high quality treated wastewater that will meet or exceed all discharge requirements of the applicable Regional Water Quality Control Board. A wastewater discharge permit will need to be obtained. A preliminary engineering feasibility report for on-site wastewater treatment will be prepared and be included in the appendix of the EIR. Potentially Significant Impact. Mitigation will be required.

(b) Would the project 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? Yes. The project will construct a new on-site wastewater treatment plant. New wells and water storage tank facilities will also be constructed to serve the project. Potentially Significant Impact. Mitigation will be required.

(c) Would the project 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? Yes. The Amberwood project will construct a complete new on site storm water drainage system which will be designed to convey stormwater to the two private lakes to be located at the south end of the project site. Potentially Significant Impact. Mitigation is required.

(d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? Yes. The Amberwood project can be served by existing entitlements and resources. A Water Supply Assessment Report was prepared for the Amberwood project by California Water Service Company on August 17, 2007. The conclusion of this report is that adequate groundwater supplies will be available to serve the Amberwood project and other water users in the Selma District for the 23 year period from 2007 to 2030 under normal, single dry year, and multiple dry year conditions. However, the Amberwood project will still mitigate groundwater use by providing aquifer recharge through the two private lakes which will be unlined. In addition, the project will conserve water use through low water use toilets and fixtures in homes and businesses and by the use of water conserving landscaping and drip irrigation systems. Less than Significant Impact with mitigation measures incorporated for Aquifer Recharge and Water Conservation.

(e) Would the project 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? Yes. The Selma-Kingsburg-Fowler County Sanitation District is the wastewater treatment provider for the City of Selma, and this special district has issued a will serve letter for the Amberwood project. Less than Significant Impact.

(f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Yes. The American Avenue Landfill is operated by Fresno County and would be the landfill accepting the solid waste from the project through the City's solid waste provider, which is Selma Disposal and Recycling Company. This landfill has a projected useful life until the year 2056 according to the County. Less than Significant Impact.

(g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? Yes. The City's solid waste contractor, Selma Disposal and Recycling Company, has the required County and State permits, and will comply with all applicable regulations and laws pertaining to solid waste disposal. No Impact.

(Q) <u>MANDATORY FINDINGS OF SIGNIFICANCE</u>

(a) Does the project have 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, or eliminate important examples of the major periods of California history or prehistory? No. The project is residential and

community commercial in scope and will not substantially degrade the quality of the environment. No Significant Impact.

(b) Does the project have impacts that are individually limited , but cumulatively considerable? Yes. The Amberwood project impacts, when added to the cumulative impacts of other planned future residential and commercial projects in the City and surrounding area, has cumulative impacts that are considerable, particularly in the areas of traffic, air quality, loss of agricultural land to urban development, and water usage (groundwater overdraft). Potentially Significant Impacts.

(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Potentially Yes. With the increased traffic and resulting pollutants from increased use of automobiles and trucks in the project area, the air quality in the City and project area could deteriorate further, thereby increasing potential health effects on persons residing in the City and surrounding area. *Potentially Significant Impact.*

3.5 Conclusion of Environmental Impacts Checklist Answers and Initial Study

The initial environmental impacts analysis concludes that the Amberwood project could cause potential significant environmental impacts in the identified areas outlined below:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Population and Housing
- Public Services
- Recreation and Parks
- Traffic and Transportation
- Utilities and Service Systems

An Environmental Impact Report will therefore be required for the Amberwood Project.

CHAPTER 4

ENVIRONMENTAL IMPACTS ANALYSIS, DISCUSSION, AND MITIGATION

4.0 Introduction

This chapter contains the technical analysis for all identified environmental impacts which are considered significant or potentially significant, and for which mitigation measures may be available to reduce the level of significance to *Less than Significant*. The following environmental impact analysis areas were found to have *No Impacts* from the Amberwood project, and are therefore not subject to further analysis in this chapter:

- Mineral Resources (Refer to Section 3.4 for Discussion)
- Hazards and Hazardous Materials (Refer to Section 3.4 for Discussion)

There are some identified environmental impacts, which even though significant, cannot be fully mitigated. An example would be Air Quality Impacts. In this area, unless all vehicles accessing the project site were zero emission vehicles, the Air Quality Impacts from the project cannot be fully mitigated 100 percent. Loss of Prime Farmland is another example of a potentially significant impact which cannot be fully mitigated, and which will remain a significant and unavoidable impact.

The California Environmental Quality Act (CEQA) Guidelines Section 15126 states the following regarding consideration and discussion of environmental impacts: " All phases of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. The subjects listed below shall be discussed as directed in Sections 15126.2, 15126.4, and 15126.6, preferably in separate sections or paragraphs of the EIR. If they are not discussed separately, the EIR shall include a table showing where each of the subjects is discussed ":

(a) Significant Environmental Effects of the Proposed Project.

(b) Significant Environmental Effects which cannot be avoided if the Proposed Project is Implemented.

(c) Significant Irreversible Environmental Changes which would be involved in the Proposed Project should it be Implemented.

(d) Growth Inducing Impacts of the Proposed Project.

(e) The Mitigation Measures Proposed to Minimize the Significant Effects.

(f) Alternatives to the Proposed Project, including a No Project alternative.

The subjects listed in a-f above are discussed in separate chapters within this EIR document. In addition, CEQA Guidelines Section 15143 provides direction as follows regarding the emphasis of an EIR: " An EIR shall focus on the significant effects on the environment. The significant effects should be discussed with emphasis in proportion to their severity and probability of occurrence. Effects dismissed in an Initial Study as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless the Lead Agency subsequently receives information inconsistent with the finding in the Initial Study. A copy of the Initial Study may be attached to the EIR to provide the basis for limiting the impacts discussed ".

Following are the effects discussed in this EIR that are clearly significant or potentially significant, and are therefore most likely to occur.

4.1 Significant or Potentially Significant Environmental Effects

4.1.A AESTHETICS

The Amberwood project, when fully developed with 2,558 dwelling units and 131,200 square feet of commercial uses will significantly increase the light and glare during hours of darkness within the project area. However, the Amberwood Specific Plan contains design guidelines and design criteria for street lighting within the residential and commercial areas which will mitigate the impacts to neighboring properties to the extent practicable. This will be accomplished by limiting the height of interior street light fixtures, and by specifying lighting fixtures and luminaries that are highly directional and limit transmission of light off site. The street lighting on the major public arterials (Amber Avenue, Dinuba Avenue, Orange Avenue, and Floral Avenue) will be designed to City of Selma Standards, with an emphasis on traffic safety and on pedestrian safety and security. Street lights at major arterial intersections will be approximately 30 feet in height with 250 watt high pressure sodium luminaries. Arterial street lighting between major intersections will be City Standard high pressure sodium street lights with 150 watt luminaries and spacing will be every 200 feet, with light poles alternating from one side of the street to the other. The street light spacing on one side of an arterial street will therefore be every 400 feet.

Within the interior of the Amberwood project, the Specific Plan design criteria states as follows in Section 4.9.1: "Streetlights on interior collector streets will be 18 feet in height with poles painted a dark green to match the color of the street signs. Light fixtures will have an acorn shape with an acrylic, prismatic globe having 250 watt metal halide luminaries, or equivalent, with aluminum reflectors and NEMA standard photoelectric units. Street lights on local and lane streets will be twelve feet high, and be the same design and color as collector street lights,

except that the street lights along residential streets will be installed at a closer spacing to ensure uniform illumination". The Specific Plan document contains conceptual design examples of decorative street lights. Section 4.9.2 of the Amberwood Specific Plan states as follows regarding commercial shopping center and community facilities lighting: " Area lighting and street lighting within parking lots in the community commercial shopping center and community facilities area will match the street lights with respect to the color and design of poles and light fixtures. Lighting shall be designed and located to provide a minimum of one foot candle of uniform illumination throughout parking lots for safety and security. Lighting for loading areas will be located and designed to meet the City's lighting standards for commercial land uses to avoid light dispersion onto adjacent areas".

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Require the developer or subdivider to prepare a lighting intensity diagram and lighting improvement plans, which are designed to ensure light transmission off site is minimized to the maximum extent practicable.
- Limit illumination in the commercial parking lot areas to a uniform maximum illumination of 1.0 foot candle.
- Require the developer or subdivider to adhere to the design guidelines for lighting as contained in the Amberwood Specific Plan.
- Require the use of highly directional lighting fixtures where appropriate, such as metal halide fixtures, with the proper reflective shielding to minimize the transmission of light off site.

Level of Significance after Mitigation

- Less than Significant Impact

4.1.B AGRICULTURAL RESOURCES

The development of the Amberwood project will convert approximately 690.7 acres of prime farmland to urban uses (homes, businesses, school, etc.). This is considered a potentially significant regional environmental impact, and a major physical change in the land uses comprising the Amberwood project site. However, the development of the 690.7 acre project area is anticipated to occur over a period of approximately 25 years, dependent upon future housing market conditions. It is therefore anticipated that no more than 80-100 acres will be developed at any one time in any single phase or phases of the project. Therefore, it is assumed

that as phased development occurs, the remaining acreage within the project area not being developed in that particular phase or phases will continue to be actively farmed by the developer or landowner. Presently, the Amberwood project site includes the following agricultural resources, acreages, crop yields, and crop values as indicated below in Table IV-1.

Table IV-1

Current Crops

Ag Resource	Acreage	Crop Yield	Crop Value (2008)
Vineyards	351	2,457 tons	$490,000
Nectarines	169	118,000 boxes	$1,534,000
Peaches	0	0	0
Fallow Lands	163	0	0
Total Acreage and Crop Value	683		$2,024,000

Source: Mr. Donald Serimian, Serimco Ranch LLC., 2009.

The conversion of Prime Farmland to urban uses was discussed and analyzed in the Program EIR for the 2035 General Plan Update, and this EIR was adopted and certified by the Selma City Council on October 4, 2010. The Amberwood project land uses are included within the 2035 updated General Plan Land Use Element, and the Amberwood project is therefore consistent with the 2035 updated General Plan. This section uses information from the 2035 General Plan update EIR as background information, and for the impact assessment analysis on agricultural resources.

Federal Regulatory Setting

The Farmland Protection Policy Act was passed into Federal Law as a part of the Agriculture and Food Act of 1981 (Public Law 97-98). This 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 to urban uses 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 formulated to protect farmland.

State and Local Programs and Zoning

The Fresno County General Plan Land Use Element indicates that land located outside of the Selma City limits is designated as agriculture. The County agriculture designation provides for continued agricultural uses within the Selma Sphere of Influence until such time as the land is annexed into the City of Selma, and developed in accordance with the provisions of the updated Selma 2035 General Plan. The agricultural land located in the County is zoned AE-20 (exclusive agriculture) with a 20 acre minimum parcel size. The County A-E zoning district is intended to be an exclusive zoning district for agricultural uses, and for those uses which are related to and necessary for continued agricultural operations.

In addition to the County, the State of California has also established programs as outlined below to assist in protecting agricultural land from conversion to non-agricultural uses. The California Department of Conservation has established the Farmland Mapping and Monitoring Program which tracks the conversion of farmland to urban uses throughout the State, using classifications of important farmlands developed by the U.S. 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 the soil type and the availability of irrigation water.

The State of California has also established the California Land Conservation Act, also known as the Williamson Act. The Williamson Act was established in 1965 to protect agricultural lands from conversion to non-agricultural uses. Owners of agricultural 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 with the County.

The Amberwood project site is designated as Prime Farmland according to Figure 3.2-1 of the General Plan 2035 Update EIR. Prime Farmland is defined by the State Department of Conservation as follows: "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".

According to the current landowner, there are no lands within the Amberwood project site that are currently under active Williamson Act contracts.

General Plan Consistency

The 2035 General Plan Update for the City of Selma 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 are contained in the Land Use, Open Space, Conservation, and Recreation Elements, and are designed to ensure that agricultural impacts are minimized as new development occurs.

General Plan Land Use Element Policies

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

Agriculture (AG) 0 to 0.05 Units Per Gross Acre

This land use 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 for 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 developments located 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 developments, in order to ensure the orderly extension of municipal services and preservation of a free flowing circulation system.

Policy 1.9 While the City of Selma prefers contiguous urban development, this may not always be feasible or possible given short-term ownership and development constraints. However, leapfrog development located greater than one-half 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 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 one-half 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 as "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 applications for Reserve areas until a minimum of 80 percent of all Non-Reserve property with the same general designation within the general plan boundaries has been developed or has approved development entitlements.

General Plan 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 operations, and to prevent parcelization into rural residential or ranchette type 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 of Selma's Sphere of Influence.

Evaluation Criteria for Agricultural Impacts

According to the CEQA Guidelines, a project will normally be considered potentially significant if it will impact agricultural resources as outlined below under significance thresholds:

Significance Thresholds

- Will the project convert prime farmland, unique farmland, or farmland of statewide importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?
- Will the project conflict with existing zoning for agricultural use, or a Williamson Act contract?
- Will the project 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 listed above, therefore, these issues are discussed below as follows:

Amberwood Project Impacts to Agricultural Resources

(a) Conversion of Prime Farmland to Non-Agricultural Uses: The urban land use designations for the Amberwood project site, as contained in the 2035 General Plan Update Land Use Element, and the subsequent development of the Amberwood project, would lead to the eventual conversion of approximately 690.7 acres of prime farmland to urban uses. The updated 2035 General Plan contains a number of policies, as previously outlined herein, that provide for the orderly conversion of farmland to urban uses within the Selma Sphere of Influence and Planning Area. Since the City of Selma is surrounded by Prime and Important Farmland, any growth and development within the City's SOI and Planning Area would result in the conversion of farmland to urban uses. According to the 2035 General Plan Update EIR, the impact is therefore a significant and unavoidable impact. Policies of the updated 2035 General Plan, as outlined herein, will reduce the impacts associated with farmland conversion, however, the impact will remain significant and unavoidable. The following mitigation measures will help reduce the impacts from farmland conversion, but not to a Less than Significant Level.

Level of Significance Before Mitigation

- Significant and Unavoidable Impact

Mitigation Measures

- The City will require adequate buffers between the Amberwood project site and adjacent agricultural lands. The subject buffers shall include appropriate setbacks, and a minimum seven (7) foot masonry wall around the perimeter of the Amberwood project site in all areas adjacent to surrounding farmland, in order to minimize the impacts from adjacent farming operations.
- The City will use its urban development boundaries and growth phasing policies to delay the conversion of agricultural lands to urban uses in areas adjacent to the Amberwood project site.
- The City will encourage the developer of the Amberwood project to continue to actively farm land within the project site until such time as the phasing and housing market conditions determine that the agricultural land should be converted to urban uses as depicted in the Amberwood Specific Plan.

Level of Significance After Mitigation

- Significant and Unavoidable Impact

(b) Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract: The development of the Amberwood project will require that the existing County A-E 20 agricultural zoning be changed to City zoning for urban uses. This zone change will eventually affect all 690.7 acres of the Amberwood project site. The project site area located within the existing City Sphere of Influence will be pre-zoned for urban uses by the City of Selma prior to annexation. There are no Williamson Act contracts affecting the project site.

Level of Significance Before Mitigation

- Significant and Unavoidable Impact

Mitigation Measures

- Land located within the Amberwood project site, but currently outside of the existing City Sphere of Influence, shall remain zoned County AE-20 Exclusive Agriculture until such time as the City SOI is revised by LAFCO, and the land is pre-zoned and annexed into the City of Selma.
- The City shall require the developer of the Amberwood project to record right to farm covenants with all deeds, in order to place future Amberwood homeowners and other users on notice regarding the potential environmental impacts of adjacent farming operations (noise, dust, pesticides etc.), and as a notice of the right of adjacent area

farmers to continue their farming operations during and after the buildout of Amberwood.

Level of Significance After Mitigation

- Significant and Unavoidable Impact

(c) Other Changes in the Existing Environment which could result in the Conversion of Agricultural Land to Non-Agricultural Uses: The development of the Amberwood project, in accordance with the 2035 Updated General Plan and the Amberwood Specific Plan, could result in the development of potentially incompatible urban uses next to adjacent farms, potentially creating circumstances that impair the productivity and profitability of agricultural operations, and could eventually lead farmers of adjacent land to take their land out of agricultural production. Increased valdalism, traffic, access difficulties, and the introduction of domestic animals can potentially lower productivity, while new residents of Amberwood may complain about noise, dust, and pesticide use. Adjacent urban development could also drive up land values, thus increasing the property tax burden for farmland not protected by Williamson Act contracts.

Policies 5.8 through 5.12 of the 2035 Updated General Plan are designed to minimize potential incompatibilities between agricultural and urban uses. However, despite these policies, potential incompatibilities between agricultural and urban uses under the 2035 Updated General Plan and the Amberwood Specific Plan could still contribute to conversion of other adjacent farmland to non-agricultural uses, thus resulting in a potentially significant impact on agricultural resources.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- According to the 2035 General Plan Update EIR, no mitigation measures are available to reduce this impact to a Less than Significant Level.

Level of Significance After Mitigation

- Significant and Unavoidable Impact

Effectiveness of Agricultural Impact Mitigation Measures

While the policies of the 2035 Updated General Plan, and the mitigation measures outlined above would delay, reduce, or partially offset the timing of the conversion of farmland, the

conversion of the 690.7 acres of prime farmland which encompasses the Amberwood project site to urban uses would remain a significant and unavoidable impact. Additional policies or programs are not feasible according to the 2035 General Plan Update EIR, and would not reduce the impacts to a Less than Significant Level based upon the following:

- Agricultural mitigation fees or other methods are infeasible unless they are implemented on a region wide basis. Unless these programs are coordinated on at least the Fresno 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 therefore be speculative.
- Courts have held 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 actual loss of prime agricultural lands is therefore not reduced.

4.1.C AIR QUALITY

INTRODUCTION

Air Quality Impacts from the Amberwood development project are considered potentially significant cumulative regional impacts. An Air Quality and Climate Change Analysis Report for the Amberwood development project has been prepared by Michael Brandman Associates, and this report is included in the appendix. The information contained in this section has used this report for reference, and as a technical source of information regarding air quality and air quality impacts. The reader is referred to this technical report, which is located in the appendix of this document, for additional information regarding Air Quality. It must be noted at this time that the five (5) Phases depicted in the Air Quality Report Analysis *do not* correspond to the actual construction phases for the Amberwood project, which may include up to 20 phases. The reader is referred to page 13 in the Air Quality Report for an explanation of the Air Quality Modeling Parameters and Assumptions, which explains the Air Quality Analysis Phasing. Air Quality Impacts from the development of Amberwood occur primarily from three sources: i) Traffic related impacts from tailpipe emissions of cars and light trucks, ii) stationary impacts from stationary sources such as diesel engine operated well pumps, and emergency generation equipment, and iii) construction related impacts (vehicle emissions, dust generation etc.) from operation of heavy construction equipment such as roadgraders and bulldozers during the construction phases of the Amberwood project.

FEDERAL AND STATE REGULATORY SETTING

Air pollutants within the region and project area are regulated at the Federal, State, and Air Basin Level, with each agency and level of government exercising various degrees of regulatory control. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the State level, and the San Joaquin Valley Air Pollution Control District (SJVAPCD) regulates at the local County level.

The EPA addresses global, international, national, and interstate air pollution issues and policies. EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards (NAAQS), also known as the Federal Standards. There are NAAQS for six (6) common air pollutants, called criteria air pollutants, which were identified resulting from the provisions of the Clean Air Act (CAA) of 1970. The six criteria air pollutants are as follows:

- Ozone
- Particulate Matter (PM 10 and PM 2.5)
- Nitrogen Dioxide
- Carbon Monoxide
- Lead
- Sulfur Dioxide

The National Ambient Air Quality Standards were set up in order to protect public health, including that of sensitive individuals, and the standards continue to change as more medical research is available regarding the negative health effects of the criteria air pollutants. The State Implementation Plan for the State of California is administered by the Air Resources Board (ARB), which has overall responsibility for statewide air quality maintenance and air pollution prevention. A State Implementation Plan (SIP) is prepared by each State describing existing air quality conditions, and measures that will be followed to attain and maintain the NAAQS. The SIP incorporates individual Federal Attainment Plans for regional air districts. Federal Attainment Plans prepared by each air district are sent to the ARB to be approved and incorporated into the California State Implementation Plan. Federal Attainment Plans include the technical foundation for understanding air quality (emission inventories and air quality monitoring), control measures, strategies, and enforcement mechanisms.

The California Air Resources Board also administers the California Ambient Air Quality Standards (CAAQS) for the ten (10) air pollutants designated in the California Clean Air Act (CCAA). The ten State air pollutants are the six criteria pollutants listed above, as well as visibility reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The Federal and

State Ambient Air Quality Standards, and the most relevant health effects are summarized below in Table IV-2.

Table IV-2

Ambient Air Quality Standards

Air Pollutant	Averaging Time	State Standard	National Standard	Health Effects*
Ozone	1 hour 8 hour	0.09 ppm 0.070 ppm	NA 0.075 ppm	Decrease of pulmonary function and localized lung edema in humans and animals. Increased mortality.
Carbon Monoxide (CO)	1 hour 8 hour	20 ppm 9.0 ppm	35 ppm 9.0 ppm	Aggravation of angina pectoris and other aspects of coronary heart disease and impairment of the central nervous system functions.
Nitrogen Dioxide (NO2)	1 hour Annual	0.18 ppm 0.030 ppm	188 ug/m3 0.053 ppm	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups.
Sulfur Dioxide (SO2)	1 hour 24 hour Annual	0.25 ppm 0.04 ppm NA	NA 0.14 ppm 0.030 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness during exercise or physical activity in persons with asthma
Particulate Matter (PM 10)	24 hour Annual	50 ug/m3 20 ug/m3	150 ug/m3 NA	Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease. Declines in pulmonary function growth in children. Increased risk of premature death from heart or lung diseases in elderly.

Particulate Matter (PM 2.5)	24 hour Annual	NA 12 ug/m3	35 ug/m3 15.0 ug/m3	Same as above for PM 10
Sulfates	24 hour	25 ug/m3	NA	Decrease in ventilatory function. Aggravation of asthmatic symptoms. Aggravation of cardiopulmonary diseases.
Lead	30 day Quarter	1.5 ug/m3 NA	NA 1.5 ug/m3	Learning disabilities in children. Impairment of Blood formation and nerve conduction.

Source: Air Quality Report . * Refer to page 20 in the Air Quality Report for additional potential effects.

The following is a summary of recent air quality standard actions. In 2006, the EPA changed the 24 hour PM 2.5 standard from 65 micrograms per cubic meter (ug/m3) to 35 ug/m3, and retained the existing annual standard of 15.0 ug/m3. EPA also promulgated a new 8 hour standard for ozone on March 12, 2008, to be effective on March 27, 2008. In February 2007, the California Air Resources Board established a new annual average nitrogen dioxide standard of 0.030 parts per million (ppm), and lowered the 1 hour nitrogen dioxide standard to 0.18 ppm. These changes became effective on March 20, 2008.

On October 15, 2008, the EPA reduced the Federal Lead Standard from 1.5 ug/m3 to 0.15 ug/m3. In addition, the EPA revised the averaging time and form of the lead standard. The EPA will retain the existing 1978 lead standard until one year after designations for the new 2008 standard. The California Air Resources Board is required to make recommendations for areas to be designated attainment, nonattainment, or unclassifiable by October 2009. Final designations will be effective no later than 2012. On January 25, 2010, the EPA set a new one hour standard for nitrogen dioxide (NO2) at a level of 188ug/m3, or 100 parts per billion (ppb), which will become effective on April 12, 2010. The EPA expects to identify or designate areas not meeting the new standard, based on the existing community wide monitoring network by January 2012.

LOCAL AND REGIONAL REGULATIONS AND ATTAINMENT STATUS

The air pollution control agency for the San Joaquin Valley Air Basin (SJVAB) is the San Joaquin Valley Air Pollution Control District (SJVAPCD). The main office of the SJVAPCD is located in Fresno, California. The SJVAPCD is responsible for controlling emissions primarily from stationary sources. The SJVAPCD maintains air quality monitoring stations throughout the San Joaquin Valley Air Basin. The SJVAPCD, in coordination with the eight countywide

transportation agencies, is also responsible for developing, updating, and implementing the Air Quality Plans for the SJVAB.

There are three (3) terms used to describe if an air basin is exceeding or meeting Federal and State Air Quality Standards: a) Attainment; b) Nonattainment; and c) Unclassified. All air basins are assessed for each applicable pollutant, and receive a designation for each standard based on that assessment. Each air quality standard has a different definition of what constitutes attainment based on specific air quality criteria. For example, the Federal 8 hour Carbon Monoxide (CO) standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8 hour ambient air monitoring value exceeds the standard threshold per year. By contrast, the Federal annual PM 2.5 particulate standard is met if the three year average of the annual average PM 2.5 concentration is less than or equal to the standard.

Areas are designated attainment or nonattainment on a per-pollutant basis. If an air basin exceeds the "form" of a Federal or State air quality standard, the subject air basin is designated as nonattainment for that particular air pollutant. An air basin is designated as attainment for a specific pollutant if all the standards for that particular pollutant are met. If there is inadequate or inconclusive data to make a definitive attainment designation for a pollutant, the air basin is considered unclassified. The current attainment designations for the Amberwood project area, which is within the SJVAB, are depicted below in Table IV-3.

Table IV-3

Current SJVAPCD Air Quality Attainment Status

Pollutant	Federal	State
Ozone	Nonattainment	Nonattainment
PM-10	Attainment	Nonattainment
PM 2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment
Nitrogen Dioxide	Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment

Source: San Joaquin Valley APCD, 2009.

For additional information on the Attainment Redesignation Actions recently undertaken by the EPA, as it applies to the San Joaquin Valley Air Basin, and for more information on the SJVAPCD Attainment Plans, Ozone Plans, and PM-10 and PM 2.5 (Particulate Matter) Plans, the reader is referred to pages 23-25 of the Air Quality Analysis Report which is included in the appendix.

AIR QUALITY RULES AND REGULATIONS APPLICABLE TO THE AMBERWOOD PROJECT

The San Joaquin Valley Air Pollution Control District rules and regulations that apply to this project include, but are not limited to the following:

- SJVAPCD Rule 2201-New and Modified Stationary Source Review.
- SJVAPCD Rule 4101-Visible Emissions. This rule prohibits emissions of visible air contaminants to the atmosphere, and applies to any source operation that emits or may emit air contaminants.
- SJVAPCD Rule 4102-Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials. Odor emissions are subject to this rule.
- SJVAPCD Rule 4601-Architectural Coatings. This rule limits volatile organic compounds from architectural coatings. This rule specifies architectural coatings storage, clean up, and labeling requirements.
- SJVAPCD Rule 4641-Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations.
- SJVAPCD Rule 4902-Limits emission of NOX from residential water heaters.
- SJVAPCD Regulation VIII-Fugitive PM-10 Prohibitions. This regulation contains rules 8011-8081 which are designed to reduce PM-10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, and carryout and trackout of dust/dirt from project sites. Among the Regulation VIII Rules which are applicable to the Amberwood project are the following: a) Rule 8011-General Requirements; b) Rule 8021- Construction, Demolition, Excavation, Extraction, and other earthmoving activities. The purpose of this Rule is to limit fugitive dust emissions from earthmoving activities through a combination of opacity limits, equipment and activity prohibitions, and dust suppressing requirements. A *Dust Control Plan* will be required by the SJVAPCD for the Amberwood project.
- SJVAPCD Rule 8031- Bulk Materials Storage.
- SJVAPCD Rule 8041- Dirt carryout and trackout from the project site.
- SJVAPCD Rule 8051- Open Areas.
- SJVAPCD Rule 8061- Paved and Unpaved Roads.
- SJVAPCD Rule 8071- Unpaved vehicle/equipment traffic areas. The purpose of this rule is to limit dust emissions from vehicle and equipment travel and movement on unpaved parking and equipment storage areas. If the project exceeds the applicability threshold of 25 daily vehicle trips by vehicles with three or more axles, control requirements listed in the rule must be complied with.
- SJVAPCD Rule 9410-Employer Based Trip Reduction. The purpose of this rule is to reduce vehicle miles traveled (VMT) from private vehicles used by employees to

commute to and from their worksites in order to reduce emissions of NOX, VOC's, and Particulate Matter (PM). This rule requires larger employers (those with 100 or more eligible employees) to establish employee trip reduction programs to reduce VMT, thereby reducing vehicle emissions associated with work commutes. This rule uses a menu-based Employer Trip Reduction Implementation Plan (ETRIP) and periodic reporting requirements to evaluate performance on a phased in compliance schedule. This rule could apply to the Amberwood project if the commercial business uses exceed the 100 employee threshold.

- SJVAPCD Rule 9510- Indirect Source Review. This rule requires that construction and operational emissions be mitigated by certain percentages on-site or by the payment of off-site emission reduction fees. The purposes of this rule are to: a) fulfill the SJVAPCD emission reduction commitments in the PM-10 and Ozone Attainment Plans; b) achieve emission reductions from the construction and use of development projects through design features and on-site measures; and c) provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures. This rule applies to the proposed Amberwood project because the project will have over 50 residential units, and over 2,000 square feet of commercial space. (Section 2.0 of Rule 9510).
- SJVAPCD Rule 3180- Air Impact Assessment Application Fee. This rule is to cover the SJVAPCD costs for administering the requirements of Rule 9510.

COMPLIANCE WITH SJVAPCD RULE 9510

Compliance with SJVAPCD Rule 9510 reduces the emissions impact of the Amberwood project through incorporation of on-site measures, as well as payment of an off-site fee that funds emission reduction projects in the SJVAB. The emissions analysis for Rule 9510 is highly detailed and dependent on the exact project design that is expected to be constructed or installed. Minor changes to project components between the CEQA analysis and actual project construction often occur. An example of such a change is a change in square footage. The required amounts of emission reductions required by Rule 9510 are known as follows:

- Construction Exhaust: 20% of the total NOX emissions, and 45% of the total PM-10 emissions.
- Operational Emissions: 33% of NOX emissions over the first 10 years, and 50% of the PM-10 emissions over the first 10 years.

AIR DISTRICT GUIDANCE

The SJVAPCD has prepared a Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI 2002). The GAMAQI is an advisory document that provides lead agencies, consultants, and

project applicants with guidance and uniform procedures for addressing air quality impacts in CEQA environmental documents. It recommends thresholds for determining significant impacts, discusses methodologies for estimating project emissions and impacts, and identifies mitigation measures that can be used to avoid or reduce air quality impacts. The GAMAQI is used herein for this air quality impacts analysis where it is appropriate.

CITY OF SELMA GENERAL PLAN POLICIES APPLICABLE TO AIR QUALITY

The 2035 Selma General Plan Update contains a number of goals, objectives, and policies that apply to Air Quality Impacts in conjunction with the ultimate build out of the City over the next 25 years. The specific policies listed below are contained in the Land Use and Circulation Elements, and are designed to ensure that Air Quality Impacts are minimized as new development occurs within the City. Use of the automobile is discouraged by some of these policies, and bicycle and pedestrian facility use is encouraged, thereby decreasing air quality impacts from vehicle use within the City.

Land Use Element

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, and sustainable buildings.

Circulation Element

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 for 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 crossing signals shall be provided at all traffic signal locations. This policy encourages pedestrian safety at night.

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 facilities should be encouraged whenever possible.

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

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 following:

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.

The promotion of energy efficient designs, including provisions for solar access, building orientation 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 the following:

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.

Provide for the 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 bicycle usage in the planning of new arterial and collector strets and in street improvement projects.

Require that new development be designed to promote pedestrian and bicycle access and circulation.

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 preserve 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 such as schools and hospitals, and establish buffer zones within residential and other sensitive receptor uses to separate those uses from highways, arterials, hazardous materials 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 developments through land use and zoning in order 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) 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 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.

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 be centrally located within each 0.5 square mile of land. Such parks may be developed alone, in conjunction with school sites, or in conjunction with ponding basins.

Policy 5.29 Developed public recreation land shall be within walking distance of potential users. For these purposes, an optimum walking distance for neighborhood parks is within 0.25 mile.

FEDERAL BACKGROUND FOR CLIMATE CHANGE AND GREENHOUSE GAS REGULATION

The subjects of Global Climate Change and Greenhouse Gas Emissions have been addressed on both the International and Federal level. In addition, the State of California has recently passed laws which address the impacts of Greenhouse Gas Emissions, and these State laws set standards and goals for reducing Greenhouse Gas Emissions within the State.

As background information, it should be noted that in 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess "the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human induced climate change, its potential impacts, and options for adaptation and mitigation".

In addition, on March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, world governments gather and share information on Greenhouse Gas Emissions, national policies, and best practices, launch national strategies for addressing Greenhouse Gas Emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries, and cooperate in preparing for adaptation to the impacts of Global Climate Change.

A particularly notable result of the United Nations Framework Convention on Climate Change efforts was a treaty known as the Kyoto Protocol, which went into effect on February 16, 2005.

When countries sign the Protocol, they demonstrate their commitment to reduce their emissions of Greenhouse Gases, or engage in emissions trading. More than 170 countries are currently participating in the Kyoto Protocol. Industrialized countries, including the United States, are required to reduce their Greenhouse Gas Emissions by an average of 5 percent below their 1990 levels by 2012. In 1998, Vice President Al Gore symbolically signed the Protocol, however, in anticipation of the signing, the United States Senate approved a non-binding resolution in July 1997 by a margin of 95-0 that expressed opposition to the provisions of the treaty, most notably the disparity in Greenhouse Gas Emissions reduction obligations between industrialized nations and developing nations. In 2001, President Bush indicated that he would not submit the treaty to the United States Senate for ratification, which effectively ended United States involvement in the Kyoto Protocol. Subsequently, in December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post Kyoto, which yielded a non-binding agreement. A future climate change conference is currently scheduled for Mexico City in 2010.

The EPA currently does not regulate Greenhouse Gas Emissions from motor vehicles. In Massachusetts vs. EPA (Supreme Court Case No. 05-1120) it was argued before the United States Supreme Court on November 29, 2006, that EPA should have authority to regulate four greenhouse gases, including carbon dioxide, under Section 202 (a)(1) of the Clean Air Act. A Court decision was made on April 2, 2007, in which the Court held that the petitioners have a standing to challenge the EPA, and that the EPA has statutory authority to regulate emissions of greenhouse gases from new motor vehicles.

In April 2009, EPA published a Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act. The EPA is proposing to find that the current and projected concentrations of the mix of six key Greenhouse Gases, including carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride in the atmosphere threaten the public health and welfare of current and future generations. The EPA is further proposing to find that the combined emissions of CO2, CH4, N2O, and HFC's from new motor vehicles and motor vehicle engines contributes to the atmospheric concentrations of these key Greenhouse Gases, and hence to the threat of Global Climate Change. This proposed action does not in and by itself impose any requirements on industry or other entities. However, the finding, as finalized by EPA and effective on January 14, 2010, is a key step in regulating Greenhouse Gases under the Clean Air Act. `

On January 29, 2010, President Obama announced that the Federal Government will reduce its Greenhouse Gas (GHG) pollution by 28 percent by 2020. Executive Order 13514 effectively requires reducing and reporting GHG pollution by the Federal Government.

STATE OF CALIFORNIA LAWS AND ACTIONS RELATING TO GREENHOUSE GAS EMISSIONS

There have been significant State legislative actions and regulatory activities recently that affect climate change and Greenhouse Gases in California. These actions by the State are discussed below.

AB 1493 Assembly Bill 1493 (Pavley), enacted on July 22, 2002, required the California Air Resources Board (ARB) to develop and adopt regulations that reduce Greenhouse Gases emitted by passenger vehicles and light duty trucks. Regulations adopted by the ARB would apply to 2009 and later model year vehicles. The ARB estimates that the regulation would reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030. However, the implementation of the regulation was delayed by automaker lawsuits, and by EPA's refusal to grant California an implementation waiver. However, upon taking office in 2009 President Obama asked the EPA to review its denial of the waiver. EPA subsequently granted the California waiver on June 30, 2009, thus enabling the State of California to enforce AB 1493.

Executive Order S-3-05 Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which established the following State reduction targets for Greenhouse Gas Emissions:

- By 2010, reduce Greenhouse Gas Emissions to 2000 levels.
- By 2020, reduce Greenhouse Gas Emissions to 1990 levels.
- By 2050, reduce Greenhouse Gas Emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary in order to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable mid-term target. To meet these targets, the Governor directed the Secretary of the California EPA to lead a Climate Action Team (CAT) made up of representatives from the Business, Transportation, and Housing Agency; the Department of Food and Agriculture, the Resources Agency, the Air Resources Board, the Energy Commission, and the Public Utilities Commission. The Climate Action Team reported to the Governor in 2006 and this report contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

Executive Order S-01-07 This Executive Order was signed by the Governor on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

SB 97 Senate Bill 97 was passed by the legislature in August 2007 and added Section 21083.05 to the Public Resources Code. The code section states as follows: " On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources

Agency guidelines for the mitigation of Greenhouse Gas Emissions or the effects of Greenhouse Gas Emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research ".

AB 32 In 2006, the State Legislature enacted Assembly Bill 32, entitled the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing Greenhouse Gas Emissions in California. Greenhouse Gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires that Greenhouse Gases emitted in California be reduced to 1990 levels by the year 2020. The California Air Resources Board is the State Agency charged with monitoring and regulating sources of emissions of Greenhouse Gases that cause Global Warming, in order to reduce emissions of Greenhouse Gases.

The California Air Resources Board approved the 1990 Greenhouse Gas Emissions level of 427 MMTCO2e on December 6, 2007. Therefore, Greenhouse Gas Emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e under the provisions of AB 32.

SB 375 The California State Legislature passed SB 375 on August 30, 2008, and the bill was signed into law by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest single contributor of Greenhouse Gas Emissions in California, which emits over 40 percent of the total Greenhouse Gas Emissions in the State. SB 375 states as follows: " Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32". SB 375 does the following: a) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing Greenhouse Gas Emissions; b) aligns planning for transportation and housing, and c) creates specified incentives for the implementation of the strategies. In regards to CEQA, Section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss growth inducing impacts or any project specific or cumulative impacts from cars and light duty truck trips generated by the project on Global Warming or the Regional Transportation Network if the project:

- Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the Air Resources Board accepts as achieving the Greenhouse Gas reduction targets.
- Is consistent with that strategy (in designation, density, building intensity, and applicable policies), and
- Incorporates the mitigation measures required by an applicable prior environmental document.

Executive Order S-13-08 Executive Order S-13-08 states as follows: " climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise, and increase temperatures, thereby posing a serious threat to the California economy and to the health and welfare of its population and to its natural resources". Pursuant to the requirements contained in the Executive Order, in December 2009, the California Natural Resources Agency released its 2009 California Climate Adaptation Strategy. The Strategy is the first statewide, multi-sector, region-specific, and information based climate change adaptation strategy in the United States. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

LOCAL ACTIONS RELATING TO GREENHOUSE GAS EMISSIONS

The City of Selma does not currently have formal Greenhouse Gas Reduction Plans or recommended emission thresholds for determining the significance associated with Greenhouse Gas Emissions from development projects.

SJVAPCD CLIMATE CHANGE ACTION PLAN

On August 21, 2008, the SJVAPCD Governing Board approved the Climate Change Action Plan (CCAP). This action plan brought together stakeholders, land use agencies (Cities and Counties),environmental groups, and business groups to develop comprehensive policies for CEQA guidelines and a carbon exchange bank, with voluntary Greenhouse Gas Emissions Mitigation Agreements for the consideration of the SJVAPCD governing board.

SJVAPCD CEQA GREENHOUSE GAS GUIDANCE

On December 17, 2009, the SJVAPCD Governing Board adopted guidance for valley land use agencies in addressing GHG emissions impacts for new projects under CEQA. The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific Greenhouse Gas Emissions would have on Global Climate Change. The SJVAPCD found the effects of project specific emissions to be cumulative, and without mitigation, that their incremental contribution to Global Climate Change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their Greenhouse Gas Emissions, whether through project specific design elements or through appropriate mitigation measures.

SAN JOAQUIN VALLEY CARBON EXCHANGE

The SJVAPCD initiated work on the San Joaquin Valley Carbon Exchange in November 2008. The purpose of the carbon exchange is to quantify, verify, and track voluntary Greenhouse Gas Emissions reductions generated within the San Joaquin Valley.

AIR QUALITY SETTING

The Amberwood project site is located in the County of Fresno, which is located within the San Joaquin Valley Air Basin. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The combination of topography and inversion layers generally prevents dispersion of air pollutants. The SJVAB has an "inland mediterranean" type climate characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as Ozone). The SJVAB averages over 260 sunny days per year. The majority of rainfall in the SJVAB occurs between November and April. Since 1971, annual precipitation at the Fresno airport weather station has averaged 10.84 inches, with 89 percent of the precipitation occurring between the months of November and April.

Regarding topography, the SJVAB is generally shaped like a bowl. It is open in the north, and is surrounded by mountain ranges on all other sides. The Sierra Nevada Mountain Range is located along the eastern boundary of the San Joaquin Valley, and these mountains have elevations up to approximately 14,000 feet. The Coastal Range is located along the western boundary with elevations up to approximately 3,000 feet, and the Tehachapi mountains are located at the south end of the San Joaquin Valley with elevations of 6,000 to 8,000 feet. The surrounding mountains trap pollutants close to the valley floor during inversions.

During temperature inversion conditions, warmer air sits over cooler air, trapping the cooler air near the ground. These inversions trap air pollutants from dispersing vertically, and the mountains surrounding the San Joaquin Valley trap the air pollutants from dispersing horizontally. Strong temperature inversions occur throughout the SJVAB in the summer, fall, and winter. Daytime temperature inversions occur at elevations of 2,000 to 2,500 feet above the San Joaquin Valley floor during the summer and at 500 to 1,000 feet during the winter. The result is a relatively high concentration of air pollution in the valley during inversion episodes. These inversions cause haze, which in addition to moisture may also include suspended dust, a variety of chemical aerosols emitted from vehicles, and particulates from wood burning stoves. Local air quality is also influenced by location and season. Because of the prevailing daytime winds, and time delayed nature of ozone, concentrations are highest in the southern portion of the SJVAB near Bakersfield. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be localized, and can consist of odors and dust from agricultural operations and smoke around residential areas from fireplace use.

The San Joaquin Valley Air Pollution Control District operates monitoring stations throughout the San Joaquin Valley Air Basin. Existing local air quality, historical trends, and projections of air quality are best evaluated by reviewing air pollutant concentrations from near the Amberwood project site. The California Air Resources Board (ARB), and the SJVAPCD operate six (6) air monitoring stations in Fresno County. The closest monitoring station to the Amberwood project site that measures all pollutants of concern is located in Fresno near First Street and Shields Avenue, approximately 17 miles northeast of the project site. This monitoring station is operated by the California Air Resources Board. Table IV-4 below summarizes 2006 through 2008 published monitoring data from the ARB Aerometric Data Analysis and Management System for the Fresno First Street Station. As depicted in this Table, ambient air pollution concentrations near the project area regularly exceeded the State 1 hour ozone standard and the Federal 8 hour standard within the last 3 years. In the same timeframe, the project area exceeded the State daily PM-10 standard and the Federal PM 2.5 standard. However, the project area did not exceed the Federal or State CO standards, nor did the project area exceed the Federal PM-10 standard. The reader is also referred to page 44 of the Air Quality Report in the appendix of this document for additional information regarding air quality monitoring.

Table IV-4

Air Quality Monitoring Summary

Pollutant	Averaging Time (Units)	2006	2007	2008
Ozone	Maximum 1 hour (ppm)	0.138	0.119	0.157
	Days > State Standard	45	14	44
	Maximum 8 hour (ppm)	0.113	0.101	0.132
	Days > 2008 Federal Standard	69	37	62
	Days > State Standard	85	62	86
Nitrogen Dioxide	Annual Average (ppm)	0.017	0.017	0.016
	Maximum 1 hour (ppm)	0.076	0.086	0.070
	Days > State Standard	0	0	0
Carbon Monoxide	Maximum 1 hour (ppm)	4.57	3.71	3.34

	Maximum 8 hour (ppm) Days > State Standard Days > Federal Standard	3.20 0 0	2.60 0 0	2.34 0 0
Fine Particulate Matter (PM-10)	State Annual Standard (20ug/m3)	38.10	32.40	35.10
Ultra Fine Particulate Matter (PM2.5)	State Annual Standard (12ug/m3)	16.7	18.8	17.3

Source: California Air Resources Board, 2010. Notes: ppm = parts per million. > = exceed.

It should be noted in Table IV-4 above that the San Joaquin Valley Air Basin exceeded the State annual PM-10 and PM-2.5 particulate standards in all three monitoring years (2006, 2007, and 2008). This is significant for persons with respiratory illnesses who live in the SJVAB.

LOCAL SOURCES OF AIR POLLUTION

Potentially impacting the air quality of the project site are nearby sources of air pollution, which include Golden State Boulevard, and State Route 99, a six lane freeway. Both of these major travel facilities are located to the west of the project site, and contribute to the air pollution caused by numerous cars and heavy semi trucks, most of which have diesel engines. Other nearby sources include the Union Pacific Railroad line and the Selma Disposal and Recycling Transfer Station, which is located approximately 1.5 miles southwest of the project site.

SENSITIVE RECEPTORS

Those persons who are sensitive to air pollution include children, the elderly, and those persons with preexisting respiratory or cardiovascular illnesses. For purposes of CEQA, the SJVAPCD considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The areas surrounding the Amberwood project site to the west contain residences and a school, and are considered sensitive receptors. In addition, the Amberwood project itself contains a school and other sensitive receptors.

ALTERNATE FORMS OF TRANSPORTATION WHICH CAN REDUCE VMT

The City of Selma currently offers fixed route and on-call transit services. Selma Transit operates under the Fresno County Rural Transit Agency (FCRTA). The FCRTA contracts with the Fresno County Economic Opportunity Commission to operate Selma Transit. The current fixed route starts at the Senior Center and proceeds through the Central Business District and also serves the shopping centers located west of the 99 freeway. The Amberwood project will be designed to include several transit stops to encourage residents to use public transportation. This will help to reduce VMT (vehicle miles traveled) and thus have a positive impact on reducing air pollution in the Selma area.

AIR POLLUTANTS OF LOCAL CONCERN

The criteria air pollutants of greatest concern for the SJVAB, which includes the project area, are Ozone, PM-10, and PM-2.5. In addition, CO is a criteria pollutant of concern in the SJVAB, due to the potential for CO hotspots on congested roadways and at congested intersections. Other pollutants of concern are toxic air contaminants and Greenhouse Gases.

DESCRIPTION AND POTENTIAL EFFECTS OF REGIONALLY SIGNIFICANT AIR POLLUTANTS

Ozone

Ozone is not emitted directly into the air, but instead is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include ROG (Reactive Organic Gases) and NOX (Nitrogen Oxide), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Often, the effects of emitted ROG and NOX are felt a distance downward of the emission sources. Ozone is therefore considered a regional pollutant. Ground level ozone is a respiratory irritant and an oxidant that increases susceptability to respiratory infections, and can cause substantial damage to vegetation and other materials.

Ozone can also damage vegetation and ecosystems. It leads to reduced agricultural crop and commercial forest yields; reduced growth and survivability of tree seedlings; and increased susceptability to diseases, pests, and other stresses such as harsh weather. In the United States alone, ozone is responsible for an estimated $500 million dollars in reduced crop production each year. Ozone also damages the foliage of trees and other plants, thereby affecting the landscape of cities, national parks and forests, and recreation areas. In addition, ozone can cause damage to buildings, rubber, and some plastics.

Ozone is a regional air pollutant, as the reactions forming it take place over time, as it materializes downwind from the sources of the emissions. As a photochemical pollutant, ozone is formed only during the day under appropriate conditions. Thus, ozone concentrations can

vary, depending upon both the time of day and the location. Even in pristine areas, some ambient ozone forms from natural emissions that are not controllable.This is referred to as background ozone. The average background ozone concentrations near sea level are in the range of 0.015 to 0.035 parts per million (ppm), with a maximum of about 0.04 ppm. As previously mentioned, Ozone is an air pollutant of concern within the Amberwood project area.

Reactive Organic Gases (ROG)

ROG, also known as volatile organic compounds (VOC's), are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. These gases contribute to the formation of ozone.

Nitrogen Oxides (NOx)

During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides or NOx. This occurs primarily in motor vehicle internal combustion engines and fossil fuel fired electric utility facilities and industrial boilers. The air pollutant NOx is a concern because it is an ozone precursor, which means that it helps form ozone. When NOx and ROG's are released into the atmosphere, they can chemically react with one another in the presence of sunlight and heat to form ozone. NOx can also be a precursor to PM-10 and PM 2.5. By reducing motor vehicle use and therefore vehicle miles traveled, NOx emissions can be reduced, thus having a positive impact on air quality.

Particulate Matter (PM-10 and PM-2.5)

Particulate Matter (PM) is the term used for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Particle air pollutants include inhalable coarse particles with diameters larger than 2.5 micrometers and smaller than 10 micrometers, and fine particles with diameters that are 2.5 micrometers and smaller. For comparison purposes, PM 2.5 is approximately one-thirtieth the size of the average human hair.

These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Others form in complicated reactions in the atmosphere from chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industrial activities, and automobiles. These particles are known as secondary particles, and make up most of the fine particle air pollution in the United States. Particle exposure can lead to a variety of negative health effects in humans, including asthma

attacks and acute bronchitis. As previously mentioned, PM 10 and PM 2.5 pollution is of primary concern in the SJVAB.

Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. CO is a public health concern because it combines readily with hemoglobin, thereby reducing the amount of oxygen transported in the bloodstream. Motor vehicles are the dominant source of CO emissions in most areas. CO is described as having only a local influence because it dissipates quickly. High CO levels develop primarily in the winter, when periods of light winds combine with the formation of ground level temperature inversions. These conditions result in the reduced dispersion of vehicle emissions. High CO concentrations occur in areas of limited geographic size, sometimes referred to as hot spots. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

Toxic Air Contaminants

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TAC's can be attributed to relatively few compounds, the most important being particulate matter from diesel fueled engines (DPM). The State of California, after a 10 year research program, determined in 1998 that DPM from diesel fueled engines is a human carcinogen and that chronic inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness and nausea.

CLIMATE CHANGE AND GREENHOUSE GASES

Gases that trap heat in the atmosphere are considered Greenhouse Gases. The effect is analogous to the way a greenhouse for growing plants retains heat. Common Greenhouse Gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural

processes and human activities both emit Greenhouse Gases. The presence of Greenhouse Gases in the atmosphere affects the temperature of the earth. Without the natural heat trapping effect of Greenhouse Gases, the earth's surface would be about 34 degrees C cooler. However, many scientists believe that emissions from human activities, such as electricity production and motor vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

An individual development project, such as the Amberwood project, cannot generate enough Greenhouse Gas Emissions to effect a discernible change in global climate. However, the proposed project may participate in this potential impact by its incremental contribution combined with the cumulative increase of all other sources of Greenhouse Gases, which when taken together constitute potential influences on global climate change. Because these changes may have serious environmental consequences, this section will evaluate the potential for the proposed project to have a significant effect on the California environment as a result of its potential contribution to the enhanced greenhouse effect. The Greenhouse Gases of concern from the project are as follows:

- Water Vapor
- Ozone (O_3)
- Aerosols
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Carbon Dioxide (CO_2)
- Chlorofluorocarbons (CFC's)
- Hydrofluorocarbons (HFC's)
- Perfluorocarbons (PFC's)
- Sulfur Hexafluoride

The reader is hereby referred to pages 53-54 (Table 11) of the Air Quality Report, contained in the appendix of this document, for a complete description of these Greenhouse Gases, and for source information regarding these gases. In addition, further information regarding the physical properties and global warming effects of the above listed Greenhouse Gases is contained on pages 55-57 of the Air Quality Report located herein in the appendix.

Individual Greenhouse Gas compounds have varying global warming potential and atmospheric lifetimes. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing Greenhouse Gas emissions, since it normalizes various emissions to a consistent metric. For example, the warming potential of Methane (21) indicates that methane has a 21

times greater warming effect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual Greenhouse Gas multiplied by its global warming potential.

AIR QUALITY IMPACT THRESHOLDS

The following information regarding thresholds is contained in the Air Quality Report. While the final determination of whether or not a project has significant impacts is within the purview of the lead agency, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has recommended air pollution thresholds to be used by lead agencies in determining whether the proposed project could result in a significant impact. The SJVAPCD thresholds will be used to assess potential air quality impacts from the proposed Amberwood project. The following questions regarding air quality impacts are analyzed and evaluated in the Air Quality Report:

- Would the project conflict with or obstruct implementation of the applicable Air Quality Plan?
- Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in a non-attainment status under an applicable Federal or State ambient air quality standard (including releasing air emissions which exceed quantitative thresholds for ozone precursors)?
- Would the project expose sensitive receptors to substantial pollutant concentrations or toxic air contaminants?
- Would the project create objectionable odors affecting a substantial number of people?

The recent CEQA Guideline Amendments for evaluation of potential Greenhouse Gas Emissions states that a lead agency may take into account the following three (3) considerations in assessing the significance of impacts from Greenhouse Gas Emissions:

- The extent to which the project may increase or reduce Greenhouse Gas Emissions as compared to the existing environmental setting. This discussion could involve a quantification of Greenhouse Gas Emissions to the extent feasible.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of Greenhouse Gas Emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process, and must include specific requirements that reduce or mitigate the project incremental contributions of

Greenhouse Gas Emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guideline Amendments also included two new recommended questions pertaining to Greenhouse Gas Emissions which are listed below as follows:

- Would the project generate Greenhouse Gas Emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with any applicable plan, policy, or regulation of any agency adopted for the purpose of reducing the emissions of Greenhouse Gases?

The impact analysis contained in the Air Quality Report takes into account the three considerations listed above to address these two questions. The SJVAPCD recommends that its quantitative and qualitative air pollution thresholds be used to determine the significance of project level emissions. These thresholds are discussed below.

REGIONAL AIR POLLUTANTS

Ozone is a regional pollutant that is not emitted directly, but instead forms as the result of a chemical reaction between the ozone precursors NOx and ROG in the presence of sunlight. Therefore, the SJVAPCD has set operational significance thresholds on the precursors of ozone.

The SJVAPCD based the ozone precursor thresholds on the California Clean Air Act offset requirements for NOx and ROG. The ROG and NOx offset thresholds are described in SJVAPCD Rule 2201 (New and Modified Stationary Source Review). In addition, the analysis contained in the Air Quality Study used a PM-10 threshold based on the SJVAPCD's offset thresholds for PM-10 in Rule 2201. The regional operational thresholds will also be applied to construction emissions. Projects within the SJVAB with operational or construction related emissions in excess of any of the thresholds presented below in Table IV-5 will be considered significant.

Table IV-5

SJVAPCD Regional Thresholds

Air Pollutant	Abbreviation	Tons Per Year
Nitrogen Oxide	NOx	10
Reactive Organic Gases	ROG	10
Particulate Matter	PM-10	15
Source: SJVAPCD, 2002.		

LOCAL AIR POLLUTANTS

The SJVAPCD has also established thresholds for most local air pollutants. The following sections describe these thresholds.

Health Risk

Any project that emits Toxic Air Contaminants has the potential to result in a health risk. The SJVAPCD has adopted the following significance thresholds for Toxic Air Contaminants. Project impacts exceeding the below outlined thresholds would be considered to have a significant health risk impact:

- The probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in one million, or
- The Ground-Level concentrations of non-carcinogenic Toxic Air Contaminants would result in a Hazard Index greater than 1 for the Maximally Exposed Individual.

CO Hotspot

Project emissions may be considered significant if a CO hotspot intersection analysis determines that project generated emissions cause a localized violation of the State CO 1 hour standard of 20 ppm, the State CO 8 hour standard of 9.0 ppm, the Federal CO 1 hour standard of 35 ppm, or the Federal 8 hour CO standard of 9.0 ppm.

Because increased CO concentrations usually are associated with roadways that are congested and have heavy traffic volumes, the SJVAPCD has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. Therefore, the SJVAPCD has established that if all project affected intersections are negative for both of the following criteria, then the project can be said to have no potential to create a violation of the CO standard.

- A traffic study completed for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F, or
- A traffic study completed for the project indicates that 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.

If either of the above criteria can be associated with any intersection affected by the project, a CO protocol analysis would need to be prepared to determine significance.

Nuisance

Any project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact. The SJVAPCD has a regulation that governs the discharge from any source of such quantities of air contaminants, which cause a nuisance or annoyance to any considerable number of persons or to the public. Creating the potential for a violation of the SJVAPCD's Nuisance Rule (Rule 4102) would create a potentially significant impact.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public, and often generating citizen complaints to local governments and the SJVAPCD. Odor impacts on residential areas and other sensitive receptors such as hospitals, day care centers, and schools warrant the closest review, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. Land Uses listed as sources of potential odors include, but are not limited to, wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, and transfer stations. If a project would result in an odor source and sensitive receptors being located closer than the screening level distances recommended by the SJVAPCD, then further analysis would be required.

Greenhouse Gas and Climate Change

CEQA Guideline 15064.4 (a) states as follows: " A lead agency shall have discretion to determine, in the context of a particular project, whether to : (1) Use a model or methodology to quantify Greenhouse Gas Emissions resulting from a project, and which model or methodology to use; or (2) Rely on a qualitative analysis or performance based standards".

The CEQA guideline amendments do not identify a threshold of significance for Greenhouse Gas Emissions nor does it prescribe assessment methodologies or specific mitigation measures. Instead, it calls for a "good faith effort, based on available information, to describe, calculate, or estimate the amount of Greenhouse Gas Emissions resulting from a project".

In summary, two criteria were used in the Air Quality Report analysis to determine significance as follows: 1) the significance thresholds recommended by the SJVAPCD requiring best performance standards, and a determination of whether the project would conflict with any applicable plan, policy, or regulation of any agency adopted to reduce emissions of Greenhouse Gases. In this regard, neither the City of Selma nor the SJVAPCD have adopted Greenhouse Gas Reduction Plans. (2) The SJVAPCD greenhouse gas guidance document recommends approaches to determining potential significance under CEQA, and is not a plan, policy, or regulation adopted for the purpose of reducing emissions of Greenhouse Gases. Therefore, the Air Resources Board approved Scoping Plan will be used to determine significance for this

criterion. It should be noted that the threshold and the analysis contained in the Air Quality Report may not be relevant or apply to other projects in the City of Selma. Therefore, this analysis does not establish thresholds for the entire City of Selma.

CONFORMANCE WITH AIR QUALITY PLANS

The CEQA guidelines indicate that a significant impact would occur if the proposed Amberwood project would conflict with or obstruct implementation of the applicable Air Quality Plan. The SJVAPCD does not provide specific guidance on analyzing conformity with the Air Quality Plan. Therefore, the Air Quality Report analysis proposed the following criteria for determining project consistency with the current applicable Air Quality Plan:

- Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the applicable Air Quality Plan? This measure is determined by comparison to the regional and localized thresholds identified above.
- Will the project conform to the assumptions in the Air Quality Plan?
- Will the project comply with the applicable control measures as contained in the Air Quality Plan?

CUMULATIVE IMPACTS

Section 15130(b) of the CEQA Guidelines states as follows:

"The following elements are used to provide an adequate discussion of significant cumulative impacts: either (a) 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, or (b) 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".

In accordance with CEQA Guidelines section 15130(b), the Air Quality Report analysis of cumulative impacts incorporates a summary of projections. The following approach (consistent with approach b) will be used:

- Consistency with the existing Air Quality Plan
- Assessment of cumulative health effects of project air pollutants.

CONSISTENCY WITH EXISTING AIR QUALITY PLANS

The Air Quality Plan is a planning document for reaching attainment of the air quality standards. The assumptions, inputs, and control measures are analyzed to determine if the SJVAB can reach attainment for the ambient air quality standards. In order to show attainment of the standards, the SJVAPCD analyzes the growth projections in the valley, contributing factors in air pollutant emissions and formation, and existing and future emissions controls. The San Joaquin Valley Air Pollution Control District then formulates a control strategy to reach attainment. Therefore, if a project is consistent with the Air Quality Plan, the project's cumulative contribution to air emissions does not interfere with the SJVAPCD attainment strategy, and is therefore considered to be less than significant.

CUMULATIVE HEALTH EFFECTS

For some air pollutants, such as ozone, the background concentrations in the ambient air are already high. Therefore, relatively small increases in emissions of pollutants from various sources around the SJVAB when combined can cause cumulative impacts. Cumulative health effects can be inferred from the analyses for the following criteria:

- Violation of any Air Quality Standard or contributes substantially to an existing or projected Air Quality Violation, and
- Results in a Cumulatively Considerable Net Increase of any criteria air pollutant for which the SJVAB is in non-attainment status.

The SJVAB is non-attainment for Ozone, PM-10, and PM-2.5, and the project may substantially contribute to the existing violation through ROG, NOx, PM-10, and PM-2.5 emissions. The following analyses was used in the Air Quality Report for this criterion:

- CO Hotspot analysis as previously discussed herein.
- Regional Operational Thresholds, as previously discussed herein under the Regional Air Pollutants section.

AIR QUALITY IMPACT ANALYSIS

This section calculates the expected emissions from the construction and operation of the Project as a necessary prerequisite for assessing the regulatory significance of Project emissions on a regional level.

Regional Impacts Analysis for Construction Emissions

The unmitigated analysis includes compliance with SJVAPCD Regulation VIII (Fugitive PM-10 Prohibitions), as well as SJVAPCD accepted changes to URBEMIS defaults, as provided in SJVAPCD guidance dated January 29, 2009. Compliance with Regulation VIII is required. Additional modifications are detailed in Section 1.4 of the Air Quality Report under Modeling

Parameters and Assumptions. Table IV-6 below summarizes these construction related emissions (without mitigation) in tons per year for each construction year. The emission estimates were derived from the project description using the URBEMIS Version 9.2.4 emission model. The URBEMIS data files are contained in appendix A of the Air Quality Report.

Table IV-6

Construction Related Emissions in Tons Per Year

Calendar Year (Phase)	ROG (Tons)	NOx (Tons)	PM-10 (Tons)
2014 Phase 1	6.47	3.51	2.23
2019 Phase 2	8.39	2.13	0.85
2024 Phase 3	7.59	1.75	0.79
2029 Phase 4	7.79	1.69	0.85
2034 Phase 5	7.13	1.62	0.76
Regional Threshold	10	10	15
Any Years Exceed Threshold?	NO	NO	NO

Source: MBA Air Quality Report , May 10, 2010 (URBEMIS Output).

Even though the information in Table IV-6 above indicates that no SJVAPCD threshold will be exceeded, the Amberwood project is still subject to SJVAPCD Rule 9510, Indirect Source Review, which requires emission reductions from construction equipment. Rule 9510 requires a 20 percent reduction in construction NOx emissions, and a 45 percent reduction in construction exhaust PM-10 emissions. Therefore, actual emissions will be less than estimated above.

Level of Significance before Mitigation

- Less than Significant Impact.

Mitigation Measures

- No Mitigation Measures are required.

Level of Significance After Mitigation

- Less than Significant Impact.

Regional Impacts Analysis for Operational Emissions

Operational, or long term, emissions occur over the life of the project. Operational emissions include mobile and area source emissions. Area source emissions are from consumer products, such as heaters that consume natural gas and gasoline powered lawnmowers. Mobile emissions

from motor vehicles are the largest single long term source of air pollutants from the project. The URBEMIS emissions analysis included the below listed measures to account for the Amberwood project design features that reduce air pollutants.

- Percent of Streets with Sidewalks on Both Sides= 95 percent
- Percent of Arterials/Collectors with Bike Lanes=100 percent
- Secure Bike Parking was selected
- Preferential Carpool/Vanpool Parking was selected
- Local-Serving Retail was selected

Unmitigated operational emissions for the Amberwood project, in Tons Per Year from all emission sources, and as derived from the URBEMIS model are depicted below in Table IV-7.

Table IV-7

Unmitigated Operational Emissions from All Emission Sources

Year/Threshold	Phases	ROG (Tons)	NOx (Tons)	PM-10 (Tons)
2015	Phase 1	10.57	7.27	8.29
2020	Phase 1	9.51	4.82	8.24
	Phase 2	14.33	10.86	12.69
	Total	**23.84**	**15.68**	**20.93**
2025	Phase 1	9.05	3.73	8.22
	Phase 2	13.04	8.04	12.65
	Phase 3	9.77	4.48	8.11
	Total	**31.86**	**16.25**	**28.98**
2030	Phase 1	8.59	2.92	8.21
	Phase 2	12.28	6.68	12.63
	Phase 3	9.41	3.81	8.10
	Phase 4	10.05	4.14	8.54
	Total	**40.33**	**17.55**	**37.48**
2035	Phase 1	8.76	3.21	8.22
	Phase 2	11.78	5.94	12.61
	Phase 3	9.19	3.45	8.09
	Phase 4	9.74	3.74	8.53
	Phase 5	9.05	3.33	7.86
	Total	**48.52**	**19.67**	**45.31**
Regional Threshold (Tons) Years Threshold Exceeded		10 All Years	10 All Years	15 All Years

Source: Michael Brandman Associates Air Quality Report, May 10, 2010.

As depicted above in Table IV-7, the Amberwood project operational emissions exceed the SJVAPCD Regional ROG, NOx, and PM-10 Thresholds in all years analyzed in the Air Quality Report. Therefore, project operational emissions are considered to have a significant impact prior to applying mitigation measures to reduce project emissions.

Compliance with SJVAPCD Rule 9510

It should be noted that the exact amount of reductions in emissions is dependent on specific project details that are not known at this time, due to the fact the project engineering design drawings, detailed site plans, landscaping plans, and architectural drawings and specifications have not yet been completed for the Amberwood project. Therefore, this section provides a general discussion based on the known information as contained in the project description. Rule 9510 requires operational emission reductions of 33.3 percent in the project operational baseline NOx emissions, and a 50 percent reduction in the project operational baseline PM-10 emissions over a period of ten years. For NOx emissions, as calculated from the project Phase 1 unmitigated baseline of 7.27 tons per year, ISR rule compliance would reduce operational NOx emissions to half of the first year of operation, or to approximately 3.64 tons per year. Operational PM-10 emissions would also be halved.

ISR compliance would also reduce operational related ROG emissions. The emissions sources for ROG and NOx are nearly identical. Therefore, if the project achieves the ISR required emission reductions through on-site measures, then measures implemented to reduce NOx would also reduce ROG. If the project achieves the required ISR reductions through paying the off site fee, then off-site projects funded by ISR would reduce ROG emissions coincidental to reducing NOx emissions. The exact amount of ROG reductions that would accompany ISR compliance is unknown. The Amberwood project operational emissions after compliance with Rule 9510 requirements is provided below in Table IV-8.

Table IV-8

Operational Emissions after Compliance with Rule 9510

Year/Threshold	Phases	ROG (Tons)	NOx (Tons)	PM-10 (Tons)
2015	Phase 1	10.57	3.64	4.15
2020	Phase 1	9.51	3.64	4.15
	Phase 2	14.33	5.43	6.35
	Total	23.84	9.07	10.49
2025	Phase 1	9.05	3.64	4.15
	Phase 2	13.04	5.43	6.35
	Phase 3	9.77	2.24	4.06
	Total	31.86	11.31	14.55
2030	Phase 1	8.59	3.64	4.15
	Phase 2	12.28	5.43	6.35
	Phase 3	9.41	2.24	4.06
	Phase 4	10.05	2.07	4.27
	Total	40.33	13.38	18.82
2035	Phase 1	8.76	3.64	4.15
	Phase 2	11.78	5.43	6.35
	Phase 3	9.19	2.24	4.06
	Phase 4	9.74	2.07	4.27
	Phase 5	9.05	1.67	3.93
	Total	48.52	15.04	22.75
Regional Threshold		10	10	15
Years Threshold Exceeded		All Years	2025, 2030, and 2035	2020,2025,2030, and 2035

Source: Michael Brandman Associates Air Quality Report, May 10, 2010.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures for Operational Emissions

Prior to occupancy, the project applicant shall demonstrate to the satisfaction of the City of Selma Director of Community Development that the following mitigation measures, or mitigation measures equivalent to or equal to the following mitigation measures, have been accomplished:

- Prior to receiving an occupancy permit, each non-residential facility shall install bicycle parking facilities near destination points (within 50 feet of main entrances). Class III

bicycle racks are prohibited. At least one (1) bicycle parking space for every 20 vehicle parking spaces shall be installed. Bicycle parking facilities should be easily accessible and easy to find. Appropriate signage should be installed for bicycle parking facilities that are not prominently located near destination entrances.

- Prior to occupancy, shower and locker facilities shall be installed in commercial and industrial buildings, to encourage employees to bike and/or walk to work. Typically, one shower and three lockers for every 25 employees is considered adequate.
- The project shall install display cases or kiosks displaying transportation information (such as ridesharing information, bus schedules, and bicycle routes) in a prominent area accessible to employees, residents, and visitors in the following locations: a) Parking Lots and Garages; and, b) Major destinations such as the elementary school, commercial shopping center, and community center.
- Automated lighting and thermal controls shall be installed in all non-residential facilities.
- Daylighting (natural lighting) systems shall be installed in non-residential buildings, including systems such as skylights, light shelves, and interior transom windows. These facilities shall be installed to the maximum extent feasible in a way that does not compromise the thermal integrity of the building.
- The project architect shall design, and the builder shall install the following roofing technologies to the extent practicable in order to reduce building energy consumption: a) High albedo and low emissive roofs; b) EPA "Energy Star" approved roofing materials; c) "Green Roof" and LEED Technology.
- Parking lots shall be designed to include clearly marked and shaded pedestrian walkways between public transit facilities, adjacent sidewalks, and commercial building entrances.
- "Cool Paving" shall be installed to the maximum extent feasible. There are multiple types of cool paving, with varying load capacity and installation requirements. Examples of cool paving materials include asphalt or concrete with high solar reflectivity, porous or permeable asphalt or concrete in areas where heavy strength paving materials are not necessary, roller compacted concrete, and asphalt chip seals that employ light colored aggregate.

Level of Significance After Mitigation

- Significant Unavoidable Impact

Local Impacts Analysis for Health Risk Impacts

Two scenarios have the potential for exposing sensitive receptors to Toxic Air Contaminants (TAC's). The first is when a project includes a new or modified source of TAC, and would be

located near an existing or proposed sensitive receptor. The second scenario involves a residential or other sensitive receptor development locating near an existing or planned source of TAC. The Air Quality Report used the recommended criteria and other recommendations listed in the Air Resources Board Land Use Handbook to determine if there is a potential health risk associated with the development of the Amberwood project.

The ARB Land Use Handbook includes recommendations for siting sensitive receptors near sources of a TAC that account for a reduced risk with increased separation distances. The siting recommendations are based on available data and scientific studies on exposure and adverse health effects, and they aim to avoid toxic air impacts through distance between the sensitive receptors and the potential source of the TAC.

The Amberwood project will construct both sensitive receptors, and, potentially, land uses and activities that could be sources of Toxic Air Contaminants. For example, the commercial uses in the project may attract or generate diesel truck trips, a source of diesel particulate matter (DPM). However, since the exact scale and site plan for the commercial uses has yet to be designed, there is not enough detailed information at this time to fully analyze the potential health risks. However, the project will not contain any commercial uses, such as a warehouse or distribution center, which would generate heavy daily volumes of diesel truck traffic.

In addition, various types of heavy construction equipment generate DPM, which is identified as a carcinogen by the State Air Resources Board. The State of California determined that DPM from diesel fueled engines poses a chronic health risk with chronic (long-term) inhalation exposure. The California Office of Environmental Health Hazard Assesment (OEHHA) recommends using a 70 year exposure duration for determining residential cancer risks. Although the Amberwood project will be constructed over the course of several years, it is highly unlikely that the construction would pose a toxic risk to residents of the project.

Finally, the Amberwood project would involve some demolition and renovation activity. The project is therefore required to comply with SJVAPCD Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). If there were asbestos-containing materials (ACM) to be disturbed during demolition or renovation, the activities would be subject to SJVAPCD Rule 4002. If the activities were to disturb 260 linear feet, 160 square feet, or 35 cubic feet or more of regulated ACM, the project would also be subject to SJVAPCD Rule 3050 (Asbestos Removal Fees).

The contractor completing the work is required to determine if the structures are considered "regulated facilities" under the National Emissions Standards for Hazardous Air Pollutants by contacting the SJVAPCD. If there are regulated facilities within the project to be disturbed or demolished, the facilities must be inspected to determine if any ACM are present. If Asbestos

Containing Materials (ACM) are present, the project must follow the SJVAPCD requirements and, potentially, CAL OSHA and CAL EPA regulations. Compliance with these regulations reduces the already small potential of ACM exposure to less than significant.

Level of Significance before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Proposed commercial land uses (e.g., loading docks) that have the potential to emit Toxic Air Emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors (e.g.,residences, schools, churches) in accordance with the ARB Air Quality and Land Use Planning Handbook. The commercial developer shall have his architect/engineer consult with the SJVAPCD for guidance prior to siting land uses that have the potential to emit toxic emissions. Specifically: a) The architect/engineer shall design an adequate buffer (to be determined in consultation with the SJVAPCD) between any dry cleaning operation and any sensitive receptors; and, b) The architect/engineer shall design an adequate buffer (to be determined in consultation with the SJVAPCD) between any gasoline dispensing facility and any sensitive receptors.

Level of Significance After Mitigation

- Less Than Significant Impact

Local Impacts Analysis for CO (Carbon Monoxide) Hotspot

A CO hotspot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour CO ambient air quality standards. Localized high levels of CO are associated with traffic congestion and idling or slow moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project impacted intersections where the CO concentrations would be the greatest. Intersections with the highest potential for CO hotspots were selected based on their average delay, traffic volumes (as obtained from the Traffic Impact Report), and proximity to sensitive receptors. The analysis contained in the Air Quality Report follows guidelines recommended by the Transportation Project Level Carbon Monoxide Protocol (CO Protocol) developed by Caltrans and the SJVAPCD.

The SJVAPCD has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. Therefore, the SJVAPCD has established that if neither of the following criteria are met at all intersections affected by the development project, the project can be said to have no potential to create a violation of the CO standard:

- A traffic study prepared for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
- A traffic study indicates that 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. If either of the above criteria can be associated with any intersection affected by the project, the applicant/consultant would need to conduct a CO Protocol Analysis to determine significance.

According to CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis. The Traffic Impact Study completed for the Amberwood project indicates that there are fourteen (14) project impacted intersections that would be an LOS F under the Existing+Approved+Project Scenario. Of those intersections, eleven (11) would meet the signal warrant criteria, and ten (10) would be significantly impacted by the project. The intersections at an LOS of F or worse that would be significantly impacted by the project are as follows:

- SR 99 NB Off Ramp at Manning Avenue
- Del Rey and Manning Avenue
- Bethel and Manning Avenue
- Golden State and Dinuba Avenue
- McCall and Dinuba Avenue
- Del Rey and Dinuba Avenue
- Orange and Floral Avenue
- Dockery and Floral Avenue
- SR 99 SB Off Ramp at Second Street
- SR 99 SB Off Ramp at Mountain View Avenue

The following three (3) intersections were chosen for CO Hotspot modeling in the Air Quality Study:

- Bethel and Manning, AM Peak Hour
- Golden State and Dinuba Avenue, PM Peak Hour
- SR 99 SB Off Ramp at Second Street, PM Peak Hour

Using the CALINE4 model, potential CO hotspots were analyzed at the intersections listed in Table IV-9. There were several inputs to the CALINE4 model. One input is the traffic volumes, which is from the Traffic Impact Study prepared by Dowling Associates (Dowling 2009). For the

purposes of a conservative analysis, the current lane configurations and widths were utilized, and the Project Peak Hour Trips were added to the Traffic Study turning movements calculated for the 2035 Peak Hour Volumes (Cumulative Volumes). The analysis utilized the buildout year for the first phase (2015). Therefore, the analysis is conservative because it utilizes: a) year 2035 cumulative volumes; b) the project's full buildout intersection impacts; c) current lane configurations; and, d) it estimates emissions at the buildout of the first phase (earlier analysis years have a higher emission factor than later years).

As indicated below in Table IV-9, the estimated 1 hour and 8 hour average CO concentrations at buildout, in combination with local background concentrations, are below the State and Federal ambient air quality standards. No CO hotspots are anticipated as a result of traffic generated emissions by the proposed project in combination with other anticipated developments in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO.

Table IV-9

Carbon Monoxide (CO) Concentrations in year 2015

Intersection	Intersection ID No. from TIS	1 hour estimated CO in ppm	8 hour estimated CO in ppm	Significant Impact?
Bethel/Manning, AM Peak Hour	6	6.1	4.3	No
Golden State/Dinuba, PM Peak Hour	7	6.4	4.5	No
SR 99 SB Off Ramp at Second Street, PM Peak Hour	32	5.9	4.1	No

ppm= Parts per Million. Source: Michael Brandman Associates Air Quality Study, May 10, 2010.

As indicated above in Table IV-9, the estimated 1 hour and 8 hour average CO concentrations with cumulative (2035) traffic impacts in the year 2015, in combination with the background concentrations, are below the State and Federal ambient air quality standards. No CO hotspots are anticipated because of traffic generated emissions by the Amberwood project, in combination with other anticipated developments in the area. Therefore, the mobile emissions of CO from the Amberwood project are not anticipated to contribute substantially to an existing or projected air quality violation of CO.

Level of Significance before Mitigation

- Less than Significant Impact

Mitigation Measures

- No Mitigation is Necessary

Level of Significance After Mitigation

- Less than Significant Impact

Local Impacts Analysis for Odor/ Nuisance

According to the SJVAPCD CEQA impact analysis recommendations, analysis of potential odor impacts should be conducted for the following two situations:

- Generators: projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors, or other land uses where people may congregate, and,
- Receivers: residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

Diesel exhaust and Reactive Organic Gases (ROG) would be emitted during construction of the project, which are objectionable to some persons, however, the emissions would disperse rapidly from the project site, and therefore should not be at a level to induce a negative response.

The Amberwood project would include on-site wastewater treatment facilities, which will accept all the wastewater from the homes, commercial uses, and other uses which will be constructed within the project area. The project proposes to utilize an on-site wastewater treatment plant using an activated sludge process with tertiary treatment units in a "package plant" development concept. The project wastewater will be treated and disinfected to Tertiary Treatment Standards, thereby providing for a very high quality level of treated wastewater. Wastewater treatment facilities are a potential source of odors, however, the wastewater treatment facility will be designed to be fully enclosed within a building with no outside treatment units or ponds. Although tertiary treatment facilities are not usually associated with significant odors, mitigation is proposed to ensure the facilities are appropriately sized and engineered to comply with all regulatory measures designed to minimize odor impacts.

The northeastern boundary of the project site is located approximately one (1) mile from the existing City of Parlier Waste Water Treatment Plant, which places it within the SJVAPCD

Project Screening Level Distance from a common odor producing facility. Therefore, the project site has the potential to be impacted by odors from this facility. However, it should be noted that the prevailing winds in the Selma area generally flow from the northwest to the southeast. Therefore, the existing Parlier Wastewater Treatment Plant would normally be downwind from the Amberwood project site.

During preparation of the Air Quality Report, Michael Brandman Associates requested information from the SJVAPCD on odor complaints from this and similar facilities located within Fresno County for the 3 year period between February 2007 and February 2010. This time period was chosen because it represents the most recent 3 year period relative to the date of the Air Quality Report. A review of the SJVAPCD odor complaints included no complaints associated with the nearby Parlier Wastewater Treatment Plant. Therefore, the project does not exceed the SJVAPCD threshold of three (3) unconfirmed complaints per year averaged over a 3 year period.

Level of Significance before Mitigation

- Potentially Significant Impact

Mitigation Measures

Prior to development of the on-site Wastewater Treatment Plant Facilities, the developer shall consult with the SJVAPCD Small Business Assistance Office to determine Air Permit Requirements, and to develop an Odor Mitigation Plan, if required by the SJVAPCD. Specifically, the following items shall be addressed:

- The On Site Wastewater Treatment Plant must be appropriately sized and engineered to serve the proposed volume of wastewater to be generated by the Amberwood project.
- The On-Site Wastewater Treatment Plant Facilities must incorporate odor control measures in order to minimize potential odor impacts to surrounding residents.
- The On-Site Wastewater Treatment Plant shall be constructed on a selected site that minimizes potential exposure of sensitive receptors to odors.

Level of Significance after Mitigation

- Less than Significant Impact

GREENHOUSE GAS IMPACTS

The following analysis is provided in the Air Quality Report to answer the CEQA Guidelines Amendment criteria which asks the following question regarding Greenhouse Gases:

- Will the project generate Greenhouse Gas Emissions, either directly or indirectly, that may have a significant impact on the environment?

While net Greenhouse Gas Emissions cannot be accurately quantified because of several completely unpredictable variables, methodologies for calculating gross emissions do exist and are set forth below. This analysis is restricted to Greenhouse Gases as identified by AB 32, which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The Amberwood project would generate a variety of Greenhouse Gases during construction and operation, including several defined by AB 32 such as carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

The project may emit Greenhouse Gases that are not defined by AB 32. For example, the project may generate aerosols. Aerosols are suspensions of fine solid particles or liquid droplets in a gas that act similarly to Greenhouse Gases. They are short lived and remain in the atmosphere for about one week. Black carbon is a component of aerosol. A few scientific studies have indicated that black carbon has a high global warming potential, however, the Intergovernmental Panel on Climate Change (2007) states that it has a low level of scientific certainty. Water vapor, another Greenhouse Gas, could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks such as evaporation and condensation effects, rather than emissions from project related activities. The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a Greenhouse Gas, however, unlike the other Greenhouse Gases, ozone in the troposphere is relatively short lived, and can be reduced in the troposphere on a daily basis.

Certain Greenhouse Gases, as defined by AB 32, would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the Amberwood project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

For the purposes of the Air Quality Impact Analysis, business as usual refers to emissions before reductions from project design features and future regulations.

<u>Project Inventory- Business as Usual</u>

Construction Emissions Inventory

The project would emit Greenhouse Gases from upstream emission sources and direct sources (combustion of fuels from worker vehicles and construction equipment). An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the project. Upstream emission sources

for the Amberwood project include, but are not limited to the following: emissions from the manufacture of cement; emissions from the manufacture of steel; and/or emissions from the transportation of building materials. The upstream emissions were not estimated in the Air Quality Report because they are not within the control of the project, and to do so would be speculative at this time. In addition, the California Air Pollution Control Officer's Association White Paper on CEQA and Climate Change supports this conclusion by stating as follows: " The full life-cycle of Greenhouse Gas Emissions from construction activities is not accounted for, and the information needed to characterize life-cycle emissions would be speculative at the CEQA analysis level". Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream/life cycle emissions are speculative in nature, and no further discussion is therefore necessary.

Construction equipment such as cranes, bulldozers, forklifts, backhoes, and water trucks are expected to be used on the project site, and these would result in exhaust emissions consisting of carbon dioxide, carbon monoxide, methane, and nitrous oxide. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction operation, and prevailing winds and weather conditions. Exhaust emissions during construction of the project were estimated using URBEMIS 2007 Version 9.2.4 and these are presented below in Table IV-10.

Table IV-10

Construction Greenhouse Gas Estimates in Tons

Air Quality Analysis Phase	Carbon Dioxide Emissions in Tons	Emissions (MTCO2e)
Phase 1 (2014)	1,185	1,075
Phase 2 (2019)	1,376	1,248
Phase 3 (2024)	1,302	1,181
Phase 4 (2029)	1,320	1,197
Phase 5 (2034)	1,274	1,155
Totals	6,456	5,857

Note: MTCO2e = metric tons of CO2 equivalent. Source: Michael Brandman Associates Air Quality Report, May 10, 2010.

Operational Emissions Inventory

Operational or long-term emissions will occur over the life of the Amberwood project. Sources of operational emissions include the following:

- *Motor Vehicles and Trucks*. Motor vehicle sources are exhaust emissions from the employee and customer vehicles and heavy duty trucks that would access the project site. Motor vehicle and truck emissions were calculated using URBEMIS and information contained in the Amberwood project Traffic Impact Study (Dowling 2009).
- *Natural Gas.* Natural gas refers to exhaust from natural gas usage. Carbon dioxide emissions were estimated using URBEMIS. Methane and nitrous oxide emissions were estimated based on emission factors as described in the Air Quality Report.
- *Off-Site Electricity Generation*. This refers to the emissions generated from off-site power plants for the electricity required for the Amberwood project.
- *Water Transport.* This refers to the electricity required to transport and treat the water that would be used for the project. Emissions from water transport were not included in the Air Quality Analysis, as the actual annual water consumption of the project is currently unknown.
- *Refrigerants.* This refers to fugitive hydrofluorocarbon emissions from normal operation of refrigeration systems and the heating, ventilation, and cooling systems. It was assumed in the Air Quality Report analysis that each residential unit would have one AC unit and one refrigerator. In addition, it was assumed that the commercial facilities would have up to 12 commercial-sized AC units.

The unmitigated emissions estimates from operating the proposed Amberwood project in 2020 are presented below in Table IV-11. This listing is not exhaustive, and does not contain all the Greenhouse Gas Emissions associated with the project, such as emissions from solid waste transfer stations and landfills, however, it does attempt to present the major sources of Greenhouse Gas Emissions.

Table IV-11

Operational Greenhouse Gas Estimates for 2020 in Tons Per Year

Source of Emissions	Carbon Dioxide	Nitrous Oxide	Methane	Other	Total Emissions (MTCO2e per year)
Vehicles	15,955	2.68	1.57		15,259
Natural Gas	1,979	0.01	0.43		1,806
Electricity	2,611	0.03	0.11		2,379
Hearth	1,323	0.00	0.00		1,200
Refrigerants				5.44	6,412
Total	21,869	2.72	2.11	5.44	27,057

Note: MTCO2e = metric tons of CO2 equivalent. Source: Michael Brandman Associates, 2010.

As indicated above in Table IV-11, total emissions would be approximately 27,057 MTCO2e per year in the year 2020. The main source of new emissions would be from motor vehicles, which would be an additional 15,259 MTCO2e per year. The next largest source of new emissions is from refrigerant leakage from refrigeration systems, which would be an additional 6,412 MTCO2e per year. Although additional operational emissions would occur from continued buildout of the project beyond year 2020, the Greenhouse Gas Emission Reduction Goals in the SJVAPCD CEQA guidance documents is based on the year 2020 reduction goals, as contained in Executive Order S-3-05, and AB 32. In addition, the year 2020 analysis contains the major components of the project (residential, parks, and the commercial facilities). Therefore, the outlined emissions, and the associated emission reductions, are representative of the entire Amberwood project.

As discussed previously in the regulatory section, the SJVAPCD will establish a list of Greenhouse Gas (GHG) Emissions Reduction Measures with pre-quantified Greenhouse Gas Emission Reduction effectiveness. The SJVAPCD has released an interim GHG emission reduction measures tool, and GHG emission reduction measures that are currently under development. However, these best performance standards (BPS), and emission reduction measures have not yet been finalized. As the SJVAPCD notes in its Final Staff Report on " Addressing Greenhouse Gas Emissions Impacts under CEQA", air emissions from development projects primarily occur indirectly through energy consumption and Vehicle Miles Traveled (VMT). The SJVAPCD notes that development projects can reduce Greenhouse Gas Emissions from energy consumption through building designs that increase energy efficiency, water conservation, and the use of energy efficient appliances. Projects can further reduce Greenhouse Gas Emissions through project designs that reduce VMT through features that promote pedestrian access and the use of public transportation. Land Use planning decisions, such as designing mixed use development, discouraging leap-frog type development patterns, increasing development density, and creating a favorable jobs to housing balance can significantly reduce VMT and the associated Greenhouse Gas Emissions.

Under the SJVAPCD proposed analysis approach, projects implementing best performance standards, and reducing Greenhouse Gas Emissions by 29 percent, through any combination of Greenhouse Gas Emission Reduction Measures, including Greenhouse Gas emission reductions achieved as a result of changes in building and appliance standards occurring since the 2002-2004 baseline period, would be considered to have a less than significant individual and cumulative impact on global climate change.

Project Design Features that Reduce Greenhouse Gas Emissions

Future development projects are expected to result in increased Greenhouse Gas Emissions if they substantially increase electricity and natural gas consumption, increase VMT, and solid waste generation and subsequent disposal into landfills.

The proposed Amberwood development project would incorporate a variety of design features that would reduce its energy and water demand, promote waste reduction, and create opportunities for reductions in vehicle miles traveled (VMT), which will have the ultimate effect of helping to reduce Greenhouse Gases either directly on site, indirectly by reducing the need for electricity generation, or off site in materials production, transportation, and disposal. These design features are described herein in the Amberwood Project Description, and in the Operational Emissions Section of the Air Quality Report.

As depicted in the URBEMIS output, the project parameters reduced project generated carbon dioxide generation for Phase 1 and Phase 2 operations by 1,541 tons or by 1,398 MTCO2e. Without those design parameters, the total operational GHG emissions in 2020 would be 28,455 MTCO2e instead of 27,057 MTCO2e according to the Air Quality Report. Therefore, the project design features reduce the total Greenhouse Gas Emissions by approximately 4.9 percent.

Regulation Measures that Reduce Greenhouse Gas Emissions

It is appropriate to include herein standards and regulations that reduce emissions in the year 2020 scoping plan target year, because the energy used by the Amberwood project that is purchased from the grid will result in much lower emissions as the renewable energy portfolio standard is implemented over time. Motor Vehicle Greenhouse Gas Emissions associated with the project will also decline over time as State and Federal fuel efficiency standards are implemented. Finally, the project emissions related to electricity consumption are expected to be substantially lower than the forecasted amounts due to new construction having to meet 2008 Title 24 Building Energy Efficiency Standards. The below outlined Table IV-12 depicts the emissions reductions that the Air Resources Board predicts for State regulations that implement AB 32, along with the reductions that will apply to emission sources from the proposed project.

Table IV-12

Project Greenhouse Gas Emission Reductions from State Regulations

Sector	Affected Emission Sources	California Regulation	Reduction from 2020 GHG Sector Inventory (%)	Total Regulation Reductions for Sector (%)
Mobile	Passenger	AB 1493 (Pavley)	17.2	

	Vehicles	LCFS Passenger Vehicle Efficiency	7.2 0.9	25.3%
	Heavy/Medium Duty Vehicles	LCFS Heavy Duty Vehicle Efficiency	7.2 1.9	9.1%
Area	Natural Gas Combustion	Energy Efficiency Measures	9.2	9.2%
Indirect	Electricity	RPS Energy Efficiency Measures	15.3 10.9	26.2%
Stationary	Refrigerants	Refrigerant Management Program	50.0	50.0%

Notes: LCFS= Low Carbon Fuel Standard. RPS= Renewable Portfolio Standard. AB= Assembly Bill
Source: Michael Brandman Associates Air Quality Report, 2010.

The operational emissions, after incorporation of future regulations, are depicted below in Table IV-13. As outlined in Table IV-13, future regulations reduce project emissions by 6,894 MTCO2e.

Table IV-13

2020 Greenhouse Gas Emissions with Future Regulations

Source (Sector)	Business as Usual (BAU) (MTCO2e/year)	Percent of Sector subject to Regulations	Emissions Subject to Regulation (MTCO2e)	Regulation Reduction (Percent)	Emission Reductions in MTCO2e
Passenger Vehicles	11,734	100	11,734	25.3	2,969
Heavy/Medium Duty Vehicles	595	100	595	9.1	54
Natural Gas	1,806	100	1,806	9.2	166
Electricity	2,379	100	2,379	26.2	623
Refrigerants (Refrigerators and Freezers)	3	100	3	52.0	2
Refrigerants (HVAC)	6,412	100	6,412	50.0	3,206
Total*	25,859		22,929		7,020

Note: MTCO2e= Metric Tons of Carbon Dioxide Equivalents. Source: Michael Brandman Associates Air Quality Report, 2010. * Total for BAU includes other mobile source categories such as buses and motorcycles. These other categories total 2,930 MTCO2e.

Regulation Reduction Assumptions from the Air Quality Report

- *Motor Vehicle Regulations*. The Federal Environmental Protection Agency (EPA) recently granted the waiver for the State of California for its Greenhouse Gas Emission standards for motor vehicles. AB 1493 (Pavley) requires Greenhouse Gas emission reductions from vehicles equivalent to approximately 30 percent by 2016. Although new vehicle emissions factors will be reduced by 30 percent in 2016, the fleet average emissions reduction in 2020 will be less than that, due to vehicle phase in. The AB 1493 standards are expected to reduce total emissions for automobiles and light trucks by 19.7 percent relative to the scenario without AB 1493 or corporate average fuel economy by the year 2020.
- *Vehicle Efficiency Regulations*. The State Air Resources Board is proposing vehicle fuel efficiencies that will reduce Greenhouse Gas Emissions from heavy/medium duty vehicles and passenger/light truck vehicles. The estimated reductions are 2.9 percent for heavy/medium duty vehicles, and 2.8 percent for passenger/light truck vehicles.
- *Low Carbon Fuel Standard Regulations*. According to the Low Carbon Fuel Standard (LCFS) Rule adopted by the State Air Resources Board (ARB) in April 2009, the LCFS rule is expected to result in approximately a 10 percent reduction in the carbon intensity of transportation fuels. However, a portion of the emission reductions required from the LCFS would be achieved over the life cycle of transportation fuel production rather than from mobile source emission factors. Based on the ARB estimate of nearly 16 MMT reductions in on road emissions from implementation of the LCFS, and comparison to the statewide on road emissions sector, the LCFS is assumed to result in a 7.2 percent reduction compared to 2020 Business as Usual conditions.
- *Natural Gas Regulations*. A 9.5 percent reduction from the 2020 Greenhouse Gas Emissions Inventory is estimated from the ARB Scoping Plan Measure 3, Energy Efficiency.
- *Electricity Generation Regulations*. The ARB Scoping Plan Measure 3, Energy Efficiency, estimates a 15.7 percent reduction from the 2020 Greenhouse Gas Emissions Inventory and the ARB Scoping Plan Measure 4, Renewables Portfolio Standard estimates a 15.3 percent reduction from the 2020 Greenhouse Gas Emissions Inventory.
- *Refrigerant Regulations*. On December 9, 2009, the State ARB adopted the Management of High Global Warming Potential Refrigerants for Stationary Sources in the California Code of Regulations. Beginning in 2011, the rule will require leak inspection, repairs, required service practices, and record keeping for large commercial and industrial systems that use more than 50 pounds of refrigerant for a single unit, about the equivalent of the refrigerant found in 100 household refrigerators. Therefore, the rule would apply to the project. Leak inspections will vary from continuous leak monitoring to quarterly or annual leak inspections, depending upon the type and size of

refrigeration systems. It is estimated that this rule would reduce refrigerant emissions by approximately 53 percent. The reduction is calculated from data presented in the ARB Statement of Reasons (2009c). This document states that business as usual fugitive emissions in 2020 would total 15.8 MMTCO2e from refrigeration systems and 1.4 MMTCO2e from air conditioning systems, totaling 17.2 MMTCO2e. Reductions from this regulation would be approximately 8.1 MMTCO2e and the percent reduction is 52.9 percent. This percentage is also realized when assuming the leak rate for business as usual is 21 percent, and the leak rate for the regulation scenario is 10 percent, pursuant to the ARB (2009d).

Emissions with Regulations and Project Design Features

Without inclusion of the Amberwood project design parameters or regulation reductions, total Operational GHG Emissions in 2020 would be 28,455 MTCO2e. Implementation of the project design measures would reduce those emissions by 1,398 MTCO2e. As indicated above in Table IV-13, implementation of regulations would reduce the project baseline emissions by an additional 7,020 MTCO2e. Total emission reductions would be 8,418 MTCO2e, or 29.6 percent below the baseline emissions.

Conclusion

The proposed Amberwood project would develop new commercial, residential, institutional (school), and recreational uses on a currently undeveloped site, and, therefore the project would result in a net increase in Greenhouse Gas Emissions above existing levels.

The proposed project incorporates a number of design features and mitigation measures that would minimize Greenhouse Gas Emissions. Additionally, the project provides local retail and grocery shopping opportunities to the workers and residents in the project vicinity. With implementation of project design features and regulations, Greenhouse Gas Emissions are reduced by 29.6 percent. These reductions comply with the SJVAPCD threshold of a 29 percent reduction in emissions. Impacts would be less than significant based on this criterion, and no mitigation measures are therefore required. Although the project achieves the percentage reductions of the SJVAPCD threshold, the mitigation measures previously outlined herein, which are required to reduce criteria pollutant emissions, also reduce the Greenhouse Gas Emissions.

Level of Significance Before Mitigation

- Less than Significant Impact

Mitigation Measures

- No Mitigation is Necessary

Level of Significance After Mitigation

- Less than Significant Impact

Consistency with Climate Action Plans or Policies

The following analysis is included in the Air Quality Report to answer the CEQA Guidelines Amendment criteria question: Will the project conflict with any applicable plan, policy, or regulation of any agency adopted for the purpose of reducing the Emissions of Greenhouse Gases? In response, neither Fresno County or the City of Selma have adopted Greenhouse Gas Reduction Plans. As previously discussed in the regulatory setting section, the SJVAPCD adopted the Climate Change Action Plan (CCAP) in August 2008. However, the purpose of the CCAP is to begin the public process to bring together stakeholders, land use agencies, environmental groups, and business groups, and conduct public workshops to develop comprehensive policies for CEQA guidelines, and a carbon exchange bank, along with voluntary Greenhouse Gas Emissions Mitigation Agreements for the consideration of the SJVAPCD governing board.

Therefore, the significance of the Amberwood project in this regard is based on whether the project would hinder or delay the ability of the SJVAPCD to meet its goals, and the goals of the State Air Resources Board as stated in the adopted Scoping Plan. The Scoping Plan states as follows: "The 2020 goal was established to be an aggressive, but achievable mid-term target, and the 2050 Greenhouse Gas Emissions Reduction Goal represents the level that scientists believe is necessary to reach reduction levels that will stabilize the climate" (ARB 2008 Scoping Plan, page 4). The 2050 goal is included in Executive Order S-3-05.

The year 2020 GHG emission reduction goal of AB 32 corresponds with the mid-term target established by Executive Order S-3-05, which aims to reduce the State of California fair-share contribution of Greenhouse Gases in 2050 to levels that will stabilize the climate.

As noted in the ARB Scoping Plan, the projected total Business as Usual (BAU) emissions for year 2020 (estimated at 596 MMTCO2e) must be reduced approximately 30 percent to achieve the ARB approved 2020 emission target of 427 MMTCO2e. The ARB Scoping Plan identifies recommended measures for multiple GHG emission sectors, and the associated emission reductions needed to achieve the year 2020 emissions target (each sector has a different emission reduction target). Most of the measures target the transportation and electricity sectors. As stated in the ARB Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include the following:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewable energy mix of 33 percent.
- Developing a California cap and trade program that links with other Western Climate Initiative Partner Programs to create a regional market system.

- Establishing targets for transportation related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing State laws and policies, including California Clean Air Standards, goods movement measures, and the Low Carbon Fuel Standard, and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The recommended measures of the ARB Scoping Plan mainly target reductions in the transportation and electricity sectors. Implementation of certain Scoping Plan measures may indirectly affect the project, such as the Low Carbon Fuel Standard, and enactment of the AB 1493 (Pavley) standards, which were enacted on July 22, 2002, and which required the State Air Resources Board (ARB) to develop and adopt regulations that reduce Greenhouse Gases emitted by passenger vehicles and light duty trucks. The State ARB estimates that the regulation would reduce climate change emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (ARB 2004).

Consistent with the ARB Scoping Plan, voluntary energy efficiency and green building measures are incorporated into the Amberwood project, as previously discussed herein. Included as design features are the following energy efficiency, water system and water use efficiency, conservation, and public transportation components:

- Bicycle and pedestrian infrastructure.
- Participation in a transportation system management and transportation demand management program.
- Public transportation infrastructure (bus turnouts and bus stops), and coordination with the City of Selma to provide public transportation services to the Amberwood project, including both fixed route, demand responsive, and regional transportation systems.
- Water efficiency and reuse through design of drainage swales and use of collected stormwater runoff for landscape irrigation.
- Drought tolerant landscaping to reduce water consumption.
- Capacity for utilizing treated wastewater for landscaping irrigation through a purple pipe system.
- Aquifer recharge of groundwater through two (2) private unlined lakes.
- Low water flow appliances and fixtures in all residential and commercial buildings.
- Energy efficient building design, including installation of Solar Panels for reducing electricity consumption.
- Co-location on the Amberwood project site of jobs, housing, retail, recreational, and educational facilities, along with bicycle, pedestrian, and alternative transportation infrastructure.

The proposed Amberwood project incorporates energy efficiency through water efficiency and recycling. In addition, the project is being designed to minimize energy use, further minimizing direct and indirect Greenhouse Gas Emissions from project operations. The proposed Amberwood project would not significantly hinder or delay the ability of the State of California to meet the reduction targets contained in AB 32, or conflict with implementation of the ARB Scoping Plan, because the proposed project would generate less than significant levels of Greenhouse Gases, and the project would therefore be consistent with the goals of the ARB Scoping Plan through implementation of the design measures that reduce energy consumption, water consumption, and that encourage alternative forms of transportation.

Although the project is consistent with the ARB Scoping Plan, the following mitigation measures have been included to provide additional assurance that the project would be consistent with the goals of the ARB Scoping Plan.

Level of Significance Before Mitigation

- Less than Significant Impact

Mitigation Measures

- The project shall reuse and recycle construction and demolition waste, including, but not limited to, soil, vegetation, concrete, lumber, asphalt, metal, and cardboard.
- The project shall provide interior and exterior storage areas for recyclables, and adequate recycling containers located in areas accessable to the public.

Level of Significance after Mitigation

- Less than Significant Impact

Consistency with Existing Air Quality Plans

The California Environmental Quality Act (CEQA) Guidelines state that a significant impact would occur if the proposed project would conflict with or obstruct implementation of the applicable Air Quality Plan (AQP). Criteria has been previously outlined herein to determine conformance and consistency with the Air Quality Plan.

Contribution to Air Quality Violations from the Amberwood Project

A measure of determining if the project is consistent with the AQP is if the project will not result in an increase in the frequency or severity of existing Air Quality Violations, or cause or contribute to new violations, or delay timely attainment of Air Quality Standards or the interim emission reductions as specified in the AQP. As previously outlined herein, the Amberwood project would not cause a CO violation. In addition, the project would not exceed the SJVAPCD

regional thresholds for construction emissions. However, the project would exceed SJVAPCD thresholds of significance for operational phases.

Consistency with the Assumptions in the Air Quality Plan

The primary method of determining consistency with the assumptions in the SJVAPCD Air Quality Plan is to determine consistency with the applicable General Plan (City of Selma) in order to ensure that the Amberwood project population density and land uses are consistent with the growth assumptions used in the Air Quality Plan.

As required by California State Law, City and County General Plans contain a Land Use Element that details the types and quantities of various land uses that the City or County estimates will be needed for future growth, and designates locations for land uses to regulate growth. Growth estimates used in a General Plan often come from the State of California Department of Finance. The Council of Fresno County Governments (Fresno COG) uses the growth projections and land use information in adopted General Plans to estimate future average daily trips (ADT) and then vehicle miles traveled (VMT), which is then provided to the SJVAPCD to estimate future emissions in the Air Quality Plan. It is assumed that the existing and future pollutant emissions as computed in the Air Quality Plan were based on land uses from area general plans. As discussed herein in the cumulative impacts section, Air Quality Plan contents detail the plan elements, assumptions, and calculations for reaching attainment of the air quality standards.

The Amberwood project site is currently within the jurisdiction of the County of Fresno, but most of the site is within the Sphere of Influence (SOI) for the City of Selma. An SOI is defined as a plan for the probable future physical boundary and service area of a local agency or municipality as determined by the Local Agency Formation Commission (LAFCO). Local government agencies, special service districts, and municipalities (City of Selma) must have an adopted SOI boundary and territory that defines the probable future boundary and service area of the agency.

Because the land uses as outlined in the Amberwood Specific Plan were not contained in the previous 1997 City of Selma General Plan Land Use Element or in the Fresno County General Plan Land Use Element, and a land use change is proposed as part of the Amberwood project, the growth of the project area, and the resulting ADT and VMT were not included in the AQMP. *Therefore, this is a Potentially Significant Impact.*

Control Measures

The Control Measures, as outlined in the Air Quality Plan, are enforceable requirements. The Amberwood project will comply with all of the SJVAPCD applicable rules and regulations. Therefore, the Amberwood project complies with this criterion. *This is a Less than Significant Impact.*

Summary

Level of Significance Before Mitigation

- Potentially Significant Impact

The Amberwood project would comply with the SJVAPCD control measures, and would not contribute to a CO hotspot, but would exceed SJVAPCD thresholds of significance for project operations before mitigation, and would not be consistent with the AQMP's planning assumptions.

Mitigation Measures

- Mitigation Measures as previously outlined herein are required.

Level of Significance after Mitigation

- Significant and Unavoidable Impact

Cumulative Air Quality Impacts

The CEQA Guidelines indicate that a significant air quality impact would occur if the proposed project results in a cumulatively considerable net increase of any criteria air pollutant for which the project regional air basin is in a non-attainment status under an applicable Federal or State ambient air quality standard. The cumulative assessment contained in the Air Quality Study used the criteria previously outlined herein for cumulative impacts.

Project Consistency with Existing Air Quality Plans

As stated previously, the Amberwood project *is not consistent* with the existing Air Quality Plan.

Cumulative Health Impacts

As previously stated, the SJVAB is in a non-attainment status for Ozone, PM-10, and PM-2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were established to protect the public health, including the health of sensitive individuals. Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population experience health effects. However, the health effects are a factor of the dose-response curve. The concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of the health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience the health effects.

The Amberwood project would not cause or significantly contribute to a CO hotspot, and therefore would not cause or significantly contribute to detrimental health effects from CO. However, the operation of the Amberwood project would exceed the SJVAPCD's regional significance thresholds for ROG, NOx and PM-10. Therefore, the Amberwood project would significantly contribute to the cumulative health effects resulting from high levels of Ozone and PM-10 in the San Joaquin Valley Air Basin.

Level of Significance Before Mitigation

- Potentially Significant Impact.

Mitigation Measures

- Mitigation Measures as previously outlined herein are required.

Level of Significance After Mitigation

- Significant and Unavoidable Impact.

4.1.D BIOLOGICAL IMPACTS

Biological Impacts from the Amberwood project are considered potentially significant impacts. A Biological Report for the Amberwood project was prepared by Live Oak Associates. This report is included in the appendix of this document. Live Oak Associates ecologists conducted a field survey and walking tour of the project site. The field survey consisted of a vehicle tour of the perimeter of the agricultural fields comprising the project site, and walking portions of the site to provide as much visual coverage of the site as possible, while visually scanning for all biotic resources. For the purposes of the Biological Study Report prepared for the Amberwood project site, three current land uses were identified on the project site. These current land uses have been identified as agricultural fields, drainage canals, and developed/ruderal uses. A listing of the vascular plant species observed within the study area, and the vertebrate species using, or potentially using, the Amberwood project site are outlined in the Biological Study Report which is included in the appendix of this document. No natural biotic habitats were observed on the project site. Nearly the entire site is utilized for agricultural purposes, supporting actively managed nectarine orchards and vineyards with sparse grasses and forbs occurring mainly along the field margins and between the orchard rows and vineyard rows. At the time of the Biological Field Survey, five parcels, four of which had been disced, were fallow. Natural vegetation was sparse to absent from these areas. Non-native annual grasses observed in the agricultural fields include annual bluegrass (*Poa annua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum ssp. leporinum*), rattail fescue (*Vulpia myuros*), and slender wild oats (*Avena barbata*). Non-native perennial grasses include bermuda grass (*Cynodon*

dactylon) and johnsongrass *(Sorghum halepense).* Other non-native forbs observed include common mustard (*Brassica rapa*), london rocket (*Sisymbrium irio*), shepherd's purse (Capsella bursa-pastoris), chickweed (*Stellaria media*), common mallow (*Malva neglecta*), pineapple weed (*Chamomilla suaveolens*), common groundsel (*Senecio vulgaris*), white-stemmed filaree (*Erodium moschatum*), redstem filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), henbit *(Lamium amplexicaule*), clover (Trifolium sp.), and bird's- eye speedwell (*Veronica persica*).

Native grasses and forbs observed include meadow barley (*Hordeum brachyantherum*), a perennial grass, and fescue (*Vulpia microstachys*), an annual grass, along with willow herb (*Epilobium brachycarpum*), dwarf nettle (*Urtica dioica*) , coyote melon (*Cucurbita palmata*), fiddleneck (*Amsinckia menziesii*), and red maids (*Calandrinia ciliata*).

Compared to natural habitats, managed agricultural lands provide relatively low wildlife habitat value due to the lack of understory vegetation that would typically provide food and cover for various wildlife species. Annual agricultural management practices effectively eliminate breeding and foraging habitat (i.e., understory vegetation) for many small birds and mammals native to the region. Discing probably results in considerable mortality to such species. The harvesting of grapes, pruning of vines, and application of chemical pesticides represent other disturbances and threats to wildlife species at various times of the year.

Although none were observed during the biological field survey, several reptile species potentially occur in the orchards and vineyards. The sparse groundcover described above, wood piles on some of the disced fields, rodent burrows observed on the site and on adjacent agricultural lands, and an occasionally large rodent population make the site suitable for at least one native species of lizard, the northwestern fence lizard (*Sceloporus occidentalis*), and several species of snake, including the gopher snake (*pituophis melanoleucus*) and California kingsnake (*lampropeltis getulus californiae*).

Resident avian species observed on or near the project site during the biological field survey include the rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), American crow (*Corvus brachyrhynchos*), ruby-crowned kinglet (*Regulus calendula*), American robin (*Turdus migratorius*), northern mockingbird (*Mimulus polyglottos*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Carpodacus mexicanus*).

Winter migrants observed include the mountain bluebird (*Sialia currucoides*) and white crowned sparrow (*Zonotrichia leucophrys*). A red shouldered hawk (*Buteo lineatus*) was heard near the site. Raptor species potentially resident in the area include white-tailed kites (*Elanus caeruleus),* northern harriers (*Circus cyaneus*), and red tailed hawks (*Buteo jamaicensis*). Both barn owls (*Tyto alba)* and great horned owls (*Bubo virginianus*) possibly forage over the grassy

fields of the project site. It is possible the burrowing owl (*Athene cunicularia*) may establish nests in abandoned ground squirrel burrows along the margins of the vineyards and on fallow parcels within the project area, however, no direct sightings or evidence of burrowing owls were observed during the biological field survey. Potential winter migrants include the ferruginous hawk (*Buteo regalis*), rough-legged hawk (*Buteo lagopus*), and merlin (*Falco columbarius*).

Regarding mammals, small mammals can be present in agricultural fields such as those of the site, but populations would be highly variable depending on the condition of the fields. Recently plowed or cultivated fields barren of vegetation provide minimal cover for most terrestrial vertebrates. Because the rows between the vines and orchard trees are managed for weed control, vegetative cover necessary for small mammal populations was, at best, very sparse. California ground squirrels *(Spermophilus beecheyi)* and their burrows were limited to the margins of the vineyards and on fallow parcels. Botta's pocket gopher (*Thomomys bottae)* burrows were also observed in agricultural fields of the site. However, smaller burrows that were sparsely distributed throughout the fields likely belong to deer mice (*Peromyscus maniculatus*) or California meadow voles (*Microtus californicus*). Black-tailed jackrabbits (*Lepus californicus)* are also likely to be present in agricultural fields. Whatever their population size, the small mammals of the project site probably attract predators such as the snakes and raptors described above, as well as larger mammals such as coyotes. For example, gray foxes (*Urocyon cinereoargenteus*) and coyotes (*Canis latrans*) may forage in the fields , although none were observed during the biological field surveys. A feral cat (*Felis cattus*) was observed wandering through the site area.

An irrigation drainage ditch, Centerville and Kingsburg canal, bisects the parcel located at the northwest corner of Del Rey Avenue and Dinuba Avenue and runs along the northwest boundary of the site. The canal branches eastward along the north boundary of the off-site elementary school, and continues into a culvert running under the nectarine orchard located immediately east of the school (Figure 3 in Biological Study Report). According to the biological study report, water was absent from the drainage canal located along the northwest boundary of the project site during the biological field survey. However, a small amount of standing water was observed during the field survey in the drainage ditch located north of the Indianola Elementary School. According to the biological study report, vegetation in the drainage ditch was sparse to moderately dense. Common horsetail (*Equisetum arvense*), a native fern, was the dominant plant in this habitat. Grasses observed in the canals include annual bluegrass, ripgut brome, foxtail chess (*Bromus madritensis*), and Bermuda grass. Forbs observed in the drainage ditch included red-stemmed filaree, wild geranium (*Geranium dissectum*), wild radish (*Raphanus sativus*), shepherd's purse, red maids, and clover (*Trifolium sp.*).

According to the Biological Study Report, the drainage ditch area provides habitat for many of the same mammal species that occur on the agricultural lands, but the slightly greater vegetative cover may facilitate the movement and persistence of larger populations, as well as the presence of additional species. For example, Virginia opossums (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and racoons (*Procyon lotor*) could all occur in this habitat. Small burrows, likely belonging to deer mice (*Peromyscus maniculatus*) or meadow voles (*Microtus californicus*) were observed in the drainage area habitat. Other wildlife species, such as coyotes, are likely to use the drainage ditch as a corridor to adjacent fields.

The third area included within the biological field survey report was the developed areas within the Amberwood project site. Developed areas on the project site consist mainly of single family residences, and agricultural storage, maintenance, and packing facilities associated with the on-site orchards and vineyards. The residences are surrounded by landscape vegetation and ornamentals, including pine (*Pinus sp.*), redwood (*Sequoia sempervirens*), fan palm (*Washingtonia filifera*), lemon tree (*Citrus limon*), orange trees (*Citrus sinesis*), crepe myrtle (*Lagerstroemia indica*), tulip tree (*liriodendron tulipifera*), heavenly bamboo (*Nandina domestica*), prickly pear (*Opuntia sp.*), weeping willow (*Salix babylonica*), valley oak (*Quercus lobata)*, walnut (*Juglans sp.*), and corn (*Zea mays*). California poppies (*Eschscholzia californica*), a native forb, have also been planted for landscaping purposes.

Avian species observed within the developed areas of the project site include the western scrub-jay (*Aphelocoma coerulescens*), northern flicker, American crow, northern mockingbird, and Brewer's blackbird. Domestic cats were also observed within the residential areas. Wildlife species discussed in the above habitats would likely pass through the developed areas, and various bird species may periodically nest in the few larger trees on the project site. Bat species, such as the Mexican free- tailed bat (*Tadarida brasiliensis*) and pallid bat (*Antrozous pallidus*) may roost in wood shacks and other structures existing on the site. Other mammals expected to occur in this habitat include domestic dogs (*Canis familiaris*) and the small rodents mentioned above.

The Biological Study Report analyzed the Special Status plants and animals that may be present on or in the vicinity of the Amberwood project site. Mitigation measures are included herein to mitigate to the extent practicable the project impacts on Special Status species. Several species of plants and animals within the State of California have low populations, limited habitats, or both. A sizable number of California native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Other species have been designated by the California Department of Fish and Game as candidates for such listing. Still other species, such as the burrowing owl (*Athene cunicularia*), have been designated as a California species of special concern. The Biological Study Report examined the

California Department of Fish and Game Natural Diversity Database for special status species that have been found within a ten (10) mile radius of the Amberwood project site. These special status species are listed below in Table IV-14.

Table IV-14

Special Status Species

SPECIES	STATUS	HABITAT	OCCURRENCE ON SITE
San Joaquin Kit Fox	FE (Federally Endangered) CT	Open or low vegetation with loose soils. Requires underground dens to raise pups, avoid predators, and regulate temperature. Dens are often provided by ground squirrels.	Unlikely. Due to on-going agricultural practices, any suitable biotic habitat that may have at one time occurred on site has been eliminated.
Valley Elderberry Longhorn Beetle	FT	Lives in mature elderberry shrubs of California Central Valley and Sierra Foothills.	Absent. No elderberry shrubs were present on the project site.
Pallid Bat	CSC	Grasslands, chaparral, woodlands, and forests of California; most common in dry open rocky areas which provide roosting opportunities	Possible. Structures on the project site provide marginal roosting habitat for this species.
Swainson's Hawk	CT	Summer migrant in grasslands and agricultural lands of California's Central Valley. Breeds in riparian areas.	Possible. The project site provides marginal foraging habitat for summer migrants. Breeding habitat is absent from the site.
California Tiger Salamander	FT	Breeds in vernal pools and stock ponds of Central California. Adults aestivate in grassland habitats adjacent to the breeding sites.	Absent. Vernal pools or other seasonal wetlands in which this species typically occurs were not present on the site or immediately adjacent to the site.
California Satintail (Perennial Herb)	CNPS (California Native Plant Society Listing)	Found in chaparral, coastal sage scrub, creosote bush scrub and riparian-wetland	Absent. None observed on the project site.

		habitats at elevations between 0 and 1,640 FT	
Burrowing Owl	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. This species is dependent upon burrowing mammals , most notably, the California ground squirrel for nest burrows.	Possible. Ground squirrel burrows along the margins of the vineyards and on the fallow parcels provide potential nesting habitat for the burrowing owl. However, no direct sightings or evidence of owls were observed during the biological field survey.

Status Code Legend:

FT- Federally Threatened; CT-California Threatened; CSC-California Species of Special Concern.

Regarding the Special Status Species outlined in Table IV-14 above, the only Special Status Species which could possibly exist on the project site, given the existing agricultural land uses, include the Burrowing Owl, Swainson's Hawk, and the Pallid Bat.

As outlined above, there is no suitable habitat on the project site for the San Joaquin Kit Fox. According to the Biological Study Report, the Amberwood project site provides unlikely foraging habitat for the San Joaquin Kit Fox, a small canid species whose range has been restricted almost entirely to the Central Valley. The only Kit Fox sighting that has been documented near Selma occurred approximately nine miles southwest of the project site. The likelihood of a Kit Fox occurring on the project site is relatively low given that the areas around Selma and the site are intensively farmed. The project site itself consists almost entirely of agricultural habitat, which is at best marginal for this species. Additionally, row crops, orchards, and vineyards are extensive between the study area and surrounding rangelands where Kit Foxes could occur. Should Kit Foxes move through these farming areas to the site, they are not likely to forage within the vineyards, which are at best marginal foraging habitat for this species. Because the Amberwood project site is currently actively managed and disced, the on-site prey base for the Kit Fox is periodically reduced or eliminated. Therefore, the site does not provide suitable forging habitat for the Kit Fox during most times of the year. *According to the Biological Study Report, development of the Amberwood project site is not expected to result in significant impacts to individual Kit Foxes or their habitat.*

<u>Level of Significance Before Mitigation</u>

- <u>Potentially Significant Impact</u>

Mitigation Measures for Special Status Species

(a) *Burrowing Owl*

Prior to the start of construction, including any clearing, grubbing, or grading on the project site, a pre-construction biological field survey shall be completed by a qualified biologist to identify any active Burrowing Owl nests/burrows. All recommendations and protocol requirements of the California Department of Fish and Game shall be followed. The biological field survey shall be conducted during both the breeding season (February 1 through August 31) and non-breeding season (September 1 through January 31) within 30 days of the onset of any ground disturbance.

If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation or eviction effort may be necessary so that the owls are not harmed or injured during construction. If burrowing owls are detected on the project site during the breeding season (February 1 through August 31), a construction free buffer of up to 250 feet, depending on the nest's location, must be established around any active owl nests and remain in place for the duration of the breeding season, or until it has been determined that the chicks have fledged and are independent of their parents.

Should burrowing owls occur on-site, the California Department of Fish and Game traditionally requires the preservation of suitable nesting and foraging burrowing owl habitat off-site at a ratio of 6.5 acres per nesting pair, but in other areas of the state, the requirement has been as low as 1:1 (one acre of replacement habitat for every acre lost that was utilized by the owls), depending upon the abundance and location of the on-site owls. The ultimate mitigation protocol shall be approved by the CDFG.

(b) *Swainson's Hawk*

Swainson's Hawk is classified by the State Department of Fish and Game as a California Threatened Species, and as such measures must be taken to mitigate the impacts to this species. Swainson's Hawk is also considered a bird of prey. Birds of Prey are protected in California under the provisions of the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey), or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation adopted pursuant thereto". Construction disturbances during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbances that result in nest abandonment and/or loss of

reproductive effort is considered a "taking" by the California Department of Fish and Game (CDFG). In order to mitigate any potential impacts to the Swainson's Hawk or other Birds of Prey, a qualified biologist shall conduct a field survey of the Amberwood Project site prior to the start of any construction activities, including clearing or grading of the site. The biologist shall note the location of any active nests on site, and a construction buffer shall be provided according to the guidelines of the CDFG to prevent disturbances to or destruction of any observed nests or nestlings.

(c) *San Joaquin Kit Fox*

No mitigation is required for this species due to the lack of any suitable habitat on site, and lack of any suitable on-site prey base for the San Joaquin Kit Fox. No Kit Foxes or Kit Fox dens were observed on the Amberwood project site during the Biological Field Survey.

(d) *Pallid Bat*

Prior to the demolition and removal of any structures on the Amberwood project site, a qualified biologist shall conduct a field survey of such structures to note the location of any active Bat roosting areas. If active roosting areas are noted, demolition activites shall not begin until alternate roosting sites are identified and provided in accordance with guidelines of the CDFG. The ultimate mitigation protocol shall be approved by the California Department of Fish and Game.

Level of Significance After Mitigation

- Less than Significant Impact

4.1.E CULTURAL RESOURCES

A Cultural Resources Survey Report was prepared for the Amberwood project site by Sierra Valley Cultural Planning on June 22, 2007. A copy of this report is contained in the appendix of this document. As a part of the Cultural Resources Survey Report, a records search for cultural and historical resources on the project site was conducted by the Southern San Joaquin Valley Information Center located at California State University in Bakersfield. According to the records search, there are no recorded cultural or historical resources within the project area and no recorded cultural resources within a one-half mile radius of the project site. The records search included the following data sources: i) National Register of Historic Places; ii) Historic Property Data File; iii) California Historic Resources Inventory; iv) California Points of Historical Interest; and (v) California State Historic landmarks.

A field survey of the Amberwood project site for Cultural Resources was conducted by C. Kristina Roper M.A., a qualified archaeologist.

According to the cultural resources field survey report, there are twelve structures, and one water conveyance feature present within the project study area. Six of the structures are modern-period residences and/or commercial structures. The remaining structures are residential dwellings with associated outbuildings greater than 50 years of age. These structures all have been either modified and no longer represent their period of construction (lack integrity), or do not possess significant architectural qualities that would qualify them for listing in the National Register of Historic Places. The water conveyance feature located within the study area has been modified, and no longer represents its original period of construction, and thus does not appear to be eligible for listing in the National Register of Historic Places or in the California Register of Historic Places.

In addition, according to the Cultural Resources Survey Report, no historic properties (properties eligible for listing in the National Register of Historic Places or the California Register) were identified as a result of the surface inspection of the Project Study Area, and therefore it is unlikely that development of the Amberwood project site will have an effect on important archaeological, historical, or other cultural resources. No further cultural resources investigations are therefore recommended by the archaeologist who conducted the field survey of the project site.

In the unlikely event that buried archaeological deposits are encountered during development related activities, work in the immediate vicinity of the discovery shall cease until the finds have been properly evaluated by a qualified archaeologist. Should human remains be encountered during development of the project, the Fresno County Coroner must be contacted immediately, and if the remains are determined to be Native American, then the Native American Heritage Commission must be contacted as well.

As previously mentioned, the deep excavations for the lake areas shall be monitored closely for any uncovered cultural resources or human remains.

Level of Significance Before Mitigation

- Less than Significant Impact

Mitigation Measures

- If during any construction activities on the Amberwood project site, including excavating and grading, any archaeological resources or suspected human remains are discovered, all work shall cease immediately until the resource and/or remains are evaluated by a qualified archaeologist. If the remains appear to be human, the County Coroner shall also be contacted immediately. In addition, if the remains appear to be Native American, then the Native American Heritage Commission shall be contacted as well. In

addition, the lake excavation areas shall be closely monitored for possible uncovered artifacts and/or human remains during construction activities.

Level of Significance After Mitigation

- Less than Significant Impact

4.1.F GEOLOGY AND SOILS

A Geotechnical Feasibility Report was prepared for the Amberwood project site by Lowney and Associates, an environmental and geotechnical engineering firm located in San Ramon. This report is included for reference in the appendix of this document. The following analysis includes potential impacts to Soils and potential impacts related to the Geology of the Amberwood project site.

(a) Soils

The Amberwood project site consists of the following soil types:

1. Hanford Fine Sandy Loam (Soil Survey Symbol Hm).

2. Hesperia Fine Sandy Loam-Moderately Deep (Soil Survey Symbol Hst).

3. Hanford Sand Loam (Soil Survey Symbol Hc).

4. Hesperia Fine Sandy Loam (Soil Survey Symbol Hsr).

5. Tujunga Loamy sand (Soil Survey Symbol TzbA).

Although the project site includes five different soil types, the vast majority of the project site, over approximately 75%, consists of Hanford Fine Sandy Loam. The second most prevalent soil type on the project site is Hesperia Fine Sandy Loam-Moderately Deep, and this soil type is located exclusively to the south of Floral Avenue, and would include the private lake areas. All of these soil types are well drained sandy soils with rapid to moderately rapid surface permeability.

The rapid to moderately rapid permeability of these soils allows for good to excellent groundwater aquifer recharge opportunities. In addition, these soils are not expansive in nature, and therefore do not have a high shrink/swell potential. They do not place high stresses on building foundations or the foundations of other structures, including streets. The characteristics of these soils allows shallow stormwater detention basins to drain rather quickly, thereby decreasing the potential for health hazards associated with standing water. Table IV-15 below summarizes the characteristics of these soils:

Table IV-15

Soil Characteristics

Soil Series	Soil Map Unit Symbols	Parent Material	Drainage Class	Surface Permeability	Hydric?
Hanford Series	Hm Hc	Alluvium of granitic and other quartz bearing rock	Well drained	Moderately Rapid	No
Hesperia Series	Hst Hsr	Alluvium derived primarily from granite and related rocks	Well drained	Moderately Rapid	No
Tujunga Series	TzbA	Alluvium derived mainly from granite	Excessively drained	Rapid	No

SOURCE: Live Oak Associates Biological Report-Table 1, Page 7.

The development of the Amberwood project is not anticipated to have any significant impacts on the soils in the project area. The project will involve the construction of numerous buildings, streets, parking lots, and other impervious surfaces. Once constructed, these structures will prevent soil erosion on the Amberwood project site due to water and wind. However, during construction, and particularly during on-site grading operations, the soil surface will be disturbed, and any existing trees, vineyards, and other vegetation will be removed. This will increase the opportunity for erosion by wind, especially when the wind speed exceeds 25 miles per hour. In addition, the disturbed soil will be more susceptable to erosion by water, especially during the winter months when heavy and sustained rainfall occurs. These impacts will be temporary in nature, and can be mitigated as outlined below. For example, wind erosion can be minimized by daily watering of the project site to control erosion and blowing dust. A grading and drainage plan and stormwater pollution prevention control plan will also be prepared. These plans will contain provisions, such as temporary berms and drainage swales, to collect and retain stormwater on-site, thereby preventing substantial off site soil erosion during major storm events.

The excellent permeability characteristics of the on-site soils allows for aquifer recharge through the unlined private lakes. This is a beneficial environmental impact and will help to reduce the overdraft condition of the underground aquifer.

(b) Geology

From a Geological perspective, the Central San Joaquin Valley, including the Amberwood project site, is located within the California Trough Physiographic Section, which is a part of the larger Pacific Border Province, which in turn is a part of the Pacific Mountain System. The flatness of the San Joaquin Valley floor contrasts with the rugged foothills and the Sierra Nevada Mountain Range located approximately 20 miles to the east, and the Coastal Ranges located approximately 70 miles to the west of the project site. The San Joaquin Valley is thought to have originated below sea level as an offshore area depressed by subduction of the Farallon Plate into a trench further off shore. The San Joaquin Fault is a notable seismic feature of the Central San Joaquin Valley. The valley was later enclosed by the uplift of the Coastal Ranges. Over the millennia, the valley was filled by the sediments of the Coastal Ranges as well as by the rising of the Sierra Nevada Mountain Range to the east,. The gradual filling of the valley floor over time with alluvial sedimentation deposits created an extraordinarily flat topography located barely above sea level. The elevation of the City of Selma is only approximately 310 feet above sea level.

From a Geology standpoint, the environmental impacts from the Amberwood project are considered to be *Less Than Significant*. A project could have a significant impact on Geology if the project would expose people or structures to potential adverse effects due to earthquakes, ground shaking, ground failure, landslides, expansive soils, or significant erosion potential. In addition, if the project area soils become unstable due to the project, or if the project soils are incapable of adequately supporting the use of septic tanks, a significant impact may also occur. As previously outlined, in regards to the use of septic tanks, the Amberwood project will not utilize any septic tanks. All project wastewater will be collected by a sanitary sewer underground piping system, and then will be treated on-site, and be disposed of in the private lake areas.

The Amberwood project site is not located in an Alquist-Priolo Fault Zone according to the Fresno County General Plan EIR. Therefore, the Amberwood project site is not subject to ground rupture from a known earthquake fault. Residential and Commercial land uses to be built on the Amberwood project site could be subject to moderate ground shaking from future seismic events. However, the residential and commercial structures to be built on the project site will be built according to the latest version of the California Building Codes, and will be designed to resist the effects of earthquakes. All residential structures will be limited to two stories in height. Due to the significant depth to groundwater on the project site, the granular

soil types, and the distance from major fault systems, liquefaction on the project site is unlikely. The topography of the project site is essentially flat with no significant elevation differences on the site. The potential for landslides on the project site during a seismic event therefore does not exist. As previously mentioned above, the soils on the project site are not expansive type soils due to their granular nature. The soils of the project site are therefore well suited for residential and commercial building construction, and should not become unstable during a seismic event.

Level of Significance Before Mitigation

- Less than Significant Impact

Mitigation Measures

- In order to prevent soil erosion by wind, the Amberwood project site shall be watered down regularly during construction activities in accordance with the Dust Control Plan approved by the San Joaquin Valley Air Pollution Control District.
- A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and be submitted to the Regional Water Quality Control Board. The subject SWPPP shall include provisions to minimize soil erosion during normal rainfall and also during major storm events.
- A grading and drainage plan for the Amberwood project site shall be prepared by a qualified registered civil engineer. The subject plan shall include provisions to minimize soil erosion and minimize transmission of sediment off site during storm events.

Level of Significance After Mitigation

- Less than Significant Impact

4.1.G HAZARDS AND HAZARDOUS MATERIALS

As outlined in the project description, the Amberwood project consists of primarily residential and retail commercial uses. An elementary school, public safety building, and community center building are also included. The project does not involve the handling, storage, or transportation of any hazardous materials. In addition, there are no hazardous materials sites located within the boundaries of the Amberwood project. Therefore, as outlined in the Initial Study, there are no identified significant environmental impacts related to hazardous materials.

In addition, the Amberwood project site is not located in close proximity to any public or private airport, and residents of the project should therefore not be exposed to significant hazards from airborne aircraft. Residents of the project site should not be exposed to any wildland fires as there are no wildlands located within the project site. Therefore, in regards to

Hazards and Hazardous Materials, there are no identified environmental impacts from the Amberwood project, and no further environmental impact analysis is therefore required.

Level of Significance

- No Impacts

4.1.H HYDROLOGY AND WATER QUALITY

Potentially significant environmental impacts to Hydrology and Water Quality were identified in the Initial Study. In order to minimize these negative effects, mitigation measures will be required. Potentially significant *cumulative impacts* to groundwater overdraft could occur with full buildout of the Amberwood project. In addition, potential water quality issues will also need to be addressed due to the on-site treatment and disposal of project wastewater. On site disposal of stormwater is another factor that could affect water quality. Major reference documents used for the analysis in this section are the Hydrology Report completed for the Selma General Plan 2035 Update EIR by Kenneth D. Schmidt and Associates, the Preliminary Engineering Feasibility Report completed for the on-site disposal of project wastewater by The Holt Group Inc., and Kennedy/Jenks Consultants, and the Urban Impacts White Paper (November 2007) completed for CID by Summers Engineering. The Preliminary Engineering Feasibility Report is included in the appendix of this document.

(a) Hydrology

The primary source of potable water for the Amberwood project and the City of Selma is groundwater. The potable water for the Amberwood project will be provided by deep wells which will be constructed and operated by the water supplier for the City of Selma, which is the California Water Service Company. California Water Service Company is a private for profit corporation. In addition to the wells, above ground water storage tanks with a capacity of between 1 and 2 million gallons, and booster pumps will also be designed and constructed for the project. A critical element for the Amberwood project is the provision of adequate water storage and water pressures for fire fighting purposes. Although CID surface water is available to the project site at certain times of the year, it is for agricultural uses only, and is not drinkable. The surface water is provided to the Selma area through a series of canals which are maintained and operated by the Consolidated Irrigation District (CID). No CID surface water is currently used for agricultural irrigation on the project site. The landowner/farmer currently has several agricultural wells on the project site, and uses groundwater exclusively from the on site wells for agricultural irrigation. The current pumping of groundwater on the project site for the agricultural uses (production of nectarines and grapes) is therefore very significant.

Groundwater

The City of Selma, and the Amberwood project site, is located within the Kings sub-basin of the San Joaquin Valley Groundwater Basin, and within 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 day conditions, groundwater is recharged primarily from stream flow percolation, from percolation basins developed by agricultural irrigation districts, percolation from stormwater drainage basins, and from treated wastewater disposal facilities . In addition, percolation can also be attributed to excess applied surface irrigation water utilized for agricultural operations. Groundwater depth in the Selma area is approximately 60 feet below ground surface level.

Groundwater Overdraft

According to the Hydrology Report completed by Kenneth D. Schmidt and Associates, the groundwater in the Selma area has been in an overdraft condition since 1960, and this is well documented through an analysis of water-level hydrographs for eight California Water Service Company wells currently supplying the City of Selma, and located within the 2035 General Plan Update area. Based on the water-level hydrographs for the eight wells 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 General Plan area has averaged about 800 acre-feet per year since 1960.

Current Agricultural Irrigation Water Use

One of the irrigation districts currently diverting water from the Kings River is the 145,000 acre Consolidated Irrigation District (CID), within which the City of Selma and the Amberwood project site is located. Summers Engineering, the district engineer for CID, outlines in a 2007 report that the district uses an average of 239,000 acre feet of surface water annually to supplement an average of 80,500 acre feet of pumped agricultural irrigation groundwater. Current agricultural operations within CID use an average of 3.05 acre feet of water per irrigated acre per year, with 1.45 acre feet of groundwater per acre, and 1.60 acre feet per acre of surface water. Using these figures for potential on site agricultural irrigation water use, the Amberwood project site currently uses the approximate amounts of groundwater per year for the 683 acres of agricultural lands on the site as depicted below in Table IV-16. As previously mentioned herein, the current landowner/farmer uses no CID surface water for irrigation. This is due to landowner/farmer concerns with water quality, water temperature, and reliability of the CID surface water delivery operations. The current potential agricultural water use on the Amberwood project site is therefore estimated using 100 percent pumped groundwater, which is provided from the numerous on site agricultural wells.

Table IV-16

Estimated Annual Agricultural Water Use on Project Site*

Potential Agricultural Acreage	Annual Water Use Per Acre**	Total Annual Water Use in Acre Feet
683 Acres	3.05 AF	2,083 AF per Year

* Assumes 100% Pumped Groundwater. **Source: Page 4, Summers Engineering White Paper.

As outlined in Table IV-16 above, the amount of groundwater currently being pumped on an annual basis for the agricultural irrigation uses on the project site is significant. The landowner/farmer currently uses a flooding method for crop irrigation for both tree fruit crops and grapes. No sprinklers or drip irrigation systems are currently used. However, a portion of this irrigation water also percolates back down to the underground aquifer, due to the fact not all the water is absorbed by the crops currently grown on the project site (grapes and nectarines). The estimated amount of agricultural irrigation water currently percolating back down to the aquifer on an annual basis in acre feet is outlined in Table IV-17 below.

Table IV-17

Estimated Annual Irrigation Water Currently Percolating Back to the Aquifer

Potential Agricultural Acreage	Annual Percolation Per Acre in Acre Feet	Total Annual Percolation in Acre Feet
683 Acres	0.14 AF	96 AF

Source: Summers Engineering Urban Impacts White Paper, November 2007, Page 4.

By subtracting the annual total agricultural water percolated back to the aquifer (96 AF) from the annual total agricultural water use in acre feet (2,083 AF), the net total annual agricultural water use on the project site is currently estimated to be 1,987 AF per year or 2.90 AF per acre per year.

Amberwood Project Impacts to Underground Water Resources and Water Availability

The Amberwood project will create a significant demand for underground water resources, both for drinking water use and landscaping irrigation uses. Drinking water for the Amberwood project will be supplied by the California Water Service Company (Cal Water), a private for profit water company. Cal Water will supply water to the project through deep wells located within and in close proximity to the project site. A new potable water well is currently under construction at the intersection of Orange and Dinuba Avenues.

Water Availability

In August 2006, Cal Water, at the request of the City of Selma, prepared a Water Supply Assessment Report for the Amberwood project, in accordance with the provisions and requirements of Senate Bill 610 and California Water Code Section 10912. As outlined on page 9 of the Water Supply Assessment Report, Cal Water currently, and for at least the next 20 years, anticipates being able to meet its forecasted water demand by using groundwater extracted from the Kings River Fan Aquifers that underlie the Selma District. Cal Water currently extracts groundwater from 13 active wells located throughout the Selma District service area. Four other wells are currently inactive or non-operational. Current design capacity for the operational wells is 11,400 gallons per minute, which is equivalent to 16.4 million gallons per day. Average individual well yield for the 13 active wells is about 880 gallons per minute or 1.26 million gallons per day. Presently, there is one new surface storage tank, which provides storage for peak hour demand, and thereby reduces the requirement that the wells operate in response to real time demands. Cal Water has other surface storage tanks it plans to construct as well so that well capacity will need to meet maximum day demand only. In summary, the Water Supply Assessment Report concludes that water will be available to serve the Amberwood project during normal, single dry, and multiple dry years over the next 20 years. However, the fact that Cal Water can pump groundwater to serve the project, either through existing wells or by drilling new wells, does not mean that there will not be continuing significant impacts to the underlying groundwater basin. This is because of the current groundwater overdraft conditions within the CID service area.

Projected Total Water Demand for the Amberwood Project

The total projected water demand, in acre feet, is estimated to be approximately 1,361 acre feet per year for all land uses. This is also depicted in Table IV-46 in the Utilities and Service Section of this document. The breakout of water use in acre feet per year by land use category is summarized below as follows:

- Residential - 1,146 AF
- Commercial - 22 AF
- Elementary School - 19.6 AF
- Parks and Open Space - 173.7 AF

Referring to the annual existing estimated agricultural water use for the project site depicted in Table IV-16 above (2,083 AF), less the amount percolated back to the aquifer (96 AF), it can be seen that the current farming operations on the project site *consume more groundwater* than is projected to be used by the Amberwood development project when it is fully developed. This is summarized below as follows:

- Net existing annual groundwater demand for farming operations: 1,987 Acre Feet.

- Projected Net groundwater demand for urbanized Amberwood project: 1,361 Acre Feet.

Subtracting the current estimated annual agricultural water use on the project site from the projected annual water use for the Amberwood development project shows that the current farming operations consume approximately 626 Acre Feet more groundwater per year (1,987 AF - 1,361 AF = 626 AF). In summary, the conversion of the project site to urban development will actually have a positive impact on the groundwater overdraft conditions by reducing the overdraft by approximately 626 Acre Feet per year. However, any continuing overdraft of the underground water resources, *either by agricultural uses or urban uses*, still results in *cumulative significant impacts* to the aquifer underlying the City of Selma.

Aquifer Recharge and Lake Makeup Water

As previously outlined in Table IV-17, the amount of agricultural water currently percolating back and recharging the aquifer is estimated to be 96 Acre Feet per year. By comparison, as depicted in Table 7 of the Preliminary Engineering Feasibility Report, the amount of water recharging the aquifer due to the Amberwood recycled on site wastewater is estimated to be approximately 313 Acre Feet per year. This total annual net aquifer recharge volume (313 Acre Feet) is determined by subtracting the total required Lake Makeup Water at full buildout (2,140 Acre Feet) from the total Percolation Volume for Amberwood at full buildout (2,453 Acre Feet) as follows: 2,453 AF - 2,140 AF = 313 AF. This is depicted below in Table IV-18.

Table IV-18

Annual Estimated Net Aquifer Recharge Volume*

Land Use	Total Annual Percolation Volume in Acre Feet	Minus Required Lake Makeup Water Pumped in Acre Feet	Equals Net Aquifer Recharge Volume in Acre feet
Urban Development (Amberwood)	2,453 AF	2,140 AF	313 AF

Source: Table 7, page 18, of the Preliminary Engineering Feasibility Report. *At Full Buildout.

Lake Makeup Water is the groundwater that needs to be pumped from the underground shallow aquifer in order to keep the water surface of the two man made on-site lakes at a constant elevation year round. During the initial phases of the project, there *will not* be sufficient treated wastewater available to keep the lakes full and at a constant elevation. For example, the first phase of the project will only include approximately 100 homes, and the wastewater generated from the 100 first phase homes will not be very substantial. In addition, water is lost from the lakes daily due to evaporation. This loss is especially significant during the hot summer months. The amount of needed *lake makeup water* will decrease over time.

Water Conservation Requirements

The Amberwood Homeowners Association will be required by the City to develop and enforce a mandatory water conservation program for all residents of the Amberwood project. Water meters shall be required for all dwelling units. In addition, the Association will be required to develop and enforce strict rules for outdoor landscape irrigation to limit water use and conserve water. This program is outlined further in the mitigation section.

(b) Water Quality

According to the Hydrology Study completed by Kenneth D. Schmidt and Associates, the quality of groundwater in most of the General Plan Area, which includes the Amberwood project site, has been suitable for public drinking water supply, except for DBCP and uranium in the shallow groundwater at some locations. Since 1983, new California Water Service Company Selma wells have been drilled to depths of at least 600 feet, and the shallow groundwater has been sealed off. Other new drinking water system wells in the area have also been constructed in a similar manner.

The continual future maintenance of high quality groundwater supplies for drinking water and irrigation is critical to the Amberwood project, and to the City of Selma. Surface pollution must therefore be avoided to prevent contamination of the underground aquifer. As previously outlined herein, the Amberwood project will utilize on-site treatment for project wastewater, and all project related treated wastewater will be disposed of on-site in the two private lake areas to be located at the south end of the project site. The project wastewater will be tertiary treated, and will be disinfected to State Title 22 water quality standards. The anticipated wastewater treatment plant process for Amberwood is outlined below.

On Site Wastewater Treatment Plant

As previously outlined above, the Amberwood project will utilize an on-site wastewater treatment plant, which will be constructed approximately 200 feet north of Floral Avenue and approximately 1,250 feet west of South Amber Avenue. The on-site wastewater treatment process will include the following according to the Preliminary Engineering Feasibility Report:

- Influent Pumping
- Pretreatment Screening
- Pretreatment Grit Removal
- Biological Treatment
- Tertiary Treatment
- Disinfection
- Biosolids Stabilization

Detailed discussion of each aspect of the treatment process described above is presented below. The source of this information is the Preliminary Engineering Feasibility Report. This report is included in the appendix of this document.

Influent Pumping and Pretreatment. The topography of the Amberwood project site is typical of agricultural land in the State of California, essentially flat. Projecting collection pipelines, typically 8 inches in diameter, and requiring a minimum slope of 0.5 percent, across a flat topography results in deep pipelines, and the need for an influent pumping station. Before project wastewater can be processed for Title 22 standards, it requires pretreatment to eliminate debris which would either: (i) Foul downstream process equipment; (ii) Cause unnecessary abrasion of pumping and pipeline material, or, (iii) Fill and clog space within tanks and channels.

Pretreatment Screening. As outlined in the Preliminary Engineering Feasibility Report, there is a wide spectrum of alternatives available for the screening of raw wastewater. The least costly method is typically a manually cleaned trash rack with screen opening sizes of between 3/4 inch and 2 inches. This method does not involve any mechanical cleaning.

Pretreatment Grit Removal. Grit removal is necessary if the wastewater is further processed through either a membrane bioreactor or a cloth filter for tertiary treatment. The basic grit removal methods include: (i) Circular vortex type vessel for first stage capture of grit slurry; (ii) Screen type capture; (iii) Aerated channel type capture, and, (iv) Cyclone and classifier for second stage capture. The most important factor in grit removal, besides the capture rate, is the ability to isolate the unit(s) so that the air from the de-gritting area is controlled and processed as a foul air before exhausting to the atmosphere.

Biological Treatment for Secondary Effluent within the Wastewater Treatment Plant

As outlined in the Preliminary Engineering Feasibility Report, biological treatment generally consists of BOD reduction, and in many cases, nutrient reduction. The biological nutrient removal (BNR) is dependent upon the disposal or reuse option selected for the wastewater effluent. For example, the effluent requirement for spray irrigation does not typically require nutrient reduction. If the wastewater effluent is added, stored, or mixed with non-effluent water in a water body such as a lake (as is the case with Amberwood), the nutrient reduction can include both nitrogen and phosphorus. The effluent limits on nutrients would be determined by the ability of the water body to biologically uptake them beneficially. The more nitrogen and phosphorus removed in the treatment process, the less that must be accounted for in a water body for uptake. There are many types of biological treatment process units available for the required wastewater treatment within the Amberwood project. The main

requirement for Amberwood will be to provide Title 22 water quality wastewater effluent for discharge to the lake areas.

There are two (2) alternative process trains. These can be summarized by the basic biological treatment processes as follows:

- Sequencing Batch Reactor (SBR) coupled with Tertiary Filtration.
- Membrane Bioreactor (MBR).

Both of the above outlined treatment process units can provide a highly reliable Title 22 effluent according to the Preliminary Engineering Feasibility Report. The differences are that the MBR produces a higher quality effluent that exceeds the Title 22 requirements more than the SBR coupled with the tertiary filtration. The cost differences are slightly higher for the MBR in both capital and O&M. The MBR occupies a slightly smaller footprint because it does not require separate tertiary filters. It appears that the MBR will become the standard for producing Title 22 wastewater effluent in the near future, and this is the treatment process that will most likely be used for Amberwood, dependent upon the preference of the City of Selma. As previously mentioned, the City of Selma will own and operate the treatment plant after it is dedicated to the City by the developer.

Tertiary Treatment

Tertiary filtration is a required process for the Amberwood wastewater treatment plant in order to meet the Title 22 requirements, and administratively is required for unrestricted reuse. Tertiary treatment is physically necessary in order to obtain the low turbidity, and to allow the disinfection to achieve the low coliform count of 2.2 MPN/100 ml.

Disinfection

Disinfection is the final process required. There are several alternatives that are commonly used today. Disinfection is required following the tertiary process (either membrane or filtration) after the effluent achieves turbidity of 2 NTU's or fewer to achieve the coliform concentration of 2.2 MPN/100 ml or fewer. Ultraviolet disinfection by irradiation is a popular means of disinfection when the water is tertiary filtered. This disinfection process will most likely be utilized in the Amberwood Wastewater Treatment Plant design.

Biosolids Stabilization

The Amberwood Wastewater Treatment Plant will most likely use Aerobic Digestion for biosolids stabilization. This process involves feeding a constant air supply through coarse bubble diffusers in the bottom of tanks that can be either rectangular or circular in shape. This biological process is different from the anaerobic digestion process. Methane gas is NOT

generated in aerobic digestion. The operating cost of aerobic digestion is higher than anaerobic digestion because more energy is required. However, in a plant that is as small as the Amberwood Wastewater Treatment Plant (less than 1 mgd capacity), the life cycle costs will be clearly in favor of aerobic digestion according to the Preliminary Engineering Feasibility Report.

Mass Balance of Water and Salt

Table 8 of the Preliminary Engineering Feasibility Report outlines the mass balance of water and salt for the wastewater effluent. The initial assumption in the Preliminary Engineering Feasibility Report is that the incremental addition of salt (TDS) due to domestic consumption is 150 mg/l based on traditional experience in California for communities that do not install home water softeners. For years, a key issue has been the use of water softeners that rely on salt being introduced as a softening agent. The salt ultimately is added to the wastewater, and can be a significant factor in the overall TDS increase. In order to mitigate this potential issue, the Amberwood Homeowners Association shall implement a rule that prevents the use of water softeners within the project that rely on salt as a softening agent. This is included within this section as a mitigation measure which will also be enforced by the City of Selma.

In conclusion, the water quality impacts from the Amberwood project will be mitigated through the provision of high quality Title 22 treated wastewater, which will be provided for beneficial uses and aquifer recharge through the private lakes. In addition, stormwater will be filtered as required prior to discharge into the private lakes to prevent any groundwater contamination.

Level of Significance Before Mitigation

Potentially Significant Impact

Mitigation Measures for Hydrology and Water Quality

- The Amberwood project design shall include two (2) private lakes containing approximately 30.2 acres of surface area. The private lakes shall be unlined, and shall be designed to maximize underground aquifer recharge volumes.
- The CID open canal located along the eastern side of Orange Avenue shall be placed underground by the developer with an appropriately sized and designed piping system between the north side of Lincoln Middle School and Dinuba Avenue.
- The on-site wastewater treatment plant shall be designed to provide a tertiary treatment process, and high quality treated wastewater which meets Title 22 water quality standards, and which will drain into the private lake areas. The treated wastewater shall recharge the underground aquifer, and provide recycled water for landscape irrigation of the public and private park areas, thereby conserving water.

- The on-site wastewater treatment plant shall be dedicated to the City by the developer. The City shall obtain a discharge permit from the Regional Water Quality Control Board.
- Before being deposited into the two private lake areas, project stormwater shall be treated, and be filtered as required by the Regional Water Quality Control Board to prevent contamination of the underground aquifer drinking water supply.
- The City of Selma, as a condition of approval for the project, shall require the Amberwood Homeowners Association to implement strict water conservation measures, which shall limit the amount of water used on a monthly basis by each individual dwelling unit to an average of approximately 12,000 gallons per household per month on an annual basis. This shall be accomplished by requiring all homes to have water meters, and by requiring the Amberwood Homeowners Association to implement and enforce strict rules for outdoor watering of landscape areas. The subject rules shall strictly limit the time of day for landscape watering to early morning and evening hours only, and shall also limit the duration of time when automatic sprinkler systems are activated to no more than 30 minutes per day in the summer months, and 15 minutes per day in the winter months. The limit shall be 20 minutes per day in the fall and spring months.
- The Amberwood Homeowners Association shall establish a rule that requires that water softeners that rely on salt not be allowed within the Amberwood project.

Level of Significance After Mitigation

- Cumulatively Significant and Unavoidable

Although the mitigation measures outlined above will help minimize the impacts from the Amberwood project to the underground aquifer water resources, and the current overdraft conditions, these measures alone will not reduce the impacts to a Less than Significant Level. Additional water conservation projects will need to be implemented on a Statewide and Regional Basis. Such projects could include the construction of new large water storage reservoirs, with water storage capacities on the scale of that currently provided by the Pine Flat Dam Reservoir. In addition, several new large (20-40 acres) aquifer recharge basins will need to be constructed in the future within the CID service area. The *cumulative* Amberwood project impacts to hydrology and groundwater overdraft will therefore remain Significant and Unavoidable.

4.1.I LAND USE AND PLANNING

(a) Land Use

Under State Planning Law, the City of Selma General Plan is the primary planning document of the community, and is therefore the blueprint for future growth of the City. The 2035 General Plan update superceded the 1997 Selma General Plan. Therefore, with the approval and subsequent implementation of the updated 2035 General Plan, other City plans and documents, such as the Zoning Ordinance, will be updated as necessary to ensure consistency.

The current land uses on the project site consist of primarily agricultural type uses. In addition to vineyards and nectarine orchards, there is an agricultural packing and cooling facility building, an office building, and several single family residences located on the project site. The land uses will be converted from agricultural uses to urban uses with the development of the project. The environmental impacts from the loss and conversion of prime agricultural land to urban uses, and the mitigation measures for the loss of prime agricultural land, are outlined in the Agricultural Resources Section of this EIR, and will not be repeated in this section. The reader is referred to this section for more detail on the impacts from agricultural land use changes.

The Amberwood project will introduce higher density development patterns to the City of Selma through smaller lot subdivisions. The current minimum lot size in the City of Selma for single family homes is 6,000 square feet (with a conditional use permit). The Amberwood project will allow some lots as small as 3,480 square feet. The planned higher density development in specified Amberwood neighborhoods will have beneficial impacts on the environment through more efficient use of available land resources, and through the use of less water for landscaping irrigation. The Amberwood development project also ensures an efficient development pattern for the future growth of the east side of Selma over the next 15-20 years. This efficient land use development pattern for Amberwood will prevent "Leap Frog" development patterns, and will result in more efficient use of public utilities and public services.

Impact Evaluation Criteria for Land Use

Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project would have significant potential adverse land use impacts if it would:

- Physically divide an established community.
- 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, any relevant Specific Plan, Local Coastal Program, or Zoning Ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

The Initial Study prepared for the updated 2035 General Plan project concluded that the General Plan update, which included the Amberwood Specific Plan project, would not physically divide the Selma community, and therefore would have no impact in this area. Therefore, this issue will not be discussed any further in this EIR.

In addition, the Amberwood project site is not located within the Coastal Zone, and will therefore have no impacts to any Local Coastal Plan or Program. This issue will therefore not be discussed any further in this EIR.

Regarding conflicts with any applicable Habitat Conservation Plan or Natural Resource Conservation Plan, according to the 2035 General Plan Update EIR, 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 in nature and not geographic. The conclusion, according to the 2035 General Plan update EIR, is that new development resulting from implementation of the 2035 General Plan (which includes the Amberwood project) could potentially result in the loss of some special status species habitat. However, with implementation of the mitigation measures for special status species as outlined herein in the Biological Resources Section, the impact would be reduced to Less than Significant. No additional mitigation measures are therefore required.

Regarding conflicts with any applicable land use plan , policy, or regulation of any agency with jurisdiction over the project, the Amberwood Specific Plan project is consistent with the recently adopted City of Selma 2035 General Plan. In order to bring the City Zoning into consistency with the Amberwood Specific Plan, a new City zoning district will be established that designates the development regulations and design guidelines of the Amberwood Specific Plan as the zoning regulations and design guidelines for the Amberwood Specific Plan project area.

<u>Level of Significance Before Mitigation</u>

- Less than Significant Impact

<u>Mitigation Measures</u>

- No Mitigation Required

<u>Level of Significance After Mitigation</u>

- Less than Significant Impact

(b) Planning

The Amberwood project is fully consistent with the recently adopted and updated Selma 2035 General Plan Land Use and Circulation Elements. In addition, the Amberwood Specific Plan is consistent with the updated Selma General Plan, and will implement the Selma General Plan for the Amberwood project site. The majority of the Amberwood project site is already included within the existing Selma Sphere of Influence. Prior to development of the last four phases of the Amberwood project, a Sphere of Influence Amendment will be required. However, the entire Amberwood project site is already included within the planning area boundary for the 2035 updated Selma General Plan. The policies of the updated 2035 General Plan regarding land use changes and Sphere of Influence amendments will therefore be implemented by the City during the development and subsequent buildout of the Amberwood Project.

Level of Significance Before Mitigation

- Less than Significant Impact

Mitigation Measures

- No Mitigation Required

Level of Significance after Mitigation

- Less than Significant Impact

4.1.J MINERAL RESOURCES

As outlined in the initial environmental study, there are no known mineral resources located within the boundaries of the Amberwood project site. In addition, there are no planned mineral resource recovery sites within the project area which are delineated in the Selma General Plan. Therefore, there are no identified environmental impacts to mineral resources from development of the Amberwood project, and further discussion herein on this subject is therefore not required.

Level of Significance

- No Impacts

4.1.K NOISE

A Noise Impact Study was completed for the Amberwood project by Brown-Buntin Associates, and this study is included in the appendix of this document for reference. According to the Noise Impact Study, Project Related Noise Impacts from the development of the Amberwood Project can be divided into four primary sources as outlined below:

- On-Site traffic noise impacts.
- On-Site stationary noise source impacts.
- Off-Site traffic noise impacts, and
- Construction noise and vibration impacts.

The Noise Impact Study has been prepared to determine if significant noise impacts would be expected to occur within the Project Site or in areas outside the Project Site as a result of the development of the project, and to describe potential mitigation measures for noise if significant noise impacts are determined. Unless otherwise stated, all sound levels reported in the Noise Impact Study are in A-weighted decibels (db). 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 health effects.

City of Selma Noise Element

The Noise Element of the 2035 Selma General Plan establishes noise level standards for noise compatibility planning within the City. The noise level descriptors utilized within the Noise Element for transportation and non-transportation noise sources are the Day Night Average Level (DNL or LDN) and Community Noise Equivalent Level (CNEL). The DNL represents the time-weighted energy average noise level for a 24-hour day, with a 10 db penalty added to noise levels occurring during the night-time hours (10 PM to 7 AM). The CNEL descriptor is identical to the DNL except that an additional penalty of 5 db is added to noise levels occurring during the evening hours between 7 PM and 10 PM. Both descriptors represent cumulative exposure to noise over an extended period of time, and are therefore calculated based upon *annual average* conditions. The CNEL is applicable only to aircraft noise exposure, as required by the State of California.

Policy 3.3 of the General Plan Noise Element refers to a land use compatibility table that is difficult to interpret, due to the fact there are overlapping ranges of allowable exterior noise exposure. However, it is clear from Policies 3.5, 3.7, and 3.10 of the Noise Element that exterior noise exposure is considered unacceptable if it exceeds 65 db DNL/CNEL within the outdoor activity areas of noise sensitive uses. Outdoor activity areas include backyards of single family residences, individual patios or decks of multi-family developments, and common outdoor recreation areas for multi-family developments.

Policy 3.5 of the Noise Element specifies an interior maximum noise level standard of 45 db DNL/CNEL within noise sensitive rooms of noise sensitive buildings. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

Significant Increases in Ambient Noise Levels

The California Environmental Quality Act or the City of Selma does not define what constitutes a substantial increase in ambient noise levels. However, according to the Noise Impact Study, some guidance on this subject is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the DNL or CNEL. Annoyance is a summary measure of the general adverse reaction of people to noise levels that result in speech interference, sleep disturbance, or interference with other daily activities. Although the FICON recommendations were specifically developed to address aircraft noise impacts, they were used in the Noise Impact Study Analysis for transportation noise sources that are described in terms of cumulative noise exposure metrics such as the DNL. Table IV-19 below summarizes the FICON recommendations for increases in noise levels from transportation sources.

Table IV-19

Substantial Noise Increase for Transportation Sources

Ambient Noise Level Without Project DNL/CNEL	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 db	+5 db or more
60-65 db	+3 db or more
>65 db	+1.5 db or more

Source: FICON, 1992, as applied by Brown-Buntin Associates, Inc. db=decibels

For noise sources that are not transportation related, which generally includes commercial or industrial activities, and other stationary noise sources, it is common to assume that a 3-5 db increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3-5 db increase is the minimum change perceptable to most people, and that a 5 db increase is perceived as a definitely noticeable change.

Construction Noise and Vibration

Noise due to construction activities is generally considered to be *less than significant* if the construction activity is temporary, use of heavy equipment and noisy activities is limited to daytime hours only, pile driving or surface blasting would not occur, and all industry-standard noise abatement measures are implemented for noise-producing equipment.

Policy 3.1 of the General Plan Noise Element restricts the hours of operation for noise producing devices, appliances, equipment, or vehicles on public or private property abutting noise sensitive land uses. Such noisy operations are not permitted between 7 PM and 6 AM during weekdays or between 7 PM and 9 AM on weekends.

The City of Selma does not currently have regulations that define acceptable levels of vibration. According to the Noise Impact Study, one reference suggesting vibration standards is the Federal Transit Administration (FTA) publication concerning noise and vibration impact assessment from transit activities. Although the FTA guidelines are designed to be applied to transit activities, they may be reasonably applied to the assessment of the potential for annoyance or structural damage resulting from other activities. To prevent vibration annoyance in residential structures, a vibration velocity level of 80 Vdb or less is suggested when there are fewer than 70 vibration events per day. A vibration velocity level of 100 Vdb or less is suggested by the FTA guidelines to prevent damage to fragile buildings.

Existing Conditions

The predominant existing noise sources affecting the Amberwood Project Site and surrounding area include vehicular traffic on local roadways, and noise generated from agricultural activities. The Amberwood Project Site is located approximately 3.5 miles east of the Selma Aerodrome. This airport is a small privately owned airport with an average of 33 daily operations, the majority of which are single engine operations. The Amberwood Project Site is subject to periodic aircraft over flights, but such over flights are not considered to be a significant source of noise within the project site.

During completion of the Noise Impact Study, the existing ambient noise levels were field measured at two locations within the project site on June 9, 2010. The Site 1 noise measurement location was located in the southern portion of the Amberwood Project Site, approximately 150 feet from the center of Floral Avenue. The Site 2 noise measurement location was located in the northeast portion of the project site, approximately 1,300 feet south of the center of Dinuba Avenue, and approximately 1,300 feet east of the center of Del Rey Avenue.

According to the Noise Impact Study, the hourly background noise levels (L90) at Site 1 ranged from 38 dBA during the early morning hours to 49 dBA in the evening hours. Hourly Leq values

at this site ranged from approximately 41-57 dBA, and hourly maximum noise levels ranged from approximately 58-77 dBA. The measured DNL at this site for the 24 hour noise measurement period was 55.9 dB according to the Noise Impact Study. This is well below the City's 65 dB DNL noise standard for development of new noise sensitive land uses.

In addition, according to the Noise Impact Study, the hourly background noise levels (L90) at Site 2 ranged from 36 dBA during the early morning hours to 46 dBA in the evening hours. Hourly Leq values at this site ranged from approximately 39-53 dBA, and hourly maximum noise levels ranged from approximately 48-72 dBA. The measured DNL for the 24 hour noise measurement period was 51.8 dB at Site 2. This is also well below the City's 65 dB DNL noise standard for development of new noise sensitive land uses. Measured DNL values were higher at Site 1 than at Site 2, due to Site 1 being in closer proximity to Floral Avenue, a major existing transportation noise source.

Existing Traffic Noise Exposure

Existing traffic noise levels within and near the Amberwood Project Site were modeled using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model, and traffic data obtained from the Traffic Impact Study. The FHWA Model is an analytical method utilized by many 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 Leq values for free-flowing traffic conditions, and is generally considered to be accurate within + or - 1.5 dB. In order to predict DNL values, it is necessary to determine the hourly distribution of traffic for a typical day, and adjust the traffic volume input data to yield an equivalent hourly traffic volume. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Appendix B of the Noise Impact Study summarizes the noise modeling assumptions used to calculate traffic noise exposure for existing conditions near the Amberwood Project Site. The day/night distribution of traffic, and the percentage of trucks on project area roadways, were estimated by Brown-Buntin Associates (BBA) based upon studies performed along similar roadways.The traffic noise modeling assumptions summarized in Appendix B of the Noise Impact Study represent the best information known to BBA at the time the noise impact analysis was prepared. Table II of the Noise Impact Study summarizes existing traffic noise exposure, as defined by the annual average DNL, for various roadways within and near the Amberwood Project Site at typical residential setbacks. A typical residential building setback was assumed to be 75 feet from the center of the roadway. The reader is referred to Appendix

B and Table II of the Brown-Buntin Noise Impact Study for detailed information on existing traffic noise exposure levels.

Existing Stationary Noise Source Exposure

Agricultural activities represent the only existing stationary noise sources within the Amberwood Project Site. The existing noise levels measured at Site 2 during the ambient noise survey are considered to be representative of noise produced by existing agricultural activities. Hourly Leq values at that site ranged from approximately 39 to 53 dBA.

Project Related Noise Impacts

The development of the Amberwood project could cause noise levels to increase within the project site, and in areas near the project site. The Amberwood project includes noise-sensitive land uses as defined by the policies of the City of Selma General Plan Noise Element. There are also existing noise-sensitive land uses located adjacent to and near the project site. Such uses include existing single family homes, and an existing middle school, both of which are located to the west of the project site along Orange Avenue. Additionally, existing residential uses are located at various locations along major roadways near the project site that could experience project related increases in traffic noise.

On Site Traffic Noise Impacts

Traffic noise levels within the Amberwood Project Site have the potential to exceed the requirements of the City of Selma Noise Element. Using the previously described FHWA Model and future traffic volumes, the future (year 2035) plus project traffic noise levels were calculated for roadways located within the Project Site. Table IV-20 below indicates distances to the 65 dB DNL noise contour for future (2035) plus project conditions.

Table IV-20

Distance to 65 db DNL Contours Within the Project Site

Roadway	Roadway Segment	Distance (feet) to 65 db DNL Contour (2035 Plus Project)*
Dinuba Avenue	East of Orange Ave. West of Bethel Ave.	60 44
Orange Avenue	North of Dinuba Ave. South of Dinuba Ave.	13 25
Floral Avenue	East of Dockery Ave. West of Amber Ave.	62 30
Dockery Avenue	North of Floral Ave. South of Floral Ave.	5 38

Amber Avenue	North of Floral Ave. South of Floral Ave.	41 40

* Distances are from the center of the roadway. Source: Brown-Buntin Associates Inc.

Proposed noise sensitive land uses that will result in the placement of outdoor activity areas closer to the roadway than the 65 dB DNL contour outlined in Table IV-20 above will require noise mitigation.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Increase the setbacks of noise sensitive structures and outdoor activity areas from the arterial roadways as required to avoid areas and structures being exposed to greater than 65 db DNL noise levels.
- Construct a minimum 6 foot high decorative sound wall between noise sensitive structures and noise sensitive outdoor activity areas and arterial roadways.
- Limit residential structures to single story when located adjacent to or along major arterials which are subject to substantial traffic noise (Greater than 65 dB DNL).
- Ensure the interior noise levels of residential structures does not exceed 45 dB DNL through increased insulation, reduced window areas, and other approved construction methods where required for proper noise attenuation.

Level of Significance After Mitigation

- Less than Significant Impact

On Site Stationary Noise Source Impacts

The Amberwood project includes a commercial shopping center, elementary school, and police and fire public safety facility. These uses and facilities have the potential to generate significant noise levels at nearby noise sensitive land uses. The noise levels produced by such sources can also be highly variable. Typical examples of commercial and institutional noise sources are:

- Fans and blowers
- Truck deliveries
- Loading docks
- Compactors
- School bus movements
- Voice announcements through amplified public address systems

- Machine shop equipment use
- Waste collection activities
- Sirens and horn noise from emergency vehicles

According to the Noise Impact Study, noise levels from commercial or institutional land uses associated with the Amberwood Project cannot be predicted with any certainty at this time since detailed development plans are not yet available. However, under some circumstances there is a potential for such uses to cause annoyance to nearby noise sensitive uses and/or exceed the City of Selma Noise Standards. This may be especially true for the proposed commercial shopping center, if loading docks, truck routes, or mechanical equipment units are to be located adjacent to or near residential uses. Noise levels from commercial and institutional sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise producing characteristics of the sources, and the path of transmission between the noise sources and sensitive receptors. Noise levels from proposed commercial or institutional uses should not exceed 65 dB DNL within the outdoor activity areas of noise sensitive land uses which includes residences.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- During the site planning process for commercial or institutional uses, ensure buildings are set back a sufficient distance from noise sensitive land uses such that the outdoor activity areas of noise sensitive uses does not exceed a noise level of 65 dB DNL.
- Require engineered sound walls between commercial and institutional uses and noise sensitive uses as needed for proper noise attenuation.
- Require equipment enclosures for commercial and institutional mechanical equipment, and proper shielding to reduce noise transmission off site.
- Implement policy 3.9 of the General Plan Noise Element, which specifies additional preferred mitigation measures to be considered during the design of new commercial or institutional uses that may affect nearby noise sensitive uses.

Level of Significance After Mitigation

- Less than Significant Impact

Off Site Traffic Noise Impacts

The Amberwood Project will result in an increase in traffic on some roadways within the Project Area. These traffic impacts to adjacent streets and roadways are outlined in the Traffic Impact Study prepared for the project by Dowling and Associates. Off site traffic noise exposure was analyzed using the FHWA Model. The traffic noise modeling assumptions are summarized in Appendix B of the Noise Impact Study, which is included herein.

Traffic noise levels were calculated at typical residential setbacks for selected roadways outside of the Project Area for future (year 2035) conditions. Calculated DNL values with and without the project were compared to determine if the project would cause traffic noise levels to exceed the City of Selma 65 dB DNL exterior noise standard or result in a significant increase in ambient noise levels as defined in Table IV-19 herein. Existing noise barriers or other noise mitigation features were not accounted for in the calculations, since the analysis is intended to demonstrate the relative change in traffic noise exposure that could occur as a result of the project. Table IV-21 below summarizes the findings of the off-site traffic noise analysis. Outlined in this table are future (2035) with project and future (2035) without project traffic noise levels at typical residential setbacks along the roadways analyzed by the Traffic Impact Study. Table IV-21 shows that future (2035) with project traffic exposure along McCall Avenue (south of Dinuba Avenue) and Floral Avenue (west of McCall Avenue) could increase to above the 65 dB DNL as a result of the project. This is considered a significant noise impact. Table IV-21 also shows that the project could result in significant increases in traffic noise exposure along Dinuba Avenue (west of Orange Avenue) and Floral Avenue (west of Dockery Avenue).

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- The most effective form of noise mitigation at existing noise sensitive uses is the construction of effective sound walls. However, due to the many complications of working with individual existing homeowners and landowners to implement such measures, it may not be feasible to achieve successful noise mitigation for all existing noise sensitive land uses that could be impacted by the Amberwood Project. For this reason, these impacts will remain significant and unavoidable.

Level of Significance After Mitigation

- Significant and Unavoidable

Table IV-21

Summary of Off-Site Traffic Noise Impacts

DNL (dB) at Typical Residential Setback*

Roadway	Roadway Segment	2035 No Project	2035 with Project	Change	Significant?
McCall Avenue	n/o Manning	63.2	63.5	+0.3	NO
	s/o Manning	64.7	64.8	+0.1	NO
	n/o Dinuba Ave	65.2	65.7	+0.5	NO
	s/o Dinuba Ave	64.8	65.1	+0.3	NO
	n/o Floral Ave	65.6	65.9	+0.3	NO
	s/o Floral Ave	63.7	63.7	0	NO
Manning Avenue	w/o McCall Ave	67.6	67.6	0	NO
	e/o McCall Ave	68.5	68.7	+0.2	NO
	w/o Del Rey	68.1	68.3	+0.2	NO
	e/o Del Rey	67.9	68.0	+0.1	NO
	w/o Bethel Ave	68.0	68.1	+0.1	NO
	e/o Bethel Ave	67.6	67.8	+0.2	NO
Del Rey Ave.	n/o ManningAve	49.9	49.9	0	NO
	s/o Manning Ave	56.3	59.0	+2.7	NO
Bethel Avenue	n/o Manning	59.3	60.0	+0.7	NO
	s/o Manning	55.5	58.3	+2.8	NO
	n/o Dinuba Ave	55.1	58.1	+3.0	NO
	s/o Dinuba Ave	55.2	56.0	+0.8	NO
	n/o Floral Ave	55.8	56.4	+0.6	NO
	s/o Floral Ave	54.8	54.8	0	NO
Dinuba Avenue	w/o McCall Ave	63.5	64.6	+1.1	NO
	e/o McCall Ave	62.4	64.5	+2.1	NO
	w/o Orange	60.3	63.3	+3.0	YES
	e/o Bethel Ave	59.1	60.9	+1.8	NO
Floral Avenue	w/o McCall Ave	63.7	65.0	+1.3	NO
	e/o McCall Ave	60.9	63.6	+2.7	NO
	w/o Dockery	57.7	62.9	+5.2	YES
	e/o Amber Ave	54.9	55.6	+0.7	NO

Source: Brown-Buntin Associates. *75 feet from the center of the roadway. n/o = North of etc.

Construction Noise and Vibration Impacts

During construction of the various phases of the project, noise from construction activities could potentially impact noise sensitive land uses in the immediate area. Activities associated with construction would generate noise levels at 50 feet as indicated in Table IV-22 below. The heavy equipment that produces the highest noise levels would be associated with project site grading and excavation, roadway construction, and utility construction.

Vibration from construction activities could occasionally be perceptible at the closest sensitive land uses. The primary vibratory sources during construction activities within the Project Area would likely be large bulldozers or excavators,and heavily loaded trucks. Typical bulldozer or loaded truck activities generate an approximate vibration level of 86-87 VdB at a distance of 25

feet. Typically, vibration levels must exceed 80 VdB before annoyance occurs, or 100 VdB before building damage occurs.

Table IV-22

Typical Construction Equipment Noise Levels

Equipment	Maximum Noise Level at 50 Feet in dB
Crane and Excavator	81
Concrete Saw	90
Backhoe	78
Front End Loader	79
Jackhammer	89
Paver	77
Pneumatic Tools	85
Bulldozer	82

Source: Federal Highway Administration.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Noise or vibration impacts from construction activities can be mitigated, and are not usually considered to be significant if construction occurring near noise sensitive land uses is limited to the daytime hours only, extraordinary noise-producing activities such as pile driving are not anticipated, and construction equipment is adequately maintained and muffled. Policy 3.1 of the General Plan Noise Element provides mitigation through restricting the hours of operation for noise producing devices, appliances, equipment, or vehicles on public or private property abutting noise sensitive land uses. Under this policy, such operations are not permitted between the hours of 7 PM and 6 AM during weekdays, or between 7 PM and 9 AM during weekends. Implementation and enforcement of this policy for the Amberwood Project provides effective mitigation for construction related noise and vibration impacts.

Level of Significance After Mitigation

- Less Than Significant Impact

4.1.L POPULATION AND HOUSING

The full buildout of the Amberwood project is anticipated to occur in approximately 20 phases over an approximate 20 year time period. When fully completed, it is projected that there will be approximately 2,558 total dwelling units. Assuming an average population density of approximately 3.5 persons per dwelling unit, the Amberwood project would increase the population of the City of Selma by approximately 8,953 persons at full buildout. This is a substantial increase in the population of the City of Selma which is approximately 24,000 at the present time. The project would also increase the housing supply in the City of Selma by approximately 2,558 housing units. The housing units will be of various designs, price levels, and sizes, and will be constructed on twelve (12) individual lot types, which will range in size from 3,480 square feet to over 10,000 square feet. Both single story and two story homes will be constructed. Although future housing prices will be market driven, it is anticipated that all housing units constructed will be in the moderate to upper income price ranges. No lower income units will be constructed, and no apartment rental units will be constructed within Amberwood. All housing units with lake frontage will be in the above moderate and upper income ranges. The majority of the neighborhoods within Amberwood will be family oriented neighborhoods, however, at least one age restricted neighborhood (55 and up) may be provided to accommodate seniors.

Although the increase in population and housing from the Amberwood project is considered potentially significant, the impacts from the project due to population increase and housing unit increase can be considered potentially beneficial impacts for the following reasons:

- The project increases housing opportunities for families and seniors in the East Fresno County Region.
- The project assists the City of Selma with meeting its long term housing construction goals under the RHNA (regional housing needs allocation) process.
- The project provides additional job opportunities for residents within the commercial area of the Amberwood project.
- The project accommodates future residents of the City of Selma in a well planned and high quality community.
- The project increases recreational opportunities in the City of Selma through the provision of a new recreational community center building.
- The project provides for a new elementary school site.
- The project provides for a new public safety building (police and fire) to serve the east side of the community.
- The Amberwood project provides new opportunities for higher density development in the City of Selma with lots sizes as small as 3,480 square feet, thereby providing for more efficient use of land resources and smaller yards requiring less water for irrigation.

- The project is fully consistent with the population growth projections as contained in the updated 2035 Selma General Plan.
- The project site and future project population would be located immediately adjacent to existing urban development in the City of Selma, thereby allowing for a logical and well planned future growth extension pattern in the City, and will also allow for more efficient use of City services and utilities.

Any significant increase in the population of the City of Selma will place additional demands on City services such as police and fire, and on utilities such as water, sewer, electricity, and natural gas. Potentially significant impacts to the Selma Unified School District may also occur. These impacts and proposed mitigation measures are discussed in the appropriate sections of this EIR, and will not be further discussed in this section.

The impacts from future population growth itself cannot be mitigated because it is a natural progression due to the fact future birth rates are projected to exceed future mortality rates both within the City of Selma and the County of Fresno, according to the projections of the Fresno County Council of Governments. In addition, in-migration into the Fresno County region in the future due to new immigrants will also continue to drive future population growth in both the City of Selma and the County of Fresno.

Potentially significant impacts from housing and natural population growth is therefore considered a significant and unavoidable impact, and no mitigation measures are therefore proposed in this section of the EIR for population and housing.

Level of Significance Before Mitigation

- Significant and Unavoidable

Mitigation Measures

- No mitigation measures are available to reduce this impact to Less than Significant

Level of Significance After Mitigation

- Significant and Unavoidable Impact

4.1.M PUBLIC SERVICES

The Amberwood project, when fully built out, will cause significant impacts to Public Services. These impacts will affect the Selma Police and Fire Departments, Public Works Department, Community Services and Recreation Departments, Community Development Department, and

the Administration and Finance Departments. The impacts to Police and Fire public safety services will be discussed first and are outlined below.

(a) Police Services

Upon full buildout, the Amberwood project is estimated to add approximately 8,953 residents to the City of Selma. For purposes of this analysis, all residents of the Amberwood project are presumed to be new residents of the City of Selma. The Selma Police Department has established a ratio of 1.7 sworn police officers for every 1,000 residents as the future service level standard for law enforcement in the City of Selma. Assuming this service level for the residents of the Amberwood project, a total of approximately 15 new sworn police officers will be required when the project is fully constructed and occupied (1.7 X 9=15.3). In addition to new police officers, the development of the Amberwood project will require additional physical facilities (police sub station) and police equipment (police patrol cars, guns, radios, tasers etc.). The Amberwood project will provide an approximate 1.5 acre site for a new combined Police and Fire public safety facility. The proposed facility will include a new public safety building with an area of approximately 10,000 square feet. The building will include a classroom for training purposes, and may also include an emergency operations center. Funds for construction of the new public safety building will come from development impact fees, which will be collected by the City building department prior to the issuance of a building permit for new homes and new commercial buildings. A minimum of eight (8) new police patrol units will be required for the 15 new police officers who will staff the Amberwood sub-station 24 hours per day, 365 days per year.

(b) Fire Services

Buildout and development of the Amberwood project will require that additional firefighters be hired. A new fire sub-station for Amberwood will also be required, and it will be co-located with the new Police sub-station facility. As mentioned above, the new public safety building will house both police and fire services, and it will comprise an area of approximately 10,000 square feet. Assuming a ratio of 1.27 firefighters for each 1,000 residents of Amberwood, a total of approximately eleven new firefighters will be needed when Amberwood is fully occupied. In addition to new personnel, new firefighting equipment (Class A pumper truck) and a new paramedic ambulance unit will also be needed.

The water system for Amberwood will be designed and constructed to provide for the required fire flows for on site fire fighting. All water mains will be looped, and will be a minimum of 8 inches in diameter. Fire hydrant locations will be as approved by the Selma Fire Chief.

(c) Public Works including Parks

The construction of the Amberwood project will add several miles of new streets to the infrastructure of the City of Selma. These streets will include local streets, collector streets, and arterial streets. Many of the streets within the project, particularly local streets that serve gated individual neighborhoods, will be private and will be owned and maintained by the Amberwood Homeowners Association. All streets within the lake neighborhoods located south of Floral Avenue will be private. All arterial streets and collector streets located north of Floral Avenue, including Floral Avenue, Amber Avenue, and Dinuba Avenue will be City dedicated public streets, and will be owned and maintained by the City of Selma. The collector streets serving the community center building area, public safety facility, elementary school, and the commercial areas will be public streets and will be dedicated to the City of Selma. The addition of approximately 4 miles of new arterial and collector public streets will have an impact on the street maintenance program in the City public works department. This will necessitate the future hiring of new street maintenance personnel, and will also require additional street maintenance funding for future seal coating, asphalt crack filling, curb, gutter, and sidewalk replacement, and asphalt overlays. Additional street maintenance equipment and vehicles will also be required including pickup trucks (2), dumptruck (1), and street sweeper (1). A minimum of four (4) additional public works street maintenance personnel will be needed to serve the Amberwood project area. In addition to streets, the public works department in Selma is also responsible for maintenance of all public parks in the City. The Amberwood project site includes a total of approximately 54 acres for several (13) new public parks, which will be located at strategic locations to serve the individual neighborhoods. The maintenance of these new parks will require additional park maintenance personnel (4 new park maintenance staff persons), and will also require additional park maintenance vehicles (2 pickup trucks) and self propelled lawn mowing equipment. A lighting and landscaping maintenance district will also be formed for Amberwood. Residents of the Amberwood project will be assessed annually on their property tax bills in order to provide funding for the lighting and landscaping maintenance district. The district will be responsible for maintenance of street lighting and landscaping along all the major public arterial streets and collector streets which traverse Amberwood.

(d) Other Public Facilities

(i) Schools

The Amberwood Specific Plan provides for a new 10.8 acre elementary school site within the boundaries of the Amberwood project. This new school will serve elementary school children within Amberwood and other areas of the City of Selma, as determined by the Board of the Selma Unified School District. The 10.8 acre school site will be sold to the school district by the developer of Amberwood at fair market value.

(ii) Community Center

The Amberwood Specific Plan provides for a new community center building to serve the residents of Amberwood and other residents in the City. The community center will be a public facility, and will be owned and operated by the City of Selma. The community center building, and surrounding recreational fields and parking areas will be dedicated to the City of Selma by the developer.

(iii) On Site Wastewater Treatment Plant

The proposed on site wastewater treatment plant impacts are discussed further under the Utilities and Service Systems section of this document.

(iv) Off Site Master Stormwater Detention Basin

As previously outlined herein, the Amberwood project will utilize the private lake areas for deposition of stormwater from the project. However, at some predetermined point, prior to the full buildout of the project site, as determined by the City Engineer and the approved project grading and drainage plan, the off site master stormwater detention basin will need to be constructed. This basin will provide for an emergency overflow stormwater detention facility, and will be connected to the private lake areas by a 12 inch minimum overflow pipe line. The emergency stormwater overflow from the project site may occur during severe 100 year and 500 year storm events. This impact is discussed further under the Utilities and Service Systems section of this document.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Developer/Builder shall pay Development Impact Fees as adopted by the City prior to the issuance of a Building Permit for new homes and commercial buildings.
- Developer shall dedicate the Community Center Building and surrounding land (approximately 5 acres) to the City for public recreational use.
- Developer shall pay required school impact fees to the Selma Unified School District prior to issuance of a building permit by the City.
- Developer shall agree to participate in a Landscaping and Lighting Assessment District which will be formed for Amberwood through City Council action.
- In order to minimize the impacts to the City Public Works Department for street maintenance, all local streets within Amberwood will be private streets, and the Amberwood Homeowners Association shall be responsible for maintenance of the private streets.

Level of Significance After Mitigation

- Less than Significant Impact

4.1.N RECREATION AND PARKS

The Amberwood project, with a projected population of approximately 8,953 residents at full buildout, will place additional demands on the existing public parks, and on the recreational programs of the Community Services Department. Recreational programs offered by the City include such sports as T ball, softball, and soccer. In order to accommodate a significant potential increase in recreational program participants, the City of Selma Community Services Director estimates that a minimum of two (2) new full time recreation coordinators will be needed. One of these new recreation coordinators will staff the new community center building to be located within the Amberwood development project site.

Regarding park maintenance, four (4) additional park maintenance persons will be needed to maintain the projected 54 acres of new public park lands. In addition, new park maintenance vehicles and equipment will be needed as discussed in the public works subsection of Section 4.1.M.

Impacts to the major recreational program parks in the City, such as Shafer Park and Ringo Park, will be most pronounced. This is due to the fact that these parks have baseball fields, basketball courts, and soccer fields which are home to City wide recreational programs. Residents of Amberwood could therefore be expected to participate in recreational programs offered at these two parks.

The Amberwood project, with its 54 approximate acres of new public park sites, will for the most part mitigate the impacts to other neighborhood City parks as residents of Amberwood will most likely use the closest neighborhood parks located within their individual neighborhoods. In addition, these parks, as public parks, will also be open for use to all residents of the City of Selma. In addition, prior to issuance of building permits for the single family housing units within Amberwood, a park impact mitigation fee (currently $5,011.00 per dwelling unit) will be collected by the City. This totals $12,818,138 in park impact mitigation fees for the projected 2,558 total dwelling units planned for Amberwood.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- Payment of Park Impact Mitigation Fees of $5,011.00 per dwelling unit. In addition, dedication of the Community Center Building and surrounding land to the City by the developer.
- The developer shall construct required infrastructure within and around the perimeter of each private and public park site. The subject required infrastructure shall include paved streets, curbs, gutters, sidewalks, street lighting, interior park security lighting, and required landscaping in accordance with a City approved landscape plan.

Level of Significance After Mitigation

- Less than Significant Impact

4.1.O TRAFFIC AND TRANSPORTATION

INTRODUCTION

A separate traffic impact study was completed for the Amberwood project EIR by Dowling & Associates, and the full text of the completed traffic impact study is included in Appendix C of this document for reference. The Amberwood project, as it is completed to full buildout, will increase the traffic significantly within the City of Selma. The project will also impact State of California facilities, primarily the State interchanges located at State Highway 99 and Floral Avenue, Highland Avenue, Second Avenue, Manning Avenue, and Mountain View Avenue. Some impacts to County roadways and County intersections may also occur.

According to information outlined in the Institute of Transportation Engineers (ITE) traffic generation manual, single family residences can be expected to generate approximately eight (8) ADT (average daily trips) per day for each dwelling unit. Using this traffic generation criteria, the 2,558 total single family units to be located within Amberwood would generate a total of approximately 20,521 average daily trips. The 131,200 square feet of retail commercial and service uses could generate an additional 8,102 average daily trips. Other significant land uses include the Community Center, Public Safety Facility, and the Elementary School. Total projected trip generation rates for all uses within the project are outlined in Table IV-23 below.

Table IV-24 below presents the trip generation rates with the resulting daily and peak hour trips to be generated by the entire project. The peak hours are the hours of peak traffic activity on adjacent streets, and generally occur in the 7-9 a.m. period and the 4-6 p.m. period. A trip is defined as a one-way vehicle movement that either begins or ends within the project site. This estimate indicates that the project has the potential to generate about 26,350 new trips per day, with approximately 1,950 trips in the morning peak hour and with approximately 2,420 trips in the afternoon peak hour. This would be the traffic generation that would be added to the study area roadways and intersections analyzed herein and does not include the internal

traffic flows that would remain within the Amberwood Specific Plan area. The internal trips were estimated using the ITE methodology for on-site trip capture with input from the Fresno COG regional travel forecasting model estimate of the internal project trips. The resulting estimate of the internal trip percentage is about 16.5% in the AM peak hour and about 17.5% in the PM peak hour. To be conservative and because there is little traffic in the project vicinity now, no separate adjustment was made for passby trips for the shopping center land use.

Table IV-23

Total Daily Trip Generation Rates At Full Buildout*

LAND USE CATEGORY	TOTAL PROJECTED AVERAGE DAILY TRIPS
Single Family Residential	8.02 ADT/Unit/2558 Units=20,521 ADT
Retail and Service Commercial	131,200 square feet=8,102 ADT
Elementary School	700 students=903 ADT
City Parks	54.3 acres=434 ADT
Public Safety Facility (Police and Fire)	10,000 square feet=227 ADT

*Source: Traffic Impact Study prepared by Dowling Associates Inc.

Table IV-24

Peak Hour Trip Generation Estimate

Land Use	Am In	Am Out	Total	Pm In	Pm Out	Total
Residential Single Family	450	1,350	1,800	1,224	719	1,944
Shopping Center	110	71	181	374	389	763
Public Safety Facility	26	4	30	15	75	90
Elementary School	173	142	315	51	54	105
City Parks	4	1	5	13	19	33
Subtotal	764	1,568	2,332	1,678	1,256	2,934
Internal Trips	192	192	384	257	257	513
New Trips	572	1,375	1,947	1,422	999	2,421

Source: Traffic Impact Study prepared by Dowling Associates Inc.

The total Amberwood daily trip generation rates and peak hour rates outlined above are projections only, and are for full buildout of the project, which is expected to take 15 to 20 years. Due to the long term nature of the Amberwood project, traffic within the project will increase gradually over a period of many years as each phase of the project is completed. This will allow for ample time to design and construct needed transportation related improvements. In addition to the payment of traffic impact mitigation fees prior to occupancy of homes and other uses , other mitigation measures will require direct construction by the developer of public streets, traffic signals, and public bus stops. These transportation facilities will be dedicated to the City by the developer during completion of each phased final subdivision map. In addition to the traffic impact analysis of project related traffic on streets, roadways, and studied intersections; the traffic impact study also includes an analysis of the project related traffic on the main railroad crossing located near the Floral Avenue and Whitson Avenue intersection. The traffic impact study also includes a CEQA required cumulative impact analysis. This cumulative impact analysis includes the impacts of the Amberwood project traffic when combined with the traffic generated by other approved and recently completed development projects in the City. The year 2035 cumulative plus project traffic analysis also includes a listing of 14 other pending projects in the City which are outlined herein, and which are also anticipated to generate significant traffic volumes when completed over the next 25 years.

TRAFFIC IMPACT ANALYSIS AND MITIGATION MEASURES

The Traffic Impact Study includes a traffic impact analysis and recommended mitigation measures for three scenarios as follows:

1. Existing Plus Project Traffic Levels.

2. Existing Plus Approved Projects Plus Project Traffic Levels.

3. Cumulative 2035 Plus Project Traffic Levels.

The Traffic Impact Study includes an analysis of the existing (current) traffic volumes for the weekday peak hour traffic at the following key intersections:

- Manning Avenue and the southbound SR 99 on and off ramps
- Manning Avenue and the northbound SR 99 off ramp
- Manning Avenue and Leonard Avenue
- Manning Avenue and McCall Avenue
- Manning Avenue and Del Rey Avenue
- Manning Avenue and Bethel Avenue
- Golden State and Dinuba Avenue
- Dinuba Avenue and Highland Avenue

- Dinuba Avenue and Thompson Avenue
- McCall Avenue and Dinuba Avenue
- Dinuba Avenue and Orange Avenue existing (South of Dinuba)
- Dinuba and Del Rey Avenue
- Dinuba and Bethel Avenue
- Golden State and Highland Avenue
- Floral Avenue and De Wolf Avenue
- Floral Avenue and SR 99 southbound off ramp
- Floral Avenue and SR 99 northbound on ramp
- Floral Avenue and Highland Avenue
- Floral Avenue and SR 99 northbound off ramp
- Floral Avenue and Whitson Avenue
- Floral Avenue and McCall Avenue
- Floral Avenue and Orange Avenue
- Floral Avenue and Dockery Avenue
- Floral Avenue and Amber Avenue
- Bethel Avenue and Floral Avenue
- Highland Avenue and SR 99 southbound on ramps
- Highland Avenue and SR 99 northbound on ramp
- Highland Avenue and Rose Avenue
- McCall Avenue and Rose Avenue
- Amber Avenue and Rose Avenue
- Bethel Avenue and Rose Avenue
- Second Street and SR 99 southbound off ramp
- Second Street and SR 99 northbound on ramp
- Second Street and Whitson Avenue
- Amber Avenue and Nebraska Avenue
- Highland Avenue and Mountain View Avenue
- McCall Avenue and Mountain View Avenue
- Mountain View Avenue and SR 99 southbound off ramp
- Mountain View Avenue and SR 99 southbound on ramp
- Mountain View Avenue and SR 99 northbound on ramp
- Mountain View Avenue and SR 99 northbound off ramp
- Golden State and Mountain View Avenue
- Mountain View Avenue at proposed Amber Avenue Extension
- Mountain View Avenue and Bethel Avenue
- McCall Avenue and American Avenue

- McCall Avenue and Central Avenue
- McCall Avenue and Jensen Avenue
- Manning Avenue and Golden State
- Manning Avenue and SR 99 northbound on ramp
- Floral Avenue Eastbound and SR 99 northbound on ramp
- Orange Avenue proposed northward extension (North of Dinuba) and Dinuba Avenue

The traffic study also depicts the existing (current) traffic control situation at the above key intersections and labels the current intersection traffic controls as follows: a) stop sign control; b) all-way stop sign control; and c) traffic signal control. Figures 4a, 4b, and 4c herein depict the current (existing) weekday peak hour traffic volumes at the key intersections analyzed in the traffic study. The AM peak hour volumes generally occur between the hours of 7 a.m. and 8 a.m., and the PM peak hour traffic volumes generally occur between the hours 5 p.m. and 6 p.m. on weekdays. The turning movement volumes for the existing traffic contained in figures 4a, 4b, and 4c were obtained from other recent traffic studies and from manual traffic counts taken in September 2009 for some of the key intersections. All of the existing traffic counts were taken within the last 2 years. Appendix B-1 contained herein depicts the inventory of peak hour traffic counts used in the traffic impact analysis.

Large trucks (6 or more wheels) were included in the traffic counts at key intersections. In most cases on weekdays, trucks represent about 5-6.5% of all vehicles in the AM peak hour and about 2-4.5% in the PM peak hour. Some of the traffic count locations were found to have higher levels of truck traffic, particularly those locations with nearby industrial uses and trucking related land uses such as shipping and distribution centers. The measured truck traffic percentages were used in the level of service calculations contained in the traffic study. Where truck count data was not available, assumptions were made based on the type of roadways involved and the type of surrounding land uses, using the results from those intersections where truck count data was available. Appendix B-1 also depicts the heavy vehicle percentages assumed for each intersection analyzed in the traffic study.

Peak hour factors (PHF), as contained in the Highway Capacity Manual 2000 procedures section prepared by the Transportation Research Board in Washington D.C. were used in the capacity calculations for the traffic study. For the near term traffic analysis scenarios, the actual existing measured peak hour factors were used. For the future traffic analysis scenarios, the minimum peak hour factor of 0.92 for urban conditions per the Highway Capacity Manual was used unless the existing peak hour factors were greater. In this case, the existing peak hour factors are used. Appendix B-1 also shows the peak hour factors assumed for each intersection in the traffic study.

The traffic impact study also considered the cumulative traffic impacts from several approved and recently completed developments in the City of Selma. Approved and recently completed developments in the study area include the following:

- Tract Map No. 5303- Valley View Subdivision consisting of 193 single family residential lots.
- Tract Map No. 5296- Raven Homes Subdivision consisting of 134 single family lots.
- Selma Industrial Park Phase II Subdivision north of Saginaw and east of Golden State.
- Tract Map No. 5765- Bratton Homes consisting of 220 single family residential lots.
- Tract Map No. 5519- Central Valley Land Group consisting of 66 single family residential lots.
- Tract Map No. 5361- Raven Homes consisting of 160 single family residential lots.
- Tract Map No. 5217- Canales mixed use Subdivision consisting of 153 single family residential lots and 138,000 square feet of retail commercial on 12.7 acres.
- Project No. 2006-0044- Eye Q Vision commercial building consisting of 11,800 square feet and located West of Whitson, North of Stillman, and East of State Route 99.

The peak hour trip assignments for these approved and recently completed developments are depicted in Figures 5a, 5b, and 5c for the AM and PM peak hours. These traffic volumes were obtained from the traffic impact analysis prepared for each respective project, and where necessary, estimates were compiled by the Amberwood EIR traffic engineer for intersections not included in the respective project traffic analysis, or in cases where the traffic analysis was otherwise not available. Figures 6a, 6b, and 6c contained herein depict the combined Existing plus Approved Project AM and PM peak hour traffic volumes.

The Level of Service Methodology used herein for street intersection analysis is that outlined in the Transportation Research Board's Highway Capacity Manual 2000. Level of Service (LOS) is a concept used by traffic engineers to describe the peak hour traffic conditions at a given intersection. There are six (6) levels of service, Level A through Level F , with Level A being the least congested and with Level F being the most congested. It is the policy of the City of Selma that LOS A through D are considered to provide traffic conditions in the acceptable range and LOS E and F provide traffic conditions in the unacceptable range for all but local streets. Local streets must operate at LOS B or above. None of the key intersections analyzed in the traffic impact study are local streets.

At intersections with minor street stop sign traffic controls, most of the major street traffic is undelayed, and by definition have acceptable traffic conditions. The major street left turn movements, and the minor street movements are all susceptible to delay of varying degrees. Generally, the higher the major street traffic volumes, the higher the delay for the minor

movements. For analysis of unsignalized intersections an average total delay per vehicle for each minor street movement, and for the major street left turn movements is calculated, based upon the availability of adequate traffic gaps in the major street through traffic. A level of service designation is then assigned to individual traffic movements or to combinations of movements (in the case of shared lanes) based upon amount of delay. Level of Service designations are included herein for each movement (or group of movements) based upon the respective average delay per vehicle. Table IV-25 presents the average traffic delay criteria used to determine the Level of Service at unsignalized intersections.

Table IV-25

Level of Service Criteria for Unsignalized Intersections*

Level of Service	Average Delay (seconds per vehicle)**
LOS A	0.0 - 10.0
LOS B	10.1 - 15.0
LOS C	15.1 - 25.0
LOS D	25.1 - 35.0
LOS E	35.1 - 50.0
LOS F	Greater than 50.0

*Source:Transportation Research Board Highway Capacity Manual. ** Weighted average delay.

Table IV-26 below presents the Level of Service criteria for signalized intersections according to the Highway Capacity Manual 2000 of the Transportation Research Board.

Table IV-26

Level of Service Criteria for Signalized Intersections

Level of Service	Average Delay (seconds/veh)	Description
LOS A	Less than 10.0 seconds	Very Low Delay: This level of service occurs when progression is extremely favorable and most vehicles arrive during a green phase and most vehicles do not stop at all.
LOS B	10.1 - 20.0	Minimal Delays: This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.

LOS C	20.1 - 35.0	Acceptable Delays: Delays increase due to only fair progression, longer cycle lengths, or both. Individual cycle failures (to service all waiting vehicles) may begin to appear at this level of service. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
LOS D	35.1 - 55.0	Approaching Unstable/Tolerable Delays: The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
LOS E	55.1 - 80.0	Unstable Operation/Significant Delays. This is considered by many agencies as the upper limit of acceptable delays. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
LOS F	Greater than 80.0	Excessive Delays: Describes traffic operations with average delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation (i.e. when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delays.

Source: Highway Capacity Manual 2000, Transportation Research Board, Washington D.C.

For roadway segment analysis, the methodology of the Florida Department of Transportation is used in the Traffic Impact Study. This method determines the level of service for a roadway segment based upon the traffic volume carried by the roadway.

The potential need for traffic signals at the unsignalized intersections included within the study area is evaluated in the Traffic Impact Study using the peak hour signal warrant criteria included in the Manual on Uniform Traffic Control Devices (MUTCD). This warrant considers the traffic levels during the peak hour of an average day.

Signal warrant criteria indicate traffic volume levels above which it is presumed that the need for a traffic signal is warranted. Traffic signals tend to reduce the potential for right angle type collisions but also tend to increase the potential for less severe rear end collisions. The signal warrant traffic volumes represent the threshold point at which the potential for more rear-end collisions is offset by the potential for fewer but more severe right angle collisions. When the signal warrant volumes are exceeded, an intersection should be considered for signalization, however, the decision to install a traffic signal should not be based solely upon warrants. Delay, congestion, approach conditions, driver confusion, future land uses, or other evidence of the need for right of way assignment beyond that provided by stop signs must be demonstrated.

The following excerpt is stated in the 2003 edition of the Manual on Uniform Traffic Control Devices: *"An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the subject location shall be performed to determine whether installation of a traffic control signal is justified at the particular location. The investigation of the need for a traffic control signal shall include an analysis of the applicable factors contained in the following traffic control warrants and other factors related to the existing operation and safety at the study location:*

- *Warrant 1 Eight Hour Vehicular Volume*
- *Warrant 2 Four Hour Vehicular Volume*
- *Warrant 3 Peak Hour Vehicular Volume*
- *Warrant 4 Pedestrian Volume*
- *Warrant 5 School Crossing*
- *Warrant 6 Coordinated Signal System*
- *Warrant 7 Accidents at the Intersection*
- *Warrant 8 Roadway Network*

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal".

The Traffic Impact Study analysis contained herein did not evaluate all of the warrants for traffic signals at study intersections, but instead focused upon the critical peak hour warrant. The unusual aspect of this analysis is the fact that when forecasting future traffic volumes in the traffic study area, only the peak hour or daily traffic volumes are available, so evaluation of the signal warrants that require more detailed traffic data is not possible.

Therefore, the peak hour warrant is used in the Traffic Impact Study as an indicator of the likelihood of an existing or future unsignalized intersection warranting a traffic control signal in the future. Study intersections that fail to exceed the peak hour warrant are considered for the purposes of the Traffic Impact Study to be unlikely to meet one or more of the other signal warrants such as the 4 hour or 8 hour warrants. However, this does not mean that a signal is definitely unwarranted at a particular study intersection. A traffic signal may be warranted by other criteria, some of which cannot be known until after the intersection is constructed and is operational. The peak hour traffic signal warrant analysis contained herein is not intended to replace or substitute for a rigorous and complete engineering traffic signal warrant analysis conducted by the responsible jurisdiction, or in the case of State Facilities, a complete traffic engineering study for the subject proposed traffic signal location to be conducted by Caltrans.

Appendix A-1 to A-3 presents the Manual on Uniform Traffic Control Devices signal warrant charts for peak hour for urban conditions for the intersections included in the Traffic Impact Study. The urban conditions warrant was used to evaluate all of the unsignalized intersections included in the Traffic Impact Study.

The *Impact Threshold Criteria* describes the criteria used in the Traffic Impact Study to determine if the project traffic impacts are significant and therefore require mitigation. The following *Impact Threshold Criteria* applies to the intersection traffic control and roadway segment scenarios:

A. *Signalized and All-Way Stop Intersections*

- At signalized intersections, all-way stop controlled intersections, and roadway segments, if the project traffic causes the overall peak hour LOS to worsen from LOS A, B, C, or D to LOS E or F, then the project traffic impacts will be considered to be significant.
- If the overall peak hour LOS is E or F without the project, then the project impacts will be considered to be significant if the project traffic causes any worsening of the peak hour overall average delay.

B. *Unsignalized Intersections (1 way or 2 way stop sign controlled)*

- At other unsignalized intersections, if peak hour volume traffic signal warrants are not met and minor movements have LOS E or F conditions even with all other reasonable improvement measures, then the project impacts will not be considered to be significant. This criteria is justified because, in such cases, the number of vehicles that experience the LOS E or LOS F conditions is usually quite small and until the traffic volumes reach the signal warrant levels, the overall operation and safety of the intersection would be better served with stop sign traffic controls.
- If the project traffic causes peak hour volume traffic signal warrants to be met, then the project traffic impacts will be considered to be significant.
- If the peak hour volume traffic signal warrants are met without the project and minor movements have LOS E or LOS F conditions, then the project traffic impacts will be considered to be significant if the project traffic causes any worsening of the peak hour average delay for the movements with LOS E or LOS F conditions.

C. *Roadway Segments*

- For roadway segments, if the project traffic causes the peak hour LOS to worsen from LOS A ,B ,C, or D to LOS E or LOS F, then the project traffic impacts will be considered to be significant.
- If the peak hour LOS is E or F without the project, then the project traffic impacts will be considered to be significant if the project traffic causes any increase in the peak hour two-way traffic volume.

Project Trip Distribution and Assignment

Trip distribution for the Amberwood project trips was based on trip distribution data produced using the Fresno COG regional travel forecasting model. The model determined the directional travel patterns for the project trips using the local and regional distribution of population and non-residential land uses. The computer model then estimated the roadways that these trips would likely use to travel to and from the project site, given the projected travel speeds and levels of congestion on the various possible routes. Percentages were derived from these model estimates and applied to the project's estimated trip generation presented earlier in Table IV-4. Figure 7 included herein depicts the project trip distribution pattern and trip distribution percentages for Amberwood project trips based on this approach. Figure 7 also depicts the location of the project site geographically in relation to the regional roadway system. Both the AM and PM trip distribution percentages are included.

Using the directional trip distribution patterns depicted in Figure 7, the project peak hour traffic generation was assigned to the vicinity roadway system. Generally, the shortest most direct travel path was used in the assignment process. In cases where relatively equivalent alternate routes exist, traffic was assigned proportionately to each route based on the travel times and distances involved. Because the future roadway network will include the new north-south Amber Avenue arterial, separate traffic assignment paths were estimated for the near term and long term scenarios. The Amber Avenue arterial will be completed in phases as the project builds out.

The resulting near term AM and PM peak hour trip assignments using the distribution and assignment assumptions outlined above are presented in Figures 8a, 8b, and 8c which are included herein. The only difference between the near term and future project trip assignments is the use of the new route in the future that is not available in the near term. The number of trips assigned is the same in both cases.

Existing Levels of Service and Signal Warrant Analysis

Using the existing lanes and traffic controls, the existing traffic volumes, and the methodologies previously described herein, the existing levels of service for the key intersections and roadway segments that will serve the Amberwood project traffic were determined. Table 6a and 6b outlines the results for the key intersections, and Table IV-28 shows the results for the key County roadway segments on McCall Avenue. These results indicate that eight (8) of the studied intersections currently experience LOS E or F conditions in at least one of the peak hours. Table IV-27 below outlines the current levels of service for these eight intersections.

Table IV-27

Currently Deficient Levels of Service for Studied Intersections*

Intersection	Control	LOS AM PH	LOS PM PH	Signal Warranted
SR 99 NB Offramp/Manning	Unsignalized	F	E	**Yes**
Leonard/Manning	Unsignalized	F	E	No
Bethel/Manning	Unsignalized	F	F	No
Golden State/Dinuba	Unsignalized		E	No
Highland/Rose	Unsignalized		F	No
SR 99 SB Offramp/2nd St.	Unsignalized		E	No
SR 99 SB Offramp/Mountain	Unsignalized		F	**Yes**

View				
SR 99 NB Offramp/Mountain View	Unsignalized		E	No

PH = Peak Hour. Source: TIS Prepared by Dowling Associates Inc. * Below LOS D

The potential need for traffic signals at the key intersections was evaluated and as outlined in Table IV-8 above, two (2) of the studied unsignalized intersections currently carry traffic volumes that exceed the signal warrant levels, and therefore would meet the signal warrant criteria. These are the SR 99 northbound offramp at Manning Avenue and the SR99 southbound offramp at Mountain View.

All of the roadway segments analyzed in the Traffic Impact Study currently have LOS C conditions in the peak hours.

Existing plus Project Level of Service and Signal Warrant Analysis

Again, using the existing lanes and traffic controls, the *Existing Plus Project Levels of Service* for the intersections and roadway segments analyzed in the Traffic Impact Study were determined. Tables 6a and 6b also shows the Existing + Project LOS for the AM and PM peak hours for the key intersections and Table IV-28 below also shows the results for the key County roadway segments. These results from the Traffic Impact Study indicate that the Amberwood project will cause an additional six (6) intersections to experience LOS E or LOS F conditions in at least one of the peak hours. These six intersections are summarized below in Table IV-29.

Table IV-28

County Roadway Segment Levels of Service and Volumes for McCall Avenue*

Roadway Segment	Existing				Existing Plus project			
	AM PH		PM PH		AM PH		PM PH	
Manning to American Avenue	Volume 428	LOS C	Volume 509	LOS C	Volume 481	LOS C	Volume 584	LOS C
American Ave to Central Ave.	Volume 351	LOS C	Volume 403	LOS C	Volume 393	LOS C	Volume 464	LOS C
Central to Jensen Avenue	Volume 561	LOS C	Volume 549	LOS C	Volume 598	LOS C	Volume 606	LOS C

* Two Way Peak Hour (PH) Volume. Source: TIS Prepared by Dowling Associates Inc.

Table IV-29

Existing Plus Project Impacts to Levels of Service at Six Additional Intersections

Intersection	Control	Existing		Existing + Project				
		AM PH	PM PH	AM PH	PM PH	Signal	Impact	Mitigation
Del Rey/ Manning NB Approach	Unsig.	B	B	F	F	No	No	No
McCall/Dinuba	AWS	C	C	F	F	No	Yes	Yes
Orange/Dinuba NB Approach	Unsig.	B	B	D	F	No	No	No
Del Rey/ Dinuba NB Approach	Unsig.	B	A	F	D	No	No	No
Orange/Floral	AWS	B	B	E	F	No	Yes	Yes
Dockery/Floral NB Approach	Unsig.	B	B	F	F	No	No	No

None of these additional intersections under the *Existing + Project* scenario would carry traffic volumes that exceed the signal warrant levels and therefore they would not meet the signal warrant criteria. All of the roadway segments analyzed in the Traffic Impact Study continue to have Level of Service C conditions in the peak hours even with the added project generated traffic.

Existing plus Approved Level of Service and Signal Warrant Analysis

Tables 8a and 8b from the Traffic Impact Study shows the level of service results for the key intersections with the approved and recently completed development traffic added to the existing peak hour traffic volumes. These results indicate that nine (9) of the studied intersections would experience Level of Service E or F conditions in at least one of the peak hours. These intersections are summarized below in Table IV-30.

Table IV-30

Existing Plus Approved Projects Impacts to Intersection Levels of Service

Intersection	Control	AM PH	PM PH	Signal Warranted
SR99 North Bound Offramp/Manning Avenue	Unsignalized	F	F	**Yes**
Leonard/Manning	Unsignalized	F	F	No
Bethel/Manning	Unsignalized	F	F	No
Golden State/Dinuba	Unsignalized		E	No

McCall/Dinuba	All Way Stop	F	F	**Yes**
Highland/Rose Avenue	Unsignalized	E	F	**Yes**
SR 99 South Bound Offramp/Second Street	Unsignalized		E	No
SR 99 Southbound Offramp/Mountain View Avenue. SR 99 Northbound Offramp/Mountain View Avenue.	Unsignalized Unsignalized		F E	**Yes** No

Source: Traffic Impact Study prepared by Dowling Associates Inc.

Table IV-31 below indicates that even under the Existing+Approved+Project scenario, the affected County roadway segments along McCall Avenue would still operate at LOS C. The Amberwood Project Traffic, when added to the existing plus other approved projects traffic, will cause an additional five (5) intersections to experience Level of Service E or F conditions in at least one of the peak hours. These additional intersections are summarized below in Table IV-32. Four of these additional intersections would carry traffic volumes that exceed the signal warrant levels, and therefore would meet the signal warrant criteria for the peak hour as outlined in Appendix A-1 to A-3 of the Traffic Impact Study. Also outlined below is a tabulation of the significance of the Amberwood project traffic impact on each intersection using the impact threshold criteria presented on pages 69 and 70 herein. This tabulation shows that the project would have a significant traffic impact on eleven (11) intersections. All of the roadway segments outlined herein would continue to have LOS C conditions in the peak hours under this scenario, even with the addition of the Amberwood Project Traffic.

Table IV-31

County Roadway Segment Volumes and Levels of Service for McCall Avenue*

Roadway Segment	Existing + Approved		Existing + Approved + Project	
	AM PH	PM PH	AM PH	PM PH

Manning to American Avenue	Volume 438	LOS C	Volume 518	LOS C	Volume 491	LOS C	Volume 593	LOS C
American Ave. to Central Ave.	Volume 361	LOS C	Volume 412	LOS C	Volume 403	LOS C	Volume 473	LOS C
Central Avenue to Jensen Avenue	Volume 571	LOS C	Volume 558	LOS C	Volume 608	LOS C	Volume 615	LOS C

*Two-Way Peak Hour Volume. Source: Traffic Impact Study prepared by Dowling Associates.

Table IV-32

Existing Plus Approved Plus Amberwood Project Impacts to Intersection LOS

Intersection	Control	AM PH	PM PH	Signal Warranted	Sig. Impact
Del Rey and Manning	Unsignalized	F	F	Yes	Yes
Orange and Dinuba	Unsignalized		F	No	No
Del Rey and Dinuba	Unsignalized	F		Yes	Yes
Orange and Floral	All Way Stop	F	F	Yes	Yes
Dockery and Floral	Unsignalized	F	F	Yes	Yes

Source: Traffic Impact Study prepared by Dowling Associates Inc.

The Amberwood project would have a significant traffic impact on the ten (10) intersections outlined below. Mitigation measures are outlined herein to mitigate the Amberwood project related traffic impacts.

Significant Traffic Impacts from the Project would occur at the following Intersections:

- SR 99 Northbound Off Ramp at Manning Avenue
- Del Rey and Manning Avenue
- Bethel and Manning Avenue
- Golden State and Dinuba Avenue
- McCall and Dinuba Avenue
- Del Rey and Dinuba Avenue
- Orange and Floral Avenue
- Dockery and Floral Avenue
- SR 99 Southbound Off Ramp at Second Street
- SR 99 Southbound Off Ramp at Mountain View Avenue

Cumulative 2035 Traffic Volumes and Roadway System

The 2035 peak hour traffic volumes were estimated from the 2035 Fresno COG (FCOG) regional travel forecasting model. The FCOG model forecasts for 2035 are based upon the recent Selma General Plan Update and the County of Fresno General Plan. The City's updated General Plan includes the Amberwood project site as it is currently proposed. The model forecasts include both AM and PM peak hour one-way street segment volumes. The FCOG increment method was used to estimate the 2035 approach and departure volumes for each of the key intersections analyzed in the Traffic Impact Study. A Furness procedure was then used to estimate the turning movement volumes for each intersection. The Furness procedure is an iterative process that factors the future approach volumes (using the existing turn movement patterns as a starting point) to estimate the future turning volumes. After each iteration, the departure volumes produced by these estimated turn volumes are compared with the future target departure volumes (from the FCOG model), and if the estimates are not yet acceptable, additional iterations are made with adjusted turning factors.

The resulting 2035 AM and PM peak hour traffic volumes at the study intersections are shown in Figures 9a, 9b, and 9c from the Traffic Impact Study. The 2035 roadway system of the FCOG model includes the major roadway improvements outlined below as follows:

Major Roadway Improvements Planned for the Future in the 2035 City of Selma General Plan

- South Amber Avenue between South Del Rey Avenue and East Mountain View Avenue with four lanes from north of Dinuba Avenue to East Mountain View Avenue.
- State Route 43 diagonal connection from De Wolf Avenue to Highland Avenue.
- State Route 99 and Mountain View Avenue interchange improvements.
- State Route 99 and Floral Avenue interchange improvements.
- State Route 99 and Dinuba Avenue (new interchange).

The 2035 FCOG model also includes the planned lanes for the freeway, expressway, arterial, and collector roadway facilities located within the Circulation Element geographical area of the 2035 City of Selma General Plan. For the purposes of the peak hour intersection analysis contained in the Traffic Impact Study, the General Plan Circulation Element standard lane configurations for major arterials, arterials, and collectors were assumed for the 2035 no project scenario. These standard lane configurations are included in Appendix D of the Traffic Impact Study. For each intersection, lane configurations consistent with these standard configurations were assumed, but only to the extent needed by the subject intersection specific traffic volume patterns, to achieve level of service D or better peak hour conditions. Figures 9a, 9b, and 9c from the Traffic Impact Study also show the 2035 lane configurations and traffic controls assumed at each of the intersections analyzed in the Traffic Impact Study.

Cumulative 2035 Level of Service and Signal Warrant Analysis

The potential need for traffic signals at the key intersections under this scenario was evaluated and Appendix A of the Traffic Impact Study presents the results. The results indicate that with the 2035 traffic volume levels, eighteen (18) of the studied unsignalized intersections would carry traffic volumes that exceed the signal warrant levels and therefore would meet the signal warrant criteria. For the 2035 no project scenario, it has been assumed that these intersections would be signalized, and the level of service results discussed below reflect these assumptions. Tables 10a and 10b from the Traffic Impact Study shows the level of service results for the key intersections with the 2035 peak hour traffic volumes with and without the Amberwood project. Table 11 from the Traffic Impact Study is included herein and this table shows the results under the 2035 scenario for the key County Roadway Segments on McCall Avenue with and without the Amberwood project. The Traffic Impact Study analysis results under this scenario also indicate that two of the studied intersections would experience Level of Service E or F conditions in at least one of the peak hours, and neither would carry traffic volumes that exceed the signal warrant levels. These two intersections are summarized in Table IV-33 below as follows:

Table IV-33

Studied Intersections with LOS E or F Conditions in One of the Peak Hours

		Existing Plus Approved		
Intersection	Control	AM PH	PM PH	Signal Warranted
Leonard and Manning Avenue	Unsignalized	F	F	No
Bethel and Mountain View	Unsignalized		F	No

Source: Traffic Impact Study prepared by Dowling Associates, Inc. PH= Peak Hour.

In addition, as outlined in Table 11 of the Traffic Impact Study, two (2) of the County roadway segments would have Level of Service D or better conditions in the peak hours under this scenario. The third segment, McCall Avenue from Central Avenue to Jensen Avenue, would experience Level of Service D conditions in the AM peak hour and Level of Service E conditions in the PM peak hour under the 2035 scenario.

Cumulative 2035 plus Project Level of Service and Signal Warrant Analysis

Under this scenario, the Amberwood project buildout level traffic volumes were added to the 2035 no project volumes described in the previous scenario. The resulting 2035 + Project AM

and PM peak hour traffic volumes at the studied intersections are depicted in Figures 10a, 10b, and 10c from the Traffic Impact Study and are included herein. Tables 10a and 10b from the Traffic Impact Study and included herein also shows the Level of Service results at the key intersections with the Amberwood project traffic volumes added to the 2035 traffic volumes. In addition, Table 11 from the Traffic Impact Study also depicts the 2035 results for the key County Roadway Segments with the addition of the Amberwood project traffic. This Table shows that all key County Roadway Segments would have Level of Service D or better conditions in both the AM and PM peak hours, with the exception of the PM peak hour for the Central Avenue to Jensen Avenue segment, which would experience Level of Service F conditions in the 2035 PM peak hour with the addition of the Amberwood project traffic. The results from the Traffic Impact Study for this scenario also indicate that the Amberwood project traffic will cause six (6) additional intersections to experience Level of Service E or F conditions in at least one of the peak hours. These additional intersections are summarized in Table IV-34 below. All but one of these additional intersections would carry traffic volumes that exceed the signal warrant criteria levels, and therefore would meet the signal warrant criteria under this scenario.

Table IV-34

Additional Studied Intersections with LOS E or F Conditions in One Peak Hour

		2035			2035+Project			
Intersection	Control	AM PH	PM PH	Signal Warr.	AM PH	PM PH	Signal Warr.	Sig.Impact
Orange and Dinuba	Unsignalized			No	E	F	Yes	Yes
Del Rey and Dinuba	Unsignalized			No	F	F	Yes	Yes
Orange and Floral	All Way Stop			No	E	F	Yes	Yes
Dockery and Floral	Unsignalized			No	F	F	Yes	Yes
Amber and Floral	Unsignalized			No		E	No	No
Amber and Rose	Unsignalized			No		F	Yes	Yes

Source: Traffic Impact Study prepared by Dowling Associates Inc.

Also shown in Table IV-34 above is an indication of the significance of the Amberwood project related traffic on each intersection using the impact threshold criteria presented earlier in this section. This shows that the project would have a significant traffic impact on five intersections.

Traffic Impacts and Mitigation Measures

The Traffic Impact Analysis and recommended Mitigation Measures for traffic and transportation as outlined below are those included within the Traffic Impact Study completed by Dowling Associates. In some cases, the Amberwood project is responsible 100% for the completion of a related traffic or transportation improvement, and in other cases the Amberwood project is responsible for only paying its fair share for the improvement, based upon the quantified traffic impact of the Amberwood project traffic on the subject intersection, interchange, or roadway segment.

The City of Selma has adopted Traffic Impact Mitigation Fees, and the Amberwood project will be responsible for payment of these fees when building permits are issued for construction of new homes or businesses. The State Department of Transportation (Caltrans) will also collect Traffic Impact Mitigation Fees for improvements to impacted State facilities, principally impacts to State interchanges on State Route 99, as outlined in the Traffic Impact Study. The project will pay its *Fair Share* for improvements to State Transportation Facilities. The time schedule for improvements to State Facilities will be determined by Caltrans, since funding from other sources and projects will be included for the State improvements.

Scenario One- Existing + Project Traffic Levels

Under this scenario, *at the Existing plus Project Traffic Levels*, the addition of the Amberwood project traffic would have a significant impact on two (2) intersections as described below. For each impact, one or more mitigation measures is described along with the responsibility of the Amberwood project for the cost of implementation of the mitigation measures.

Impact No. 1

On the State Route 99 Northbound Off Ramp at Manning Avenue, the Amberwood project would add traffic to this intersection which already has Level of Service E and F conditions on the stop sign controlled off ramp approach. This would increase the delay for the minor street movements and would be a significant impact. This intersection already meets the warrants for signalization.

Mitigation No. 1

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals on the SR 99 NB Off Ramp at Manning Avenue intersection. *Fair Share* cost is estimated at 7.3%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing + Project scenario. This would mitigate the project impacts to a less than significant level for the Existing + Project development conditions.

Impact No. 2

On the State Route 99 Southbound Off Ramp at Mountain View Avenue, the Amberwood project would add traffic to this intersection which already has Level of Service F conditions on the stop sign controlled off ramp approach. This would increase the delay for the minor street movements and would be a significant impact. This intersection already meets the warrants for signalization.

Mitigation No. 2

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals on the SR 99 SB Off Ramp at Mountain View Avenue intersection. Fair Share cost is estimated at 6.6%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing + Project scenario. This would mitigate the project impacts to a less than significant level for the Existing + Project development conditions. A major improvement to the Mountain View Avenue interchange is included in the City of Selma General Plan Circulation Element, and signalization of this intersection is a part of those improvements.

With these signalization improvements, these intersections would operate at Level of Service D or better as shown below in Table IV-35.

Table IV-35

Intersections Operating at LOS D or Better with Signalization Improvements

Intersection	AM Peak Hour		PM Peak Hour	
SR 99 NB Off Ramp at Manning	Delay in Seconds 35.6	LOS D	Delay in Seconds 9.3	LOS A
SR 99 SB Off Ramp at Mountain View	Delay in Seconds 28.2	LOS C	Delay in Seconds 29.8	LOS C

Source: Traffic Impact Study prepared by Dowling Associates Inc.

These mitigation measures will reduce the Existing + Project impacts of the Amberwood project to a less than significant level.

Scenario Two- Existing + Approved Projects + Project Traffic Levels

Under this scenario, the addition of the Amberwood project traffic would have a significant impact on nine (9) additional intersections as described below. For each impact, one or more mitigation measures is described along with the responsibility of the Amberwood project for the cost of implementation of the mitigation measures.

Impact No. 3

At the Del Rey and Manning Avenue intersection, the Amberwood project would cause Level of Service F conditions in both peak hours, and would cause the intersection to meet the signal warrant criteria. This would be a significant impact.

Mitigation No. 3

The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Manning Avenue intersection. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions. This improvement will be completed with the construction of the Phase 15 off site improvements in accordance with the requirements of the City of Selma approved Development Agreement for the Amberwood development project.

Impact No. 4

At the Bethel and Manning Avenue intersection, the Amberwood project would add to the Level of Service F conditions in both peak hours, and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 4

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals at the Bethel and Manning Avenue intersection. The *Fair Share* cost is estimated at 10.1%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions.

Impact No. 5

At the Golden State and Dinuba Avenue intersection, the Amberwood project would worsen the Level of Service from E to F conditions in the PM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 5

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals at the Golden State and Dinuba Avenue intersection. The *Fair Share* cost is estimated at 18.3%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions.

Impact No. 6

At the McCall and Dinuba Avenue intersection, the Amberwood project would add to the Level of Service F conditions in both the AM and PM peak hours. This would be a significant impact. This intersection already meets the warrants for signalization.

Mitigation No. 6

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals at the McCall and Dinuba Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn plus through lane. The *Fair Share* cost is estimated at 27.5%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions.

Impact No. 7

At the Del Rey and Dinuba Avenue intersection, the Amberwood project would cause Level of Service F conditions in the AM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 7

The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Dinuba Avenue intersection. All four approaches to the intersection should be designed to provide a separate left turn lane and a combined through plus right turn lane. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions.

Impact No. 8

At the Orange and Floral Avenue intersection, the Amberwood project would cause Level of Service F conditions in the AM and PM peak hours, and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 8

The Amberwood project will contribute the entire cost of installing traffic signals at the Orange and Floral Avenue intersection. The two Floral Avenue approaches to the intersection should be modified to provide a separate left turn lane, and a combined through plus right turn lane.This

would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions.

Impact No. 9

At the Dockery and Floral Avenue intersection, the Amberwood project would cause Level of Service F conditions in both the AM and PM peak hours, and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 9

The Amberwood project will contribute the entire cost of installing traffic signals at the Dockery and Floral Avenue intersection. The two Floral Avenue approaches to the intersection should be modified to provide a separate left turn lane, and a combined through plus right turn lane. This would mitigate the project impacts to a less than significant level for the Existing+Approved+ Project development conditions.

Impact No. 10

At the State Route 99 SB Off Ramp and Second Street intersection, the project would worsen the existing Level of Service E conditions to Level of Service F conditions in the PM peak hour, and would cause the signal warrant to be met. This would be a significant impact.

Mitigation No. 10

The Amberwood project will contribute a *Fair Share* of the cost to install traffic signals on the State Route 99 Southbound Off Ramp intersection at Second Street. The *Fair Share* cost is estimated in the Traffic Impact Study at 15.1%, which represents the Amberwood project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development conditions. For safety and consistency, it is the policy of the State Department of Transportation (Caltrans) to install traffic signals at both interchange ramps, even though only one meets the signal warrants. Therefore, in accordance with this policy, the Amberwood project will also contribute a *Fair Share* of the cost for the installation of traffic signals on the State Route 99 Northbound Off Ramp at Second Street intersection. The *Fair Share* contribution for this improvement shall be determined by Caltrans.

With the improvements outlined above, the subject intersections would operate at Level of Service D or better for this scenario as shown below in Table IV-36. These mitigation measures will reduce the Existing+Approved+Project impacts of the Amberwood project to a less than significant level, according to the Traffic Impact Study prepared by Dowling Associates.

Table IV-36

Mitigated Intersection Operation with Improvements-Existing+Approved+Project

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
SR99 NB Off Ramp at Manning Avenue	Delay in Seconds 44.4	LOS D	Delay in Seconds 9.6	LOS A
Del Rey and Manning Avenue	Delay in Seconds 9.2	LOS A	Delay in Seconds 7.8	LOS A
Bethel and Manning Avenue	Delay in Seconds 6.7	LOS A	Delay in Seconds 8.6	LOS A
Golden State and Dinuba Avenue	Delay in Seconds 28.7	LOS C	Delay in Seconds 25.7	LOS C
McCall and Dinuba Avenue	Delay in Seconds 32.5	LOS C	Delay in Seconds 35.1	LOS D
Del Rey and Dinuba Avenue	Delay in Seconds 25.0	LOS C	Delay in Seconds 23.7	LOS C
Orange and Floral Avenue	Delay in Seconds 27.9	LOS C	Delay in Seconds 20.7	LOS C
Dockery and Floral Avenue	Delay in Seconds 25.4	LOS C	Delay in Seconds 32.9	LOS C
SR 99 SB Off Ramp at 2nd St.	Delay in Seconds 17.5	LOS B	Delay in Seconds 18.5	LOS B
SR 99 SB Off Ramp at Mountain View	Delay in Seconds 28.2	LOS C	Delay in Seconds 29.8	LOS C

Source: Traffic Impact Study completed by Dowling Associates Inc.

Scenario Three-Cumulative 2035+Project Conditions

Under this scenario, at the 2035 Plus Project Traffic Levels, the Amberwood project traffic would have a significant impact on three (3) additional intersections as outlined below. For each impact, one or more mitigation measures is described, along with the responsibility of the Amberwood project for the cost of implementation of the mitigation measures. Where Fair Share contributions are identified, this could be accomplished through the City of Selma Development Impact Fee Program, if the intersection improvement in question is included in the program.

Impact No. 11

At the Orange and Dinuba Avenue intersection, the Amberwood project would cause Level of Service E and F conditions in the peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 11

The Amberwood project will contribute the entire cost for installing traffic signals at the Orange and Dinuba Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. These improvements would mitigate the project impacts to a less than significant level.

Impact No. 12

At the Amber and Rose Avenue intersection, the Amberwood project would cause Level of Service F conditions in the PM peak hour, and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation No. 12

The Amberwood project will contribute the entire cost for installing traffic signals at the Rose and Amber Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. This would mitigate the project impacts to a less than significant level.

With the improvements as outlined above, these intersections would operate at Level of Service C or better as shown in Table IV-37 below. These mitigation measures will reduce the 2035+Project impacts of the Amberwood project to a less than significant level.

Table IV-37 Intersection Operation with Improvements for 2035+Project

Intersection	AM Peak Hour		PM Peak Hour	
Orange and Dinuba Avenue	Delay in Seconds 17.8	LOS B	Delay in Seconds 18.0	LOS B
Del Rey and Dinuba Avenue	Delay in Seconds 29.0	LOS C	Delay in Seconds 30.1	LOS C
Orange and Floral Avenue	Delay in Seconds 25.5	LOS C	Delay in Seconds 20.1	LOS C
Dockery and Floral Avenue	Delay in Seconds 21.8	LOS C	Delay in Seconds 25.3	LOS C
Amber and Rose Avenue	Delay in Seconds 22.4	LOS C	Delay in Seconds 24.9	LOS C

Source: Traffic Impact Study completed by Dowling Associates Inc.

Railroad Crossing Analysis

The Amberwood project would add traffic to the Floral Avenue crossing of the Union Pacific Railroad that is located just to the west of the Front Street and Floral Avenue intersection. The Front Street and Floral Avenue intersection has existing stop sign controls for the Front Street approaches, however, the Floral Avenue approaches are uncontrolled. The existing crossing is an at grade single track rail crossing, and has Department of Transportation and California Public Utilities Commission designations of DOT No. 750706S and CPUC No. 001B-219.90 respectively. According to the CPUC, there are approximately 17 trains per day using the railroad track at this crossing. The Traffic Impact Study evaluated the incremental impacts due to added traffic at this crossing for several types of potential impacts. These are discussed below, along with the degree to which the Amberwood project added traffic is likely to result in an impact.

A. *Increase in Housing near Railroad Tracks and Rail Yards*. The proposed Amberwood project does not include changes in Land Use that would permit housing to be constructed adjacent to existing railroad tracks or rail yards. The project site is located approximately 1.5 miles to the east of the existing railroad tracks.

B. *The Potential for Collisions between Trains and Vehicles.* The project would add traffic at the Floral Avenue crossing during the AM and PM peak hours in the amounts and percentages shown below in Table IV-38.

Table IV-38

Added Project Traffic at Floral Avenue Railroad Crossing in Peak Hours

Scenario & Peak Hour	Base Volume	Project Volume	Project as % of Base
Existing + Approved			
AM Peak Hour	1,119	251	22.4%
PM Peak Hour	1,539	357	23.2%
2035 + Project			
AM Peak Hour	1,244	251	20.2%
PM Peak Hour	1,736	357	20.6%

Source: Traffic Impact Study completed by Dowling Associates Inc.

California Public Utilities Commission records of reported collisions show there was one collision between a vehicle and a train in January 2009, which unfortunately resulted in a fatality. There was also a collision reported in 1973. The added Amberwood project traffic would incrementally add to the potential for collisions at this crossing, but no threshold of significance is available for this impact. Given that the Amberwood project traffic would add

more than 20% to the peak hour traffic volumes for each scenario, it is presumed by this analysis that the impacts would be significant. Measures are recommended below to enhance safety at this crossing, which should substantially mitigate this impact, however, without a quantifiable criterion of significance, the residual impact level cannot be determined.

C. *The Potential for Collisions between Trains and Pedestrians*. Given the location of the project area (1 to 2 miles east of this crossing), it is unlikely that the project would add significantly to the volume of pedestrians at this crossing or to the potential for train versus pedestrian collisions.

D. *Increases to the Traffic Queues on the Approaches to the Crossing*.

The added Amberwood project traffic would increase the traffic queues on the westbound approach to Whitson Street by the vehicles and equivalent distances shown below in Table IV-39.

Table IV-39

Project Increases to Traffic Queues on Approach to Floral Railroad Crossing

Scenario & Peak Hour	Base Queue in Vehicles	Project Would Add (NO. Vehicles & Feet)	
Existing + Approved			
AM Peak Hour	12	3 Vehicles	75 Feet
PM Peak Hour	16	3 Vehicles	75 Feet
2035 + Project			
AM Peak Hour	16	5 Vehicles	125 Feet
PM Peak Hour	14	7 Vehicles	175 Feet

Source: Traffic Impact Study completed by Dowling Associates Inc.

Whitson Street is located approximately 575 feet east of the Floral Avenue crossing. As shown in Table IV-39 above, the longest peak hour queues on the Westbound Floral Avenue Approach to Whitson Street would be 21 vehicles in the 2035 + Project Scenario. This is equivalent to a distance of approximately 525 feet. Therefore, even in the 2035 + Project Scenario, the traffic queues on the peak hour Westbound Approach to Whitson Street would not extend back to the subject railroad crossing.

For the near term scenario, the Amberwood project traffic would not significantly increase the base queue lengths in the peak hours. For the 2035 + Project Scenario, the Amberwood project traffic would significantly increase the base queue lengths in the peak hours. Even with the mitigation measures recommended in the Traffic Impact Study to mitigate the project impacts

at the Whitson Street and Floral Avenue intersection, the residual impact level would still be significant and unavoidable.

While the queue analysis presented above does not specifically relate to the queues that would exist during activation of the railroad crossing arm by a train, the Amberwood project impacts on those queuing conditions are likely to be similar in nature. Thus, it is expected that the near term effects of the added Amberwood project traffic would not be significant, but the long term effects would be significant and unavoidable, even with the implementation of all feasible mitigation measures.

Railroad Crossing Impacts and Mitigation Measures

Impact No. 13

The added Amberwood project traffic would incrementally add to the potential for traffic collisions at the Floral Avenue railroad crossing, however, no threshold of significance is available to determine the significance of this impact. Measures are outlined below which should reduce the project impacts on rail safety at this location. The significance of the residual impact is undeterminable, but is possibly significant and unavoidable.

Impact No. 14

For the 2035 + Project scenario, the added project traffic would significantly impact the Floral Avenue queue lengths in the peak hours. Even with the mitigation measures recommended herein for the Whitson Street and Floral Avenue intersection, the Amberwood project impacts would still be significant. The residual impact level is significant and unavoidable.

Mitigation Measures for Impacts 13 and 14

The following mitigation measures, as contained in the Traffic Impact Study, are recommended to reduce the impacts of the Amberwood project traffic on rail safety at the Floral Avenue crossing:

A. Installation of street median separation to prevent vehicles from driving around the railroad crossing gates. The available public right of way for Floral Avenue is limited adjacent to this crossing, however, it may be possible to install a narrow median that would serve this purpose. The developer and the City should investigate the feasibility of this measure, and if feasible the Amberwood project should contribute a *Fair Share* toward the cost of this improvement.

B. Installation of vandal resistant fencing or walls to limit the access of pedestrians onto the railroad right of way at this location. The developer and the City should investigate the

feasibility of this measure, and if feasible the developer should contribute *a Fair Share* toward the cost of implementing this improvement.

C. Rail safety awareness programs to educate the public about the hazards of at grade railroad crossings. The City should consider implementing a rail safety awareness program, using the City of Selma Internet Website and informational media resources. Programs and materials obtained from organizations such as *Operation Lifesaver,* a non-profit public education program established to end collisions, deaths, and injuries at locations where roadways cross railroad tracks can be beneficial. The Amberwood project should contribute a *Fair Share* toward the cost of implementing this program.

D. The City of Selma should consider including rail crossing improvement measures in its development impact fee program, whereby a mechanism can be provided for new developments to pay a *Fair Share* of the costs for rail crossing improvement measures, such as those outlined above. The City of Selma updated General Plan recommends a grade separated railroad crossing at the Mountain View Avenue location. If not already included, this improvement should be considered for inclusion in the City of Selma development impact fee program for transportation capital facilities.

The following measures, as outlined in the Traffic Impact Study, are believed to be infeasible or not applicable to the Floral Avenue crossing location:

A. Installation of a Grade Separation (overpass or underpass). A grade separated crossing at this location is not feasible or desirable given the existing abutting land uses and developments, which are not expected to change.

B. Improvements to traffic signals at intersections adjacent to railroad crossings (i.e. traffic preemption). The subject crossing is approximately 575 feet from the Whitson and Floral Avenue signalized intersection, and the queues on the westbound approach to this intersection are not projected to extend back to the railroad crossing, even with the 2035 + Project scenario. Therefore, traffic preemption is not necessary at this location.

C. Improvements to warning devices at existing roadway and rail crossings. The subject Floral Avenue crossing is currently protected by crossing gate arms and flashing lights, including mast arm mounted flashing lights over the center of Floral Avenue for each direction of travel. There are also existing standard double bar stop limit lines in each approach lane at the crossing gate locations. Existing warning devices also include RXR advance warning signs and pavement markings on either side of the crossing in both approaching lanes of Floral Avenue. No other specific warning or control devices appear to be needed at this location at this time.

D. Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains. There are already existing parking prohibitions on Floral Avenue on both sides of the crossing for more than 100 feet in each direction.

E. Construction of pull out lanes for buses and vehicles transporting hazardous materials. The limited available public right of way on Floral Avenue adjacent to this crossing would not accommodate pull out lanes in addition to the required traffic lanes. Floral Avenue is already a four lane arterial, and buses and vehicles transporting hazardous materials can stop in the outside lanes while other vehicles pass over the crossing using the inside lanes.

F. Elimination of driveways near railroad crossings. There are no functioning existing driveways along Floral Avenue near the subject railroad crossing.

G. Installation of pedestrian -specific warning devices and channelization. On either side of the subject crossing, a sidewalk is provided along the north side of Floral Avenue and a connecting east-west crosswalk is provided at the Front Street and Floral Avenue intersection. No other specific pedestrian facilities appear to be needed at this location at this time.

H. Increased enforcement of traffic laws at railroad crossings. This is something that is implemented by the Selma Police Department on an as needed basis when collision patterns or reports of violations, or operational issues, are brought to the attention of the police department. This is an on-going process that is already in place, and no changes are recommended. The City of Selma also conducts joint enforcement efforts with the Union Pacific Railroad Police from time to time.

I. Where sound walls, landscaping or buildings would be installed near railroad crossings, maintaining the visibility of warning devices and approaching trains. The Amberwood project would not add any sound walls, landscaping, or buildings near the Floral Avenue railroad crossing.

Level of Significance for Traffic Impacts Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- All traffic mitigation measures as previously outlined in this section are required.

Level of Significance After Mitigation

- Significant and Unavoidable Residual Impact

4.1.P UTILITIES AND SERVICE SYSTEMS

INTRODUCTION

Regarding utilities, the Amberwood project will place additional significant demands on the electrical grid in the Selma area. In addition, other utilities, including natural gas, telephone, and cable television facilities could also be significantly impacted by the project.

Service systems, including potable water services, wastewater treatment services, and storm drainage systems will also be impacted by the Amberwood project. In addition, the project will also generate a significant amount of solid waste that must be disposed of in area landfills.

The impacts to each one of the utilities and service systems outlined above are discussed below along with appropriate and feasible mitigation measures.

ELECTRICAL UTILITIES

The Amberwood project, with its 2,558 homes, 131,200 square feet of commercial uses, and new elementary school will require that the Pacific Gas and Electric Company expand its electrical distribution facilities in the project area. New underground electrical distribution lines and transformers will need to be installed within the project area. In addition, a new PG&E substation may be needed and/or an existing PG&E substation may need to be expanded in capacity, in order to supply the required electrical power for all the land uses within the project. The Amberwood project will encourage the use of Solar Energy Systems, Energy Efficient Appliances, and extra Insulation in all homes and businesses to help keep the electrical use within the project to a minimum. In addition, the project will also include abundant landscaping, which will be designed to provide shade to homes and businesses, thereby helping to lower the electrical demand from air conditioning units during the hot summer months. Table IV-40 below outlines the projected average total electrical use for the 2,558 residential units which will be located within the Amberwood project.

Table IV-40

Average Monthly and Annual Electrical Demand for Residential Units in KWH*

Total Number of Units	Monthly Electrical Use	Annual Electrical Use
2,558 Units X 550 kWh Per Month Per Unit	1,406,900 Total kWh Per Month	
2,558 Units X 6,600 kWh Per Year Per Unit		16,882,800 Total kWh Per Year

*Source: PG& E Energy Resource Center. Assumes conventional wood frame construction.

The projected electrical demand for the commercial uses and the elementary school cannot be determined at this time due to the fact the type of construction, size and number of buildings, and building orientations on the site are currently unknown.

NATURAL GAS UTILITIES

The Amberwood project site will be supplied with natural gas by Pacific Gas and Electric Company. New gas mains will need to be installed throughout the project site to serve the new homes, businesses, and the elementary school. Table IV-41 below outlines the projected average total natural gas usage for the 2,558 residential units to be located within the project.

Table IV-41

Average Natural Gas Usage in Winter and Summer Months for Residences

Total No. of Units	Monthly Demand	Annual Demand	Winter Months*	Summer Months**
2,558	102,320 Therms			
2,558		1,227,840 Therms		
2,558			460,440 Therms	
2,558				184,176 Therms

Source: PG&E Energy Resource Center. Assumes conventional wood frame construction.
*December, January, February. ** June, July, August.

The projected Natural Gas usage for the commercial uses and the elementary school cannot be determined at this time because the number and type of buildings are currently unknown.

TELEPHONE UTILITIES

The Amberwood project will require the installation of new underground telephone facilities. No overhead lines will be allowed within the project site.

CABLE TELEVISION

The Amberwood project will require the installation of new underground cable television lines to serve the homes and businesses within the project area.

WASTEWATER TREATMENT

As previously outlined herein, the Amberwood project will utilize an on-site self contained Wastewater Treatment Plant to treat all wastewater generated by the project. The Amberwood project will therefore not impact the Selma-Kingsburg-Fowler County Sanitation District

wastewater collection system or the S-K-F wastewater treatment plant. The on-site wastewater treatment plant will be constructed by the developer, who will then dedicate the facility to the City of Selma at the appropriate time. The treated wastewater will be tertiary filtered, and will be disinfected before being discharged into the two private lakes which are to be located at the south end of the project site. The discharged wastewater will percolate from the lake areas into the underground aquifer which will assist in recharging the underground aquifer. The total average daily flow of wastewater to be generated by the Amberwood project is dependent upon the various land uses which comprise the project. For residential uses, an average wastewater generation rate of approximately 70 gallons per day per person can be assumed. Using this assumption, and with a projected average household size of approximately 3.5 persons per household according to the City of Selma General Plan, the total average daily wastewater flows from the residential single family uses would be calculated as follows: 3.5 persons per household X 70 gallons per day per person X 2,558 dwelling units = 626,710 gallons of wastewater per day for the residential uses. This is depicted below in Table IV-42.

Table IV-42

Projected Wastewater Flows for Residential Uses

Land Use Category and No. of Units	Average Household Size	Gallons per Person per Day	Total Gallons per Day per Household	Gallons per day for the total Project
Single Family	3.5 persons/Unit	70	245 Gallons	
2,558 Total Units				626,710 Gallons

Source: Wastewater Preliminary Engineering Feasibility Report, October 2010, page 3.

In addition to the residential uses, which will generate the vast majority of the wastewater flows, the new elementary school, public safety building facility, and commercial uses will also generate some of the wastewater flows. Table IV-43 below outlines the projected wastewater flows for these other land uses. These other uses total 31,620 Gallons Per Day, and when combined with the projected wastewater flows from the residential uses, the total daily projected average wastewater flow from the project is approximately 658,330 Gallons Per Day.

Table IV-43 Projected Wastewater Flows for Other Land Uses*

Land Use Category	Total Commercial Square Footage*	No. of Elementary Students	Total Gallons per Day	Total Gallons per Day
Commercial Uses	141,200		14,120	
Elementary School		700		17,500 Gallons

Source: Engineering Feasibility Report , page 3. * Includes 10,000 Square Foot Public Safety Facility.

In summary, the total projected wastewater flows per day from the Amberwood project for all land uses as outlined above in Tables IV-42 and IV-43 is therefore as follows: 626,710 + 14,120 + 17,500 = 658,330 gallons per day.

The Preliminary Engineering Feasibility Report prepared for the project outlines in detail the wastewater treatment process, and the resulting anticipated water quality of the treated wastewater effluent. The Amberwood project will utilize treated and disinfected wastewater for landscaping irrigation on the public and private park areas only through a "Purple Pipe" irrigation water distribution system. Treated wastewater effluent ***will not*** be used for any landscaping irrigation on the School site, or on any private residential lots or the commercial landscaping areas. These areas, and all residential lots, will be supplied with and utilize potable water for all uses, including landscaping irrigation, as supplied by the California Water Service Company.

POTABLE (DRINKABLE) WATER

The Amberwood project will be supplied with potable water by the water supplier for the City of Selma, which is the California Water Service Company (Cal Water). This water will be supplied by deep wells operated and maintained by Cal Water. This water will meet all Federal and State drinking water standards. According to the SB 610 Water Supply Assessment Report completed for the Amberwood project by Cal Water (August 14, 2006), Cal Water currently, and for at least the next 20 years, anticipates meeting its forecasted water demand for the project area by using groundwater extracted from the Kings River Fan Aquifers that underlie the Selma district.

Cal Water will also be responsible for ensuring adequate water pressures and water storage capacities for firefighting purposes. In this regard, Cal Water currently owns and is developing a new well site on the southeast corner of Orange Avenue and Dinuba Avenue. In addition to the new deep well, this site could also eventually contain a new 1,000,000 gallon ground level water storage tank with a booster pump station. This well site is located immediately adjacent to the Amberwood project site.

The water distribution system for the project will include 8 inch water mains, fire hydrants as determined by the City Engineer and Fire Chief, and appropriate and necessary shut off valves and other required equipment such as backflow preventers.

All necessary water for the project will be pumped from the underground aquifer, and no surface water will be utilized by the project. Since the underlying groundwater aquifer is in a potential yearly overdraft situation, especially during dry years, the water used by the project through pumping will Potentially Significantly Impact the underground aquifer water supplies.

These impacts, and proposed mitigation measures, are discussed in detail in the Hydrology and Water Quality Section of this document.

The Amberwood project will require all residential and commercial buildings to install low water flow toilets, showers, and faucets. In addition, landscaping irrigation facilities will include drip irrigation, and appropriate timing systems to conserve water and prevent overwatering. Low water use drought tolerant landscaping will also be utilized throughout the project, particularly in the public and private park areas. Numerous drainage swales will be constructed throughout the Central Linear Park Area to prevent unnecessary stormwater runoff or irrigation runoff, and this will provide additional opportunities for aquifer recharge throughout the year. The developer will be responsible for contracting with Cal Water to install potable water lines.

The estimated total daily water use for each land use category in the project is outlined below in Tables IV-44 and IV-45.

Table IV-44

Estimated Total Daily Water Use in Gallons*

Land Use	Gallons Per Day
Commercial (141,200 Square Feet)*	21,180 Gallons
Elementary School (700 Students)	35,000 Gallons
Residential Uses (2,558 Dwelling Units)	1,023,200 Gallons

Source: Engineering Feasibility Report, page 3. * Includes 10,000 Square Ft Public Safety Bldg.

The daily water use calculation for the residential uses is estimated to be 400 gallons per household per day, with the average household size anticipated to be 3.5 persons per household for the 2,558 total dwelling units. The calculation is as follows: 2,558 total dwelling units X 400 gallons per day per dwelling unit = 1,023,200 gallons per day.

The daily water use calculation for the elementary school assumes that the potable water use per student will be 50 gallons per day per student. The calculation is as follows: 700 students X 50 gallons per student per day = 35,000 gallons per day.

The daily water use calculation for the 131,200 square feet of commercial retail and service establishments, including the 10,000 square foot public safety building, uses a water use factor of 0.150 gallons per day per square foot, which results in an annual average daily water demand that is estimated to be 21,180 gallons per day for 141,200 total square feet.

The estimated water use demand for irrigation of the Public and Private Park and Open Space areas within the Amberwood Project Site is based upon an anticipated irrigation demand of 2.5 acre feet per acre per year as outlined on page 6 of the Water Supply Assessment Report. For

the 69.5 acres of total park area, this results in a water demand of 173.75 acre feet per year as outlined in Table IV-45 below. Irrigation water for the public and private park areas will be supplied from the private lakes and will be treated recycled wastewater. It will be pumped throughout the Amberwood project site via a purple pipe system. This purple pipe system will be owned, operated, and maintained by the Amberwood Homeowners Association, who will contract with the City of Selma for irrigation of the public park areas.

Table IV-45

Annual and Daily Irrigation Water Demand for Parks and Open Space

Total Park Acreage	Annual Demand in Acre Feet	Daily Demand in Gallons
69.5	173.75	155,114

Assumes 2.5 acre feet per acre per year. Source: Water Supply Assessment Report August 2006.

The above outlined Table IV-45 also includes the average daily demand in gallons for park irrigation water, which is estimated at 155,114 gallons per day.

To calculate the total water demand for the Amberwood project on a daily and annual basis, the water demand for all uses must be combined. This total water use figure is outlined below in Table IV-46.

Table IV-46

Total Water Demand for the Amberwood Project

Land Use	Gallons Per Day	Gallons Per Year	Acre Feet Per Year
Residential	1,023,200	373,468,000	1,146 AF
Commercial	21,180	7,190,500	22 AF
Elementary School	35,000	6,387,500	19.6 AF
Parks and Open Space	155,114	56,616,610	173.7 AF
Totals	1,234,494	443,662,610	1,361 AF

Note: One (1) acre foot equals approximately 325,851 gallons of water.

As outlined above in Table IV-46, the total water demand for the Amberwood Project is estimated to be approximately 1,361 acre feet per year.

SOLID WASTE

Regulatory Setting

In 1989, the State of California passed the Integrated Waste Management Act. This Act, also known as Assembly Bill 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. The City of Selma reached the 50 percent 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. For example, in 2006, the Selma Disposal and Recycling Company and the Selma Unified School District created a recycling program in the school system that diverted over 50 tons of paper waste from local landfills. The school would also participate in this waste diversion program.

Solid Waste Generation

The Amberwood Project, with 2,558 dwelling units and 131,200 square feet of commercial uses, along with an elementary school, will generate a significant amount of Solid Waste. This solid waste will be collected within the project area by the solid waste contractor for the City of Selma, which is Selma Disposal and Recycling Company. Selma Disposal and Recycling has an exclusive contract for solid waste collection and recycling activities within the City of Selma. All residences and commercial businesses pay a monthly service fee for weekly solid waste collection services. This fee is adjusted annually by the City Council in response to increasing service costs. The monthly fees provide reasonable revenues for the private contractor to provide services and make a reasonable profit. Currently, the solid waste generated in the City of Selma is transported to and disposed of in the Avenal Land Fill in Kings County. Table IV-47 below outlines the estimated solid waste (in tons) that could be generated by the Amberwood Project on an annual basis at full buildout. The total solid waste calculations outlined below assume an average generation rate of 4.5 pounds per person per day for the residential uses, and 11.8 pounds per employee per day for the commercial uses, with the commercial uses assumed to employ a total of 125 persons when fully developed and occupied. In addition, the elementary school is assumed to generate 240 pounds per student *per year* for 700 students.

Table IV-47

Estimated Annual Amount of Solid Waste In Tons

LAND USE	TOTAL ANNUAL TONS OF SOLID WASTE
Residential (2,558 Dwelling Units)*	7,353 Tons
Commercial (131,200 Square Feet)	269 Tons
Elementary School (700 Students)	84 Tons

Source: State of California website (Cal Recycle), 2010. * Assumes 3.5 persons per dwelling.

The total solid waste annual generation rate at full buildout for all uses outlined above is estimated to be 7,706 tons. However, not all of this waste will enter local landfills. A substantial portion will be recycled as glass, aluminum, plastic, cardboard, and paper. Assuming a 50 percent recycling rate, the actual amount of solid waste (in tons) entering the landfill annually could be approximately 3,853 tons. This is still considered a significant amount of solid waste.

In conclusion, regarding Utilities and Service Systems, the development of the Amberwood Project will cause Significant and Unavoidable Impacts to all utilities and service systems. Due to the shear magnitude and size of the project, and the assumed 8,953 projected population, there are no mitigation measures available which can mitigate these significant impacts to a level of insignificance.

Level of Significance Before Mitigation

- Potentially Significant Impact

Mitigation Measures

- No Mitigation Measures are available to reduce the impacts to Less than Significant Level.

Level of Significance after Mitigation

- Significant and Unavoidable

CHAPTER 5

ALTERNATIVES TO THE PROPOSED PROJECT

SECTION 5.0 INTRODUCTION AND CEQA REQUIREMENTS

Section 15126.6 of the CEQA Guidelines requires the Amberwood Specific Plan EIR to include a discussion and consideration of Alternatives to the Proposed Project. As outlined in this Section, the EIR need not consider every conceivable alternative to the project, rather the EIR must consider a reasonable range of *potentially feasible* alternatives that will foster informed decisionmaking and public participation. The EIR is not required to consider alternatives which are *infeasible*. The Lead Agency (City of Selma) is responsible for selecting a range of project alternatives for examination, and must publicly disclose its reasoning for selecting those alternatives. The EIR shall also describe a range of reasonable alternatives to the project which would *feasibly* attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and the EIR shall evaluate the comparative merits of the alternatives.

The EIR, in accordance with Section 15126.6 (e) of the CEQA Guidelines must discuss a "No Project" alternative. According to this Section, the purpose of describing and analyzing a "No Project" alternative is to allow City decisionmakers to compare the impacts of approving the proposed Amberwood project with the impacts of not approving the proposed Amberwood project. The "No Project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "No Project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. If the proposed project is a development project on identifiable property, such as is the case with the Amberwood project, the "No Project" alternative is the circumstance under which the Amberwood project does not proceed and does not get constructed.

According to the CEQA Guidelines, the range of alternatives required to be discussed in the Amberwood EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice by the legislative body. The alternatives selected shall be limited to those that would avoid or substantially lessen any of the significant effects 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.

SECTION 5.1 NO PROJECT ALTERNATIVE

The *No Project* alternative is required to be considered in accordance with CEQA requirements. Since the Amberwood project is a development project on an identifiable site, the "No Project" alternative would mean that the Amberwood project does not proceed and does not get developed. Under this alternative, the land comprising the project site (690.7 acres) would remain undeveloped as active agricultural land. There would essentially be no changes to the existing physical environment under this alternative, and therefore the environmental impacts to the project site and Fresno County region would not occur. The Environmental Impact Benefits of this alternative can be summarized as follows:

- 690.7 acres of prime agricultural land would be preserved as agriculture and continue to produce crops.
- No air quality impacts would occur to the City of Selma or the San Joaquin Valley Air Basin from operation of the project or from additional vehicles.
- No additional vehicular traffic would be generated, and therefore no impacts to City streets, State facilities, or County roads would occur.
- There would be no potential impacts to any species of plants, birds, or animals.
- There would be no impacts to City utilities and no additional urban water uses.
- There would be no impacts to City services, including Police and Fire services.
- There would be no impacts to the Selma Unified School District, and no new school would be constructed.
- No additional commercial facilities would be constructed.
- No new roadways and/or streets would be constructed.
- No additional stormwater would be generated from impervious surfaces.
- There would be no additional demand for electricity or natural gas.

This alternative would leave the physical setting of the project site in its current condition. By comparison, this alternative *would not* allow the eastern portion of the City to grow, and the following *would not* be provided with this alternative:

- No new jobs would be created in the project area because no new commercial uses would be built, no new school would be built, and the new on-site wastewater treatment plant would not be constructed.
- No new moderate and upper income housing units would be constructed, thereby resulting in the City of Selma potentially not meeting its share of the Regional Housing Need as determined by the Fresno County Council of Governments in the RHNA.
- The City of Selma would not receive any additional property tax revenues for City services.

- The City of Selma would not receive any sewer enterprise fund revenues from the operation of the on-site wastewater treatment plant, which is proposed to be dedicated to the City by the developer.

SECTION 5.2 DOWNSIZED PROJECT ALTERNATIVE

The *Downsized Project* alternative would result in a smaller project being developed on the Amberwood project site. This alternative would result in the number of dwelling units being reduced from 2,558 units to approximately 1,898 units. The portions of the Amberwood project located east of Amber Avenue would be eliminated, and only the portions of the project site located within the existing City of Selma Sphere of Influence would be developed. The commercial uses, elementary school, community center complex, and the two (2) private lakes located at the southern end of the project site would remain as currently depicted in the land use plan. The Environmental Impact Benefits of this alternative would be as follows:

- Traffic Impacts would be reduced and VMT (vehicle miles traveled) would be reduced. *With 660 fewer single family residential units (2,558-1,898=660), Average Daily Trips, at approximately 8 ADT per unit, would be reduced by approximately 5,280 trips. This would result in less congestion at key intersections such as McCall and Dinuba Avenues.* Air pollution from motor vehicles would also be reduced with this alternative.
- Air Quality Impacts from project operations, vehicles, and construction activities would be reduced, due primarily to a decrease in motor vehicle ADT and VMT.
- Approximately 110 acres of Prime Agricultural Land would not be developed, and would be preserved for agricultural uses.
- Impacts to City Services and calls for service (Police and Fire) would be reduced.
- Impacts to Electrical and Natural Gas Utilities (PG&E) would be reduced.
- Impacts to the Selma Unified School District would be reduced (fewer new students).
- Potable water demand and uses for drinking water would be reduced with this alternative as quantified below.
- Potential Biological Impacts to special status species, such as the Burrowing Owl, would be reduced due to the fact 110 acres of existing agricultural potential habitat would not be disturbed.
- The amount of Wastewater generated by the Downsized Project Alternative would result in a *reduction of 161,700 gallons per day for the 1,898 residential units, assuming 245 gallons of wastewater generation per household per day.*
- Off Site and On Site Traffic Noise Impacts would be lessened due to the lower volumes of On and Off site traffic that would be generated by a downsized project.

- Impacts to other City Services, such as Community Services, Transit Operations, Building Inspection, Code Enforcement, and the Senior Center would be reduced due to the decreased project population with the downsized project alternative.
- *The amount of potable (drinking) water used would be reduced under this alternative. Assuming 400 gallons of potable water use per household per day, daily potable water use would be reduced by approximately 264,000 gallons per day. This would decrease the impacts to the underground aquifer water supply due to decreased pumping.*

Although the Downsized Project Alternative would *reduce* the environmental impacts of the Amberwood project, this alternative would still result in significant environmental impacts, and would still require the implementation of mitigation measures for the following impacts: a) Aesthetics; b) Air Quality; c) Traffic; d) Biological Resources; e) Parks and Recreation; f) Public Services; g) Utilities and Service Systems; h) Hydrology and Water Quality; i) Cultural Resources; j) Agricultural Resources; and k) Noise. Mitigation measures for these impacts, as outlined in Chapter Four, would still be needed with a downsized alternative.

This alternative would still allow the City of Selma to substantially meet its obligations for construction of new housing in the moderate and upper income categories under the Fresno COG Regional Housing Needs Allocation (RHNA).

SECTION 5.3 RELOCATED PROJECT SITE ALTERNATIVE

The *Relocated Project Site* alternative would involve construction of the Amberwood project on a different site. This alternative would be infeasible, because the developer currently owns the land upon which the Amberwood project is proposed to be built. It would therefore be financially infeasible for the developer to purchase land at another site when the developer currently owns the proposed Amberwood project site free and clear. In addition, the proposed Amberwood project site is already included within the City of Selma 2035 Updated General Plan Land Use Element. Section 15126.6(c) of the CEQA Guidelines states as follows: " Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives; (ii) infeasibility; or (iii) inability to avoid significant environmental impacts. Due to the fact the City of Selma is surrounded by prime farmland, the construction of Amberwood at another location would still result in the loss of prime farmland which is a significant environmental impact. In addition, the Amberwood project, even if constructed at another location, would still result in significant traffic and air quality impacts. Therefore, in accordance with the above outlined CEQA Guidelines, an alternative project site location will not be discussed any further in this document.

CHAPTER 6

SIGNIFICANT IRREVERSIBLE CHANGES AND UNAVOIDABLE IMPACTS

SECTION 6.0 INTRODUCTION AND CEQA REQUIREMENTS

Section 15126.2 (b) of the CEQA Guidelines requires that an EIR discuss the *Significant Environmental Effects which Cannot be Avoided if the Proposed Project is Implemented.* In addition, Section 15126.2 (c) requires that an EIR discuss *Significant Irreversible Environmental Changes which would be Caused by the Proposed Project should it be Implemented.* The Amberwood Project, once constructed, will have several environmental impacts which cannot be avoided. These are outlined below in Section 6.1. In addition, Section 6.2 below outlines the irreversible environmental changes which would occur with development of the project.

Section 6.1 Significant Environmental Effects which Cannot Be Avoided

The development and subsequent buildout of the Amberwood Project will result in several impacts to the environment which cannot be avoided, and which will remain Significant and Unavoidable Impacts. These are outlined below as follows:

- Conversion of approximately 690.7 acres of Prime Agricultural Land to Urban Uses.
- Traffic Noise Impacts to Off Site Sensitive Land Uses (residences, churches, schools etc.).
- Air Quality Impacts during operation of the project from ROG, NOx, and PM-10 generation, which will contribute to cumulative air quality health effects for area residents from Ozone and Particulate Matter (PM-10 and PM-2.5).
- Traffic Impacts to LOS at specified Key Intersections from project generated traffic, and residual significant and unavoidable impacts to the Floral Avenue Railroad Crossing.
- Hydrology Impacts due to stormwater runoff and pumping of groundwater for potable drinking water, and landscaping irrigation water uses, which will contribute to the cumulative groundwater overdraft conditions within the Consolidated Irrigation District Service Area.
- Impacts to the Selma Unified School District from new students living within the project area, and the need for a new elementary school.
- Additional significant demands for electricity and natural gas utilities.
- Population and Housing. The project could increase the population in the City of Selma by approximately 8,953 persons at full buildout, and result in the construction of up to 2,558 new dwelling units.
- Impacts to Public Safety Services (Police and Fire) and calls for service.
- Generation of Significant Amounts of Solid Waste.

Regarding the above outlined significant and unavoidable impacts, the permanent loss of prime agricultural land, additional significant traffic, air quality impacts, and significant demand for groundwater resources are most notable. There is only a fixed number of acres of prime agricultural lands in the State, and once these prime farmlands are converted to urban uses they cannot be replaced.

In addition, the State is limited in the total amount of water resources available for agricultural and urban uses. The Amberwood development, and the 8,953 persons estimated to reside therein, will require potable water for daily needs and for irrigation of landscaping. The impacts to the underground aquifer cannot be avoided, due to the fact that surface water is not potable, and the supply of surface water is sporadic, unreliable, and totally dependent upon the weather (snow pack) in the Sierra Nevada Mountains.

Also a significant unavoidable impact, Air Quality will be further degraded in the SJVAPCD from development and operation of the Amberwood Project. Most of the unavoidable Air Quality Impacts will be from the additional motor vehicles traveling to and from the Amberwood Project Site on a daily basis.

Section 6.2 Significant Irreversible Environmental Changes

The development of the Amberwood Project will cause permanent irreversible environmental changes in the project area. These significant irreversible environmental changes are outlined below as follows:

- Conversion of Prime Farmland to Urban Uses.
- Increased local air pollution and degraded Air Quality, primarily from motor vehicles.
- Increases in ambient noise levels in the project area, primarily from increased traffic.
- Furtherance of the overdraft of the underground aquifer.

The most notable irreversible environmental change will be the conversion of prime farmland to urban uses. Once converted, this prime farmland will be lost forever, and cannot be replaced. There is only a finite amount of prime farmland located within Fresno County, which is the top agricultural producing County in the United States.

The increased potable water demand from the development of the project will be permanent, and no new water sources are available to replace or increase the amount of groundwater available within the Consolidated Irrigation District Service Area. Although the development of aquifer recharge facilities (private lakes) within the project will help to minimize the overdraft conditions, the water use demand from the project will be significant and irreversible once the project is fully developed and the 2,558 new homes are occupied.

The significant amount of vehicle traffic generated by the Amberwood Project on a daily basis will result in further degradation of local Air Quality. This will result in increased levels of Ozone and Particulate matter in the SJVAPCD monitoring area. Although the use of public transit facilities could reduce air pollution from motor vehicles, the levels of air pollution from vehicles will still be significant and cannot be avoided.

Increased levels of noise, primarily from additional motor vehicle traffic, will permanently increase the ambient noise levels for off site transportation corridors, such as Floral Avenue and Dinuba Avenue, thereby exposing existing homes located adjacent to these corridors to increases in traffic noise. This increase in ambient noise levels will be permanent and irreversible. Noise walls, within existing developed areas, have been determined to be infeasible.

CHAPTER 7

GROWTH INDUCING PROJECT IMPACTS

SECTION 7.0 INTRODUCTION AND CEQA REQUIREMENTS

Section 15126.2 (d) of the CEQA Guidelines requires that an EIR include a discussion of Growth Inducing Project Impacts.

This CEQA Section requires that the discussion of Growth Inducing Project Impacts include ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Increases in the area population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Section 7.1 Growth Inducing Project Impacts

The development of the Amberwood Project could encourage additional growth in the project area in the following ways:

- Excess Wastewater Treatment Plant Capacity. The proposed on-site wastewater treatment plant will have a design capacity of approximately 750,000 gallons per day. With the projected wastewater flows for Amberwood totaling approximately 677,000 gallons per day, an excess treatment capacity of approximately 73,000 gallons per day can be assumed. This could allow for an additional 300 homes (approximately) to be constructed within the project vicinity, with these additional 300 homes using the Amberwood WWTP for their wastewater treatment.
- The development of Amberwood will result in the construction of a major new four lane arterial (Amber Avenue), and the widening of Dinuba and Floral Avenues. These street improvements could encourage additional new residential or commercial development outside of the boundaries of Amberwood but within the project vicinity.
- The development of Amberwood will result in the construction of additional wells, water mains, and potable water storage facilities by the California Water Service Company. These new water facilities may have the excess capacity to serve other new developments outside of the boundaries of Amberwood, thereby encouraging other developments in the vicinity of the Amberwood project site.

Section 7.2 Additional Population Growth

The potential, through Growth Inducing Impacts, for additional homes to be built in the project vicinity will result in additional new population growth. Assuming that an additional 300 homes are constructed outside the Amberwood project boundaries, the additional population, at 3.5 persons per household, would be approximately 1,050 persons. This additional population will have impacts to the following services and facilities:

- Further impacts to the Selma Unified School District from additional students, and possible increases in average number of students per classroom.
- Further demands on public safety services (police and fire) through an increase in calls for service.
- Additional potential impacts to the underground aquifer from an increased demand for potable water resources.
- Additional traffic flow in the vicinity of the Amberwood Project Site, with corresponding additional air pollution and Air Quality Impacts, due to more motor vehicles traveling to and from the area.
- Additional potential off-site traffic noise impacts.

The development of other new residential projects, outside the boundaries of Amberwood, would not occur under the 2035 Updated General Plan unless the areas located to the east and north of Amberwood are redesignated in the General Plan Land Use Element from Residential Reserve to Low Density Residential. Land Use Policies contained in the General Plan address the issue of residential reserve lands, and when these lands may be redesignated for new residential uses. Specifically, Policy 1.95 states as follows: " The City shall not develop or annex areas designated as "Reserve" within the Planning Area until additional land is needed". Under this policy, Amberwood would have to be essentially fully built out before any new development to the east or north of Amberwood could occur.

Section 7.3 Additional Job Growth

The construction and operation of a new 131,200 square foot commercial shopping center within Amberwood is estimated to create approximately 125 new jobs within the Selma community. The economic growth created from the new jobs could result in the need for additional apartment units or other housing opportunities within other areas of the community. Some of the jobs created within the Amberwood Shopping Center are anticipated to be lower wage service type jobs, and the holders of these lower wage jobs could be seeking lower cost housing opportunities within the community. This could encourage the construction of new multiple family housing projects elsewhere within the City of Selma. The potential construction of new multiple family units to house some of the new employees could have a corresponding impact on the Selma Unified School District due to additional students.

CHAPTER 8

CUMULATIVE PROJECT IMPACTS

SECTION 8.0 INTRODUCTION AND CEQA REQUIREMENTS

Section 15130 (a) of the CEQA Guidelines requires an EIR to include a discussion of Cumulative Project Impacts. As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR, together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.

In addition, the CEQA Guidelines, Section 15130 (b) allows for the use of two alternative methods to determine the scope of projects for the cumulative impacts analysis. These are as follows:

- *The List Method*. This method includes a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects located outside the control of the local agency.
- *The General Plan Projection Method*. This method contains 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 8.1 Amberwood Specific Plan Land Uses Contained within the 2035 General Plan

The City of Selma, beginning in June 2007, initiated a General Plan Update which projected the growth of the City through the year 2035. According to the updated 2035 General Plan, the population of the City was projected to grow to approximately 65,000 by the year 2035, at an average annual 4 percent rate of growth. The projected Amberwood population of approximately 8,953 persons at full buildout is included within the 65,000 population projection for the updated 2035 General Plan.

The Amberwood Specific Plan was developed during the same time period as the updated 2035 General Plan. Therefore, the Amberwood Specific Plan Land Uses, and development densities were included in the updated 2035 General Plan Land Use Element, and they were also evaluated and analyzed in the 2035 General Plan Program EIR. The cumulative impacts from development of the Amberwood Project were therefore considered in the Cumulative Environmental Impact Analysis for the 2035 Updated General Plan. The Amberwood EIR will therefore use the certified 2035 General Plan Program EIR as a tiering environmental document with regards to the evaluation of cumulative impacts. The General Plan Projection Method will

therefore be used for the Cumulative Impacts Analysis contained within this section, and the certified 2035 General Plan Program EIR is therefore the major reference document for information contained herein.

Section 8.2 Cumulative Impacts Analysis

The development and operation of the Amberwood Project could result in cumulative impacts in the following areas:

- Agricultural Resources
- Air Quality
- Hydrology
- Noise
- Traffic and Transportation
- Global Climate Change
- Utilities and Service Systems

These projected Amberwood Cumulative Project Impacts are analyzed and outlined below.

Agricultural Resources

With the implementation of the proposed Project, there would be additional loss of existing agricultural lands within the City of Selma planning area. While the 2035 General Plan update includes policies to minimize this impact, there would still be a Project-Level significant and unavoidable impact. The loss of agricultural lands within the planning area for the City of Selma 2035 General Plan as a result of new urban development is part of an overall trend within Fresno County. In total, Fresno County expects to convert approximately 75,000 acres of agricultural lands to urban uses over the next 25 years, with some experts projecting the conversion of over one million acres in the Central Valley over this same period. The updated 2035 General Plan includes several policies directing the City to work at a regional level to control the conversion of agricultural land to urban uses. However, because Fresno County is projected to continue to urbanize at a significant rate, the loss of agricultural lands as a result of new developments (including Amberwood) within the 2035 General Plan planning area would contribute to a significant and cumulatively considerable impact to agricultural resources.

Cumulative Impact

- Significant and Cumulatively Considerable Impact to Agricultural Resources

Air Quality

Cumulative Air Quality Impacts were considered in terms of the various land uses proposed under the 2035 General Plan Update (which includes Amberwood), and the traffic projections generated by the traffic model. Because of the significant air quality issues within the San Joaquin Valley Air Basin, including Ozone, ROG, and particulate matter, implementation of the 2035 General Plan, including the construction of the Amberwood Project, will result in a significant, unavoidable, and cumulatively considerable air quality impact to the Selma area and the Fresno County region.

Cumulative Impact

- Significant and Unavoidable Cumulative Air Quality Impacts

Hydrology

The development of the Amberwood Project, in conjunction with the full buildout of the 2035 General Plan Land Uses, and the anticipated Selma population of approximately 65,000 people in year 2035, will have a significant, unavoidable, and cumulatively considerable impact on underground water resources within the Consolidated Irrigation District service area. The existing underground aquifer is currently in an overdraft condition. Although mitigation measures for groundwater recharge (recharge basins) will most likely be implemented in the future, the overdraft condition will still persist with the anticipated future population growth and new developments planned for the valley portion of the Southeastern Fresno County Region, which includes not only the City of Selma, but also the Cities of Fowler, Kingsburg, Sanger, and Reedley.

Cumulative Impact

- Significant and Unavoidable Cumulative Hydrology Impacts to Groundwater Resources

Traffic and Transportation

Cumulative traffic impacts from full implementation and buildout of the 2035 General Plan Land Uses (which include Amberwood) were fully described in Chapter 3 of the General Plan Update Program EIR. The traffic model used for this analysis was approved by the Fresno County COG, and considered the projected growth under the Selma 2035 General Plan, in conjunction with the projected regional growth for Fresno County. Therefore, the transportation analysis contained in the 2035 General Plan Program EIR is inherently cumulative in nature, because the implementation of the 2035 General Plan would take place over many years, and would occur in conjunction with other growth and development throughout the Fresno County region. As identified in Chapter Three of the 2035 General Plan Program EIR, the implementation of the 2035 General Plan Land Uses would result in a

substantial increase in vehicular traffic on roadways within the planning area, which would result in a significant and unavoidable impact, and would result in some roadways not meeting Level of Service standards. Because the analysis contained in the 2035 General Plan Program EIR was based on a cumulative model, the projected incremental contribution to traffic impacts would be cumulatively considerable. Mitigation measures, including widening of key arterial streets, such as Floral Avenue, and construction of additional traffic signals at impacted key intersections can help minimize significant cumulative traffic impacts.

Cumulative Impact

- Significant and Unavoidable Cumulative Impacts to Traffic and Transportation

Global Climate Change

As outlined in Chapter Five of the General Plan Program EIR, the policies of the 2035 General Plan will help reduce global climate change impacts. However, buildout under the 2035 General Plan will nonetheless result in a substantial amount of GHG (Greenhouse Gas) emissions contributing to global climate change. Because it cannot be determined to a reasonable degree of certainty that buildout of the 2035 General Plan Land Uses will not result in a cumulatively considerable incremental contribution to significant cumulative impacts of global climate change, the impacts of the 2035 General Plan (which includes Amberwood) on global climate change are considered a significant, unavoidable, and cumulatively considerable impact.

Cumulative Impact

- Significant, Unavoidable, and Cumulatively Considerable Impact

Noise Impacts

As outlined in Chapter Five of the General Plan Program EIR, increased urban development is accompanied by increased noise. The 2035 General 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 operational noise and construction noise are time restricted, in order to minimize impacts to adjacent sensitive land uses, and also have performance standards for noise levels at the property lines. Based on the implementation of these policies, the buildout of the 2035 General Plan Land Uses (including Amberwood) would result in a Less than Significant Cumulative Impact.

Cumulative Impact

- Less than Significant Cumulative Impact

Utilities and Service Systems

Future regional growth would result in a need for expanded utilities and service systems throughout Fresno County. However, only growth within the City of Selma and its Planning Area would result in the need for the City to construct additional facilities to serve its future population, potentially resulting in additional environmental impacts.

Due to the fact the Amberwood project will be served by an on-site wastewater treatment plant, the Amberwood project will not contribute to cumulative wastewater impacts to the Selma-Kingsburg-Fowler (SKF) County Sanitation District wastewater treatment plant. According to Chapter Five of the 2035 General Plan Program EIR, wastewater treatment capacity was the only cumulative impact issue identified as being significant and unavoidable.

The Amberwood project, along with other new future developments in the Fresno County Region, could significantly impact the electrical and natural gas facilities of the Pacific Gas and Electric Company. These long term cumulative impacts could result in the need for additional electrical generation facilities, distribution facilities, and expanded natural gas facilities.

According to Chapter Five of the 2035 General Plan Program EIR, the implementation of the 2035 General Plan (which includes Amberwood) would not contribute to a significant cumulative impact associated with the provision of water infrastructure (water mains and water wells) within the Selma planning area.

Cumulative Impact

- Potentially Significant and Unavoidable

CHAPTER 9

MITIGATION MONITORING PROGRAM

SECTION 9.0 INTRODUCTION AND CEQA REQUIREMENTS

Section 15097(a) of the CEQA Guidelines requires public agencies to adopt a program for monitoring or reporting on the revisions which it has required in the project, and the measures it has imposed to mitigate or avoid the significant environmental effects. The City may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation, however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

Section 15097(b) of the CEQA Guidelines states as follows: " Where the project at issue is the adoption of a General Plan, Specific Plan, Community Plan, or other plan level document, the monitoring plan shall apply to policies, and any other portion of the plan that is a mitigation measure or adopted alternative. The monitoring plan may consist of policies included in plan level documents.

In addition, Section 15097(c) of the CEQA Guidelines states as follows: " The public agency may choose whether its program will monitor mitigation, report on mitigation, or both. Reporting generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation, or upon completion of the mitigation measure. Monitoring is generally an on going or periodic process of project oversight. There is often no clear distinction between monitoring and reporting, and the program best suited to ensuring compliance in any given instance will usually involve elements of both".

The below outlined program for the Amberwood Specific Plan Project will include elements of both mitigation monitoring and mitigation reporting.

Section 9.1 Mitigation Monitoring and Reporting Agencies

The City of Selma will use specified outside agencies to monitor and report on mitigation measures in selected environmental impact issue areas. These outside agencies are as follows:

- For Air Quality, the San Joaquin Valley Air Pollution Control District (SJVAPCD).
- For Agricultural Land Conversion, and for impacts to agricultural lands from the project, the State Department of Conservation and the Fresno County Agricultural Commissioner.

- For Biological Impacts, the State Department of Fish and Game.
- For Traffic and Transportation Impacts, the State Department of Transportation (Caltrans).
- For Cultural and Historic Resources, the State Office of Historic Preservation.
- For Hydrology and mitigation measures related to the underground aquifer, the Consolidated Irrigation District.
- For Water Quality mitigation measures, the Regional Water Quality Control Board.
- For mitigation measures involving construction improvements to County Roadways, and for installation of traffic signals within County Right of Ways, the Fresno County Public Works Department is the responsible mitigation monitoring agency.
- For mitigation measures involving Railroad Right of Ways, the State Public Utilities Commission is the responsible mitigation monitoring agency.

In other environmental impact issue areas, such as Noise Mitigation Monitoring and Reporting and Public Services Mitigation Measures, the City of Selma Planning Division and Code Enforcement Division staff will be the responsible enforcement and monitoring entity.

In regards to Air Quality, the SJVAPCD issues permits for construction emissions, and reviews and approves Dust Control Plans for particulate matter dust control (PM-10). SJVAPCD field inspectors check for on site compliance with permit requirements. Track out of mud and dirt debris onto public roadways by heavy construction equipment and trucks is prohibited, and is monitored by the SJVAPCD. In addition, the SJVAPCD monitors daily watering of construction sites for dust control.

The Regional Water Quality Control Board issues discharge permits for wastewater discharges, and also reviews Stormwater Pollution Prevention Plans for large residential and commercial developments to prevent pollution of surface and underground water supplies.

The State Department of Transportation (Caltrans) reviews plans for construction improvements to State Facilities, and also issues encroachment permits for work within State highway right of way areas.

The Consolidated Irrigation District will monitor and report on mitigation measures involving recharge of the underground aquifer, and on mitigation measures involving improvements to CID surface canals and drains. In this regard, the Amberwood project will be undergrounding a portion of the Orange Avenue CID canal.

Section 9.2 Mitigation Measures and Responsible Agencies

The summary of the mitigation measures for the Amberwood Project, and the responsible agencies for monitoring and reporting on the mitigation measures is outlined below in Tables

IX-1 and IX-2. The mitigation measure tabulations in Tables IX-1 and IX-2 are summarized according to specific environmental impact issue areas (i.e. Biology, Noise, Air Quality, etc.). All of the Amberwood project mitigation measures are included in Chapter 4 of this document.

Table IX-1

Summary of Mitigation Measures and Responsible Agencies

ENVIRONMENTAL ISSUE AREA	MITIGATION MEASURES	RESPONSIBLE AGENCY	MONITORING INTERVAL
Aesthetics	1.Prepare a lighting intensity diagram and lighting improvement plans for City approval. 2.Limit Illumination in Commercial Parking Lots to uniform maximum of 1.0 foot candle. 3.Require developer to adhere to design guidelines as contained in Amberwood Specific Plan. 4.Require outside highly directional lighting fixtures and proper reflective shielding on all lighting to minimize transmission of light off site.	City of Selma City Engineer and Code Enforcement	During Construction and Annually Thereafter
Agricultural Resources	1. City shall require adequate buffers between the project site and adjacent agricultural lands. In addition, appropriate setbacks and a 7 foot high perimeter masonry wall shall be provided around project. 2. City shall use urban development boundaries and growth phasing policies to delay conversion of ag lands to urban uses in areas adjacent to the project site. 3. City shall encourage developer to actively farm land within the project site until phasing and housing market conditions determine that agricultural land should be converted	County Agricultural Commissioner and City of Selma Planning Division	During Construction and Upon Final Project Approval

	to urban uses. 4. Land located within the project site but outside of the sphere of influence shall remain zoned County AE-20 until such time as the City SOI is revised by LAFCO, and the land is pre-zoned and annexed into the City. 5. City shall require the developer to record right to farm covenants in order to place future homeowners on notice regarding the potential environmental impacts of adjacent area farming operations and as a notice of the right of area farmers to continue their farming operations.		
Air Quality	1. Prior to receiving an occupancy permit, each non-residential facility in the project shall install bicycle parking facilities within 50 feet of main entrances. A minimum of 1 bicycle parking space for each 20 vehicle spaces shall be installed. 2. Prior to occupancy, shower and locker facilities shall be installed in commercial buildings to encourage employees to bike and/or walk to work. One shower and three lockers for each 25 employees is considered adequate. 3. The project developer shall install display cases or kiosks displaying transportation information in prominent areas accessible to employees, residents, and visitors. Display locations to include parking lots and garages, and the elementary school, commercial shopping	SJVAPCD and City of Selma Planning and Building Divisions	During Construction

	center, and the community center. 4. Automated lighting and thermal controls shall be installed in all non-residential facilities. 5.Daylighting systems shall be installed in non-residential buildings, including skylights, light shelves, and interior transom windows. 6. The project architect shall design, and the builder shall install roofing technologies such as high albedo and low emissive roofs, EPA "Energy Star" approved roofing materials, and "Green Roof" and LEED technology systems. 7. Parking lots shall be designed to include clearly marked and shaded pedestrian walkways between public transit facilities, adjacent sidewalks, and commercial building entrances. 8. "Cool Paving" shall be installed to the maximum extent feasible. 9. Proposed commercial land uses that have the potential to emit Toxic Air Emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors (homes, schools, churches) in accordance with the ARB Air Quality and Land Use Planning Handbook. Specifically, the architect/engineer shall design an adequate buffer between any dry cleaning operation and any sensitive receptors, and between any gasoline dispensing facility and any sensitive receptors.		

	10. Prior to development of the on-site wastewater treatment plant, the developer shall consult with the SJVAPCD small business assistance office to determine Air Permit Requirements, and to develop an Odor Mitigation Plan, if required. The following items shall be addressed in the Odor Mitigation Plan: i) the wastewater treatment plant must be appropriately sized and engineered to serve the proposed volume of wastewater generated by the project; ii) The wastewater treatment plant facilities must incorporate odor control measures in order to minimize potential odor impacts to surrounding residences, and iii) The wastewater treatment plant shall be constructed on a selected site that minimizes potential exposure of sensitive receptors to odors. 11. The project shall reuse and recycle construction and demolition waste, including, but not limited to: soil, vegetation, concrete, lumber, asphalt, metal, and cardboard. 12. The project shall provide interior and exterior storage areas for recyclables, and adequate recycling containers located in areas accessible to the public.		
Biological Resources	The City shall require and enforce mitigation measures for Special Status Species as follows: 1. For the Burrowing Owl,	California Dept. of Fish and Game and City Building Inspector	During Construction and Demolition Activities

	all recommendations and protocol requirements of the California Department of Fish and Game shall be followed before any construction begins on site and during all construction. Prior to the start of any construction, including clearing and grading, a pre-construction biological field survey shall be completed by a qualified biologist to identify any active nests or burrows. The Biological Field Survey shall be conducted during both the breeding season and non-breeding season within 30 days of the onset of any ground disturbance. Should burrowing owls occur on-site, the ultimate mitigation protocol shall be approved by the CDFG. 2. For Swainson's Hawk, any construction disturbances during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbances that result in nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. In order to mitigate any potential impacts to the Swainson's Hawk or other Birds of Prey, a qualified biologist shall conduct a field survey of the project site prior to the start of any construction activities, including clearing and grading of the site. The biologist shall note the location of any active nests on site, and a construction buffer shall be provided		

	according to CDFG Guidelines to prevent disturbances to or destruction of any observed nests or nestlings. 3. For the San Joaquin Kit Fox, no mitigation is required for this species due to the lack of any suitable habitat on site, and lack of any suitable on site prey base for the San Joaquin Kit Fox. No Kit Foxes or Kit Fox dens were observed on the project site during the biological field survey. 4. For the Pallid Bat, prior to the demolition and removal of any structures on the Amberwood project site, a qualified biologist shall conduct a field survey of such structures to note the location of any active Bat roosting areas. If active roosting areas are noted, demolition activities shall not begin until alternate roosting sites are identified and provided in accordance with CDFG Guidelines. The ultimate mitigation protocol shall be approved by the CDFG.		
Cultural Resources	If during any construction activities on the Amberwood project site, including excavating and grading, any archaeological resources or suspected human remains are discovered, all work shall cease immediately until the resource and/or remains are evaluated by a qualified archaeologist. If the remains appear to be human, the County Coroner shall be contacted immediately. In addition, if the remains appear to be	State Office of Historic Preservation and City Building Inspector	During Construction

	Native American, then the Native American Heritage Commission shall be contacted as well. In addition, the lake excavation areas shall be closely monitored for possible uncovered artifacts and/or human remains during all construction activities.		
Geology and Soils	1. In order to prevent soil erosion by wind, the Amberwood project site shall be watered down regularly during construction activities in accordance with the Dust Control Plan approved by the SJVAPCD. 2. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and be submitted to the Regional Water Quality Control Board. The subject SWPPP shall include provisions to minimize soil erosion during normal rainfall and also during major storm events. 3. A Grading and Drainage Plan for the Amberwood project site shall be prepared by a qualified civil engineer. The subject plan shall include provisions to minimize soil erosion and minimize transmission of sediment off site during major storm events.	City of Selma Planning Division and City Engineer	During Construction
Hydrology and Water Quality	1. The Amberwood project design shall include two (2) private lakes containing approximately 30.2 acres of surface area. The private lakes shall be unlined, and shall be designed to maximize underground aquifer recharge volumes. 2. The CID open canal located along the eastern	Consolidated Irrigation District, State Regional Water Quality Control Board, and City of Selma Engineering Division	During Construction and Annually Thereafter

	side of Orange Avenue shall be placed underground by the developer with an appropriately sized and designed piping system between the north side of Lincoln Middle School and Dinuba Avenue. 3. The on-site wastewater treatment plant shall be designed to provide a tertiary treatment process and high quality treated wastewater which meets Title 22 water quality standards, and which will drain into the private lake areas. The treated wastewater shall recharge the underground aquifer and provide recycled water for landscape irrigation of public and private park areas, thereby conserving water. 4. The on-site wastewater treatment plant shall be dedicated to the City by the developer. The City shall obtain a discharge permit from the Regional Water Quality Control Board. 5. Before being deposited into the two private lake areas, project stormwater shall be treated and be filtered as required by the Regional Water Quality Control Board to prevent contamination of the underground aquifer drinking water supply. 6. The City of Selma, as a condition of approval for the project, shall require the Amberwood Homeowners Association to implement strict water conservation measures, which shall limit the amount of water used on a monthly basis by each		

	individual dwelling unit to an average of approximately 12,000 gallons per household per month on an annual basis. This shall be accomplished by requiring all homes to have water meters, and by requiring the Amberwood Homeowners Association to implement and enforce strict rules for outdoor watering of landscape areas. The subject rules shall strictly limit the time of day for landscape watering to early morning and evening hours only, and shall also limit the duration of time when automatic sprinkler systems are activated to no more than 30 minutes per day in the summer months and 15 minutes per day in the winter months. The limit shall be 20 minutes per day in the fall and spring months. 7. The Amberwood Homeowners Association shall establish a rule that requires that water softeners that rely on salt not be allowed within the Amberwood project.		

Table IX-2

Summary of Mitigation Measures and Responsible Agencies (Continued)

ENVIRONMENTAL ISSUE AREA	MITIGATION MEASURES	RESPONSIBLE AGENCY	MONITORING INTERVAL
Noise	1. Increase the setbacks of noise sensitive structures and outdoor activity areas from arterial roadways as required to avoid areas and structures being exposed to greater than	City of Selma Code Enforcement Division and Police Department	Respond as needed to Noise Complaints From Area Residents during Construction.

	65 dB DNL noise levels. 2. Construct a minimum 6 foot high decorative sound wall between noise sensitive structures and noise sensitive outdoor activity areas and arterial roadways. 3. Limit residential structures to single story when located adjacent to or along major arterials which are subject to substantial traffic noise (Greater than 65 dB DNL). 4. City shall ensure the interior noise levels of residential structures does not exceed 45 dB DNL through the use of increased insulation, reduced window areas, and other approved design and construction methods where required for proper noise attenuation. 5. During the site planning process for commercial or institutional uses, ensure buildings are set back a sufficient distance from noise sensitive land uses such that the outdoor activity areas of noise sensitive uses does not exceed a noise level of 65 db DNL. 6. Require engineered sound walls between commercial and institutional uses and noise sensitive uses as needed for proper noise attenuation. 7. Require equipment enclosures for commercial and institutional mechanical equipment, and proper shielding to reduce noise transmission off site. 8. Implement policy 3.9 of		

	the General Plan Noise Element , which specifies additional preferred mitigation measures to be considered during the design of new commercial or institutional uses that may effect nearby noise sensitive uses. 9. For off-site traffic noise impacts to existing uses, the construction of effective sound walls may not be feasible. Therefore, these impacts will remain Significant & Unavoidable. 10. Noise and Vibration Impacts from construction activities can be mitigated, and are not usually considered to be significant if construction occurring near noise sensitive uses is limited to daytime hours only, extraordinary noise producing activities such as pile driving are not anticipated, and construction equipment is adequately maintained and muffled. City shall enforce Policy 3.1 of the General Plan Noise Element which provides effective mitigation for construction related noise and vibration impacts.		
Public Services	1. Developer/Builder shall pay development impact fees as adopted by the City prior to the issuance of Building Permits for new homes and commercial buildings. 2. Developer shall dedicate the Community Center Building and surrounding land to the City for public recreational	City of Selma Planning Division, Finance Department, and City Engineering Division.	Upon Issuance of Building Permits and Final Map Approval

	use. 3. Developer shall pay required School Impact Fees to the Selma Unified School District prior to issuance of building permits by the City. 4. Developer shall agree to participate in a Landscaping and Lighting Assessment District which will be formed for Amberwood through City Council action. 5. In order to minimize the impacts to the public works department for street maintenance, all local streets within Amberwood shall be private streets, and the Amberwood Homeowners Association shall be responsible for maintenance of all the private streets.		
Recreation and Parks	1. Developer/Builder shall pay park impact mitigation fees of $5,011 per dwelling unit prior to issuance of building permits. 2. The Developer shall construct required infrastructure within and around the perimeter of each private and public park site. The subject required infrastructure shall include paved streets, curbs, gutters, sidewalks, street lighting, interior park security lighting, and required landscaping in accordance with a City approved landscape plan.	City of Selma Community Services Division, Planning Division, Public Works Department, and City Engineer	Upon Issuance of Building Permits and Final Map Approvals
Traffic and Transportation	1. The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Northbound Off Ramp at	City of Selma City Engineer, Public Works Department, and Planning Division	Upon Issuance of Building Permits and Approval of Final Maps and

	Manning Avenue intersection. Fair Share cost is estimated at 7.3%, which represents the project percentage of the PM peak hour entering volume for the Existing + Project Scenario. 2. The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Southbound Off Ramp at Mountain View Avenue. The Fair Share cost is estimated at 6.6%, and represents the project percentage of the PM peak hour entering volume for the Existing + Project scenario. 3. The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Manning Avenue Intersection. This would mitigate the project impacts to a Less than Significant Level for the Existing+Approved+Project development conditions. 4. The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the Bethel and Manning Avenue Intersection. The Fair Share cost is estimated at 10.1%, which represents the project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. 5. The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the Golden State and Dinuba Avenue Intersection. The Fair Share cost is estimated at		Improvement Plans

	18.3%, which represents the project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. 6. The Amberwood project will contribute a Fair Share of the cost to install traffic signals at the McCall and Dinuba Avenue Intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn plus through lane. The Fair Share cost is estimated at 27.5%, which represents the project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. 7. The Amberwood project will contribute the entire cost of installing traffic signals at the Del Rey and Dinuba Avenue Intersection. All four approaches to the intersection should be designed to provide a separate left turn lane and a combined through plus right turn lane. This would mitigate the project impacts to a less than significant level for the Existing+Approved+Project development scenario. 8. The Amberwood project will contribute the entire cost of installing traffic signals at the Orange and Floral Avenue Intersection. The two Floral Avenue approaches to the intersection should be modified to provide a separate left turn lane,		

	and a combined through plus right turn lane. This would mitigate the project impacts to a Less than Significant Level for the Existing+Approved+Project development scenario. 9. The Amberwood project will contribute the entire cost of installing traffic signals at the Dockery and Floral Avenue Intersection. The two Floral Avenue approaches to the intersection should be modified to provide a separate left turn lane, and a combined through plus right turn lane. This would mitigate the project impacts to a Less than Significant Level for the Existing+Approved+Project development scenario. 10. The Amberwood project will contribute a Fair Share of the cost to install traffic signals on the SR 99 Southbound Off Ramp intersection at Second Street. The Fair Share cost is estimated at 15.1%, which represents the project percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. In addition, the project will also contribute a Fair Share of the cost for the installation of traffic signals on the SR 99 Northbound Off Ramp intersection at Second Street. The Fair Share contribution for these improvements shall be determined by Caltrans. This would mitigate the project impacts to a Less than Significant Level for Existing+Approved+Project		

	development conditions. 11. The Amberwood project will contribute the entire cost for installing traffic signals at the Orange and Dinuba Avenue Intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. These improvements would mitigate the project impacts to a Less than Significant Level. 12. The Amberwood project will contribute the entire cost for installing traffic signals at the Rose and Amber Avenue intersection. All four approaches to the intersection should be modified to provide a separate left turn lane and a combined right turn and through lane. This would mitigate the project impacts to a Less than Significant Level. 13. The following mitigation measures, as outlined in the Traffic Impact Study, are recommended to reduce the impacts of the Amberwood project traffic on rail safety at the Floral Avenue railroad crossing: (a) Installation of street median separation to prevent vehicles from driving around the railroad crossing gates. If installation of a median is feasible, the Amberwood project should contribute a Fair Share of the cost of this improvement, (b) Installation of vandal		

	resistent fencing or walls to limit the access of pedestrians onto the railroad right of way at this location. The developer and the City should investigate the feasibility of this measure, and if feasible the developer should contribute a Fair Share toward the cost of implementing this improvement, (c) The City of Selma shall consider implementing a rail safety awareness program to educate the public about the hazards of at-grade railroad crossings. The City of Selma Website and informational media resources, such as Operation Lifesaver, can be utilized for public educational purposes. The Amberwood project should contribute a Fair Share toward the cost of implementing this program, and (d) The City should consider including rail crossing improvement measures in its development impact fee program, whereby a mechanism can be provided for new developments to pay a Fair Share of the costs for rail crossing improvement measures, such as those outlined above. The City of Selma updated 2035 General Plan recommends a grade separated railroad crossing at the Mountain View Avenue location. If not already included, this improvement should be considered for inclusion in the City of Selma		

	development impact fee program for transportation capital facilities.		
Utilities and Service Systems	No mitigation measures are available to reduce the impacts to a Less than Significant Level. The impacts will therefore remain Significant and Unavoidable.		
Population and Housing	No mitigation measures are available to reduce these impacts to a Less than Significant Level. The impacts will therefore remain Significant and Unavoidable.		

Section 9.3 On Going Program

The Mitigation Monitoring Program will be an on going program which will continue throughout the life of the Amberwood project. The construction period for full buildout of the Amberwood project is expected to be approximately 20 years. Some mitigation measures, such as those for Air Quality and Noise, will continue to be monitored and enforced throughout the anticipated 20 year construction period.

Section 9.4 References for Mitigation Measures

The Mitigation Measures and Environmental Impact Information outlined herein were contained in the following special studies completed for the Amberwood DEIR:

- Environmental Noise Assessment Report completed by Brown-Buntin Associates Inc.
- Air Quality and Climate Change Analysis Report completed by Michael Brandman Associates.
- Traffic Impact Study completed by Dowling Associates Inc.
- Engineering Feasibility Report for On-Site Wastewater Treatment completed by The Holt Group Inc., and Kennedy Jenks Consultants.
- Biological Study completed by Live Oak Associates Inc.
- Cultural Resources Survey report completed by Sierra Valley Cultural Planning.
- General Plan Update 2035 Draft and Final EIR completed by Quad Knopf.

CHAPTER 10

PERSONS WHO PREPARED THIS EIR

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CHAPTER 11

REFERENCES AND PERSONS CONTACTED

REFERENCE DOCUMENTS

- Traffic Impact Study prepared by Dowling Associates Inc.
- Noise Impact Analysis Report prepared by Brown-Buntin Associates Inc.
- Air Quality Analysis and Climate Change Report prepared by Michael Brandman.
- Biology Study Report prepared by Live Oak Associates.
- Cultural Resources Survey Report prepared by Sierra Valley Cultural Planning.
- Engineering Feasibility Report prepared by The Holt Group and Kennedy/Jenks Consultants.
- Water Supply Assessment Report prepared by California Water Service Company.
- Hydrology Report prepared by Kenneth D. Schmidt and Associates.
- Draft and Final EIR for the 2035 General Plan Update prepared by Quad Knopf.

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- Veronica Cazares, Principal Engineer, S-K-F County Sanitation District.
- Bob Allen, Selma Disposal and Recycling Company.
- Josh McDonnell, Senior Planner, Quad Knopf.
- Stephanie Sherrell, Urban Development Coordinator, Consolidated Irrigation District.
- Bernard Jimenez, Division Manager, Fresno County Department of Public Works and Planning.
- Scott Bailey, Selma District Manager, California Water Service Company.
- Sharri Bender Ehlert, Deputy District Director, Caltrans District 6, Fresno.

Figure 1 – Project Site Plan

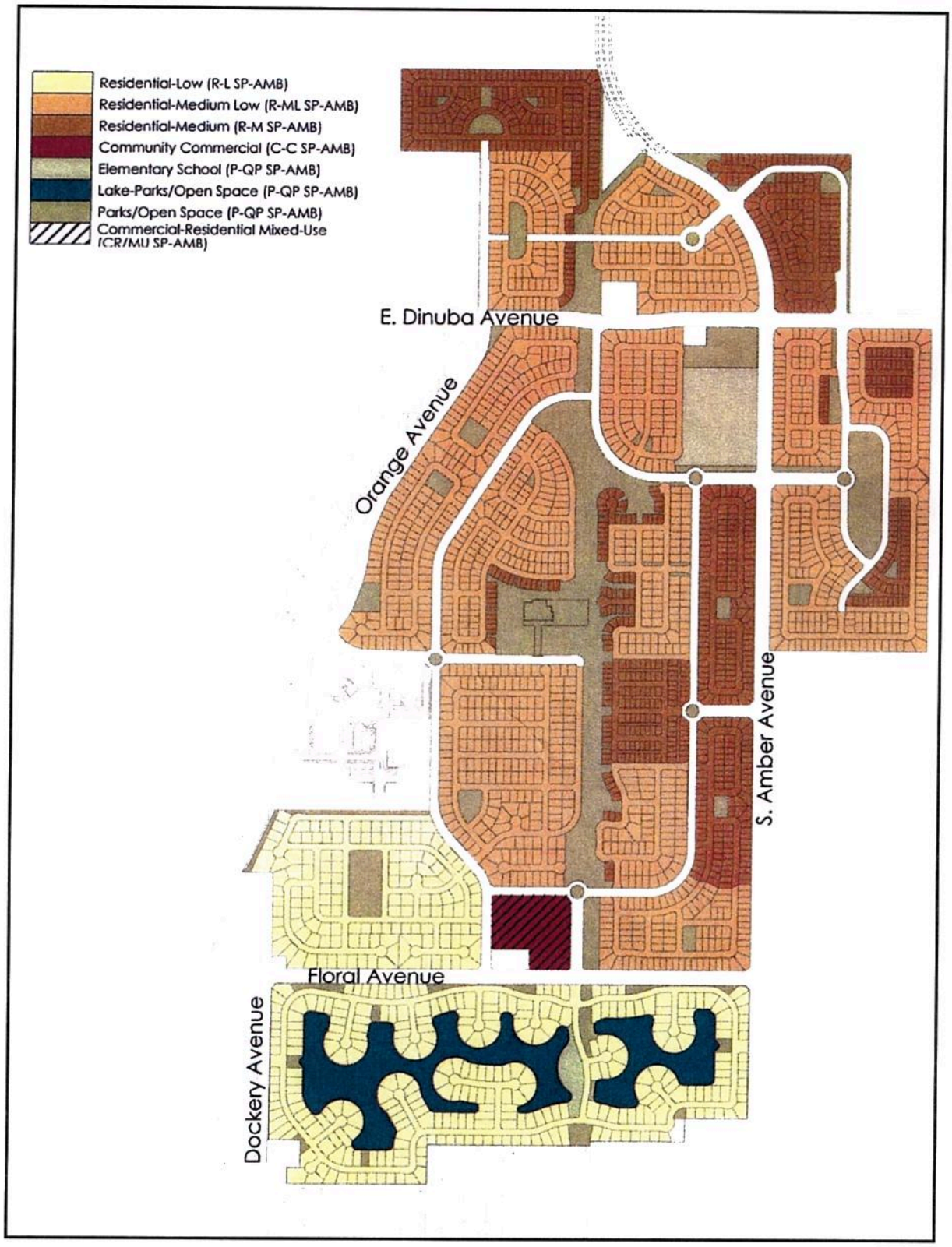
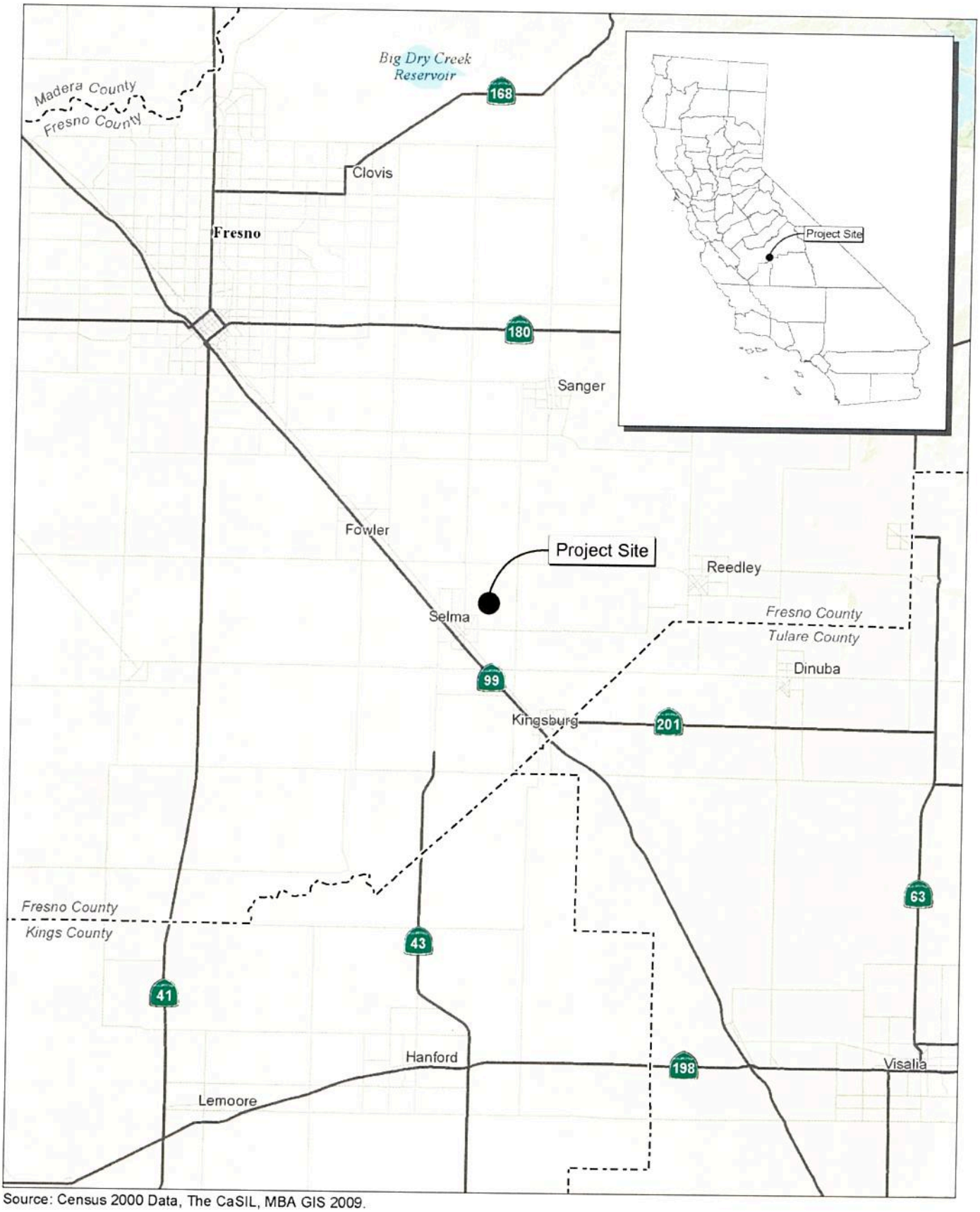


FIGURE 1

PROJECT SITE PLAN AND LAND USES

EXHIBIT 1

REGIONAL VICINITY MAP



Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

Michael Brandman Associates

NORTH

5 2.5 0 5 Miles

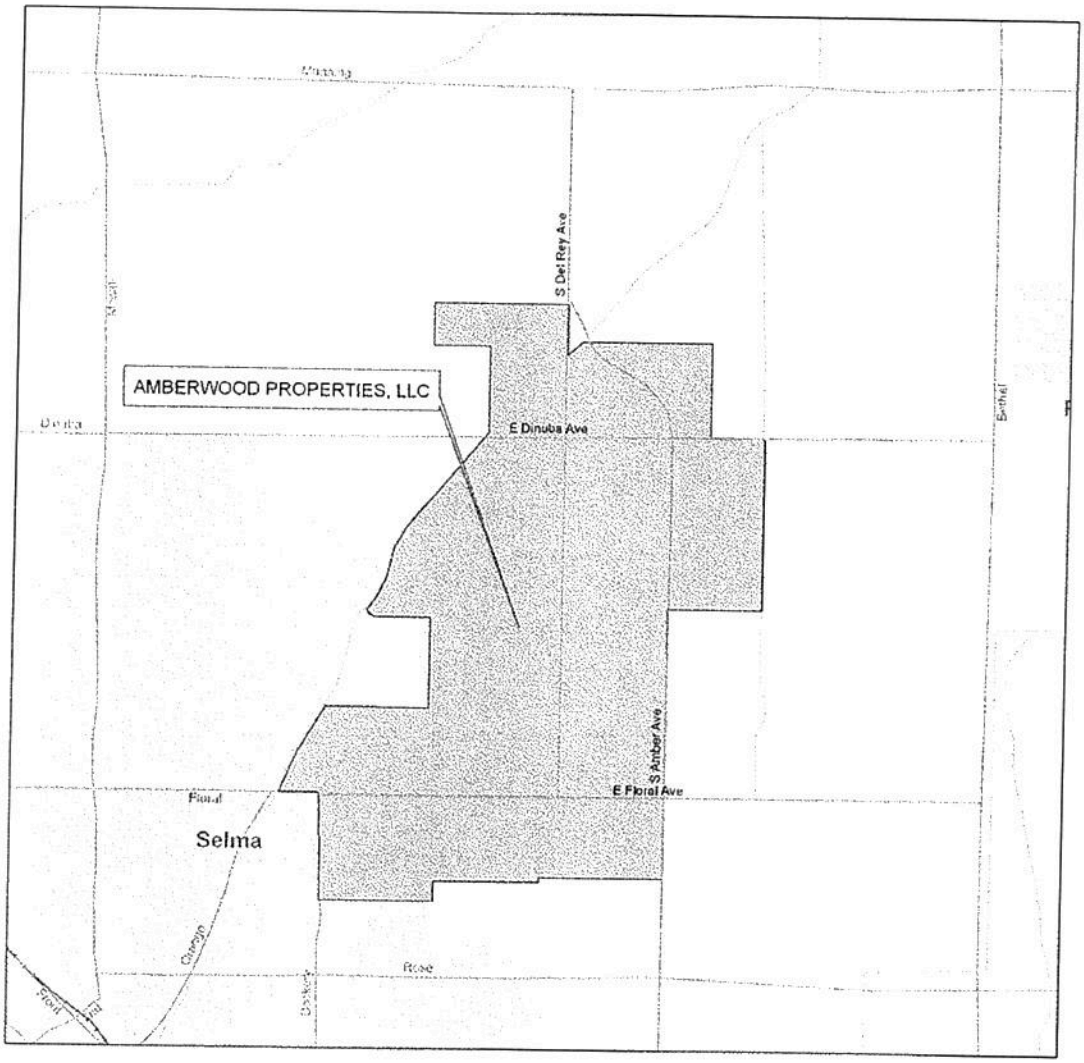
36150001 • 02/2010 | 1_regional.mxd

Exhibit 1
Regional Vicinity Map

FIGURE 2

PROJECT SITE IN RELATION TO SELMA SPHERE OF INFLUENCE

Figure 2: Site Map of Amberwood Project



N

Miles

0 0.125 0.25 0.5 0.75 1

Kennedy/Jenks Consultants

Amberwood Properties, LLC

Amberwood
Wastewater Effluent Reuse

Figure 2 - SITE MAP

K/J No. 0993006 November 2009

APPENDIX A

CULTURAL RESOURCES SURVEY REPORT

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CULTURAL RESOURCES SURVEY REPORT

SIERRA VALLEY CULTURAL PLANNING

A CULTURAL RESOURCES SURVEY FOR THE ~700-ACRE SERIMIAN PROPERTY, SELMA, FRESNO COUNTY, CALIFORNIA

Prepared by:

C. Kristina Roper, M.A., RPA
Sierra Valley Cultural Planning
Three Rivers, California

June 2007

SIERRA VALLEY CULTURAL PLANNING

A CULTURAL RESOURCES SURVEY FOR THE ~700-ACRE SERIMIAN PROPERTY, SELMA, FRESNO COUNTY, CALIFORNIA

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22 June 2007

USGS Topographic Quadrangle: Selma, Calif., 7.5' (1981)

Area: ca. 700 acres / 282 hectares
(Keywords: *Selma, Fresno County, Township 15S and 16S, Range 22E)*

MANAGEMENT SUMMARY

Between March 21 and April 14, 2005, a cultural resources survey was performed of the ca. 600-acre (242.4 hectare) Serimian Property, located in the City of Selma, Fresno County, California (Project Study Area). On April 20, 2006 and additional 100-acre parcel, also located in Selma, was also inspected for cultural resources. Wellington Corporation of Northern California, a real estate development corporation, is investigating the potential for residential development of the Serimian Property. The present study was performed as part of a due diligence investigation to identify any significant cultural resources (historic properties) that may be present within the Serimian Property, and thus anticipates provisions set forth in state and federal historic preservation law. Depending on the development action, identification of historic properties is required pursuant to provisions and implementing regulations of Section 106 of the National Historic Preservation Act. Provisions and implementing guidelines of the California Environmental Quality Act (CEQA), as amended July 11, 2006, state that identification and evaluation of historical resources is required for any action that may result in a potential adverse effect on the significance of such resources, which include archaeological resources.

Twelve structures and one water-conveyance feature are present within the project study area. Six of the structures are modern-period residences and/or commercial structures. The remaining structures are residential dwellings with associated outbuldings great than 50 years of age. These structures all have been either modified and no longer represent their period of construction (lack integrity), or do not possess significant architectural qualities that would qualify for listing in the National Register of Historic Places. The water-conveyance feature located within the study area has been modified and no longer represents its original period of construction and thus does not appear eligible for listing in the National Register of Historic Places nor in the California Register.

No historic properties (properties eligible for listing in the National Register of Historic Places or the California Register) were identified as a result of surface inspection of the Project Study Area; thus, it is unlikely that development of the Serimian Property will have an effect on important archaeological, historical, or other cultural resources. No further cultural resources investigation is therefore recommended. In the unlikely event that buried archaeological deposits are encountered during development-related activities, work in the immediate vicinity of the discovery must cease until the finds have been evaluated by a qualified archaeologist. Should human remains be encountered during development, the County Coroner must be contacted immediately; if the remains are determined to be Native American, then the Native American Heritage Commission must be contacted as well.

1.0 INTRODUCTION

This report presents the findings of a cultural resources survey of the ca. 700-acre (242.8 hectare) Serimian Property (Project Study Area). The Project Study Area is located in the City of Selma, in central Fresno County, California, within Township 15S, Range 22E, Sections 28, 29, 32, and 33, and Township 16S, Range 22E, Sections 4 and 5, MDB&M; see Figure 1.

Wellington Corporation of Northern California, a real estate development corporation, is investigating the potential for residential development of the Serimian Property. The present study was performed as part of a due diligence investigation to identify any significant cultural resources (historic properties) that may be present within the Serimian Property, and thus anticipates provisions set forth in state and federal historic preservation law. Identification of historic properties is required pursuant to provisions and implementing regulations of Section 106 of the National Historic Preservation Act when the proposed action has the potential for causing disturbance to or destruction of significant cultural resources (historic properties). Provisions and implementing guidelines of the California Environmental Quality Act (CEQA), as amended July 11, 2006, state that identification and evaluation of historical resources is required for any action that may result in a potential adverse effect on the significance of such resources, which include archaeological resources.

The author conducted a cultural resources survey of a 600-acre portion of the Project Study Area between March 21 and April 14, 2005. An additional 100 acres was inspected on 20 April 2006. No significant cultural resources (historic properties) were identified as a result of surface inspection of the Project Study Area.

A brief description of the natural and cultural setting of the Project Study Area follows this introduction. Survey methods and findings are presented in the subsequent section.

2.0 SETTING

The Project Study Area is located immediately adjacent to the city limits of the Selma in the central Fresno County. The Study Area is bounded on the west by the Centerville and Kingsburg Canal (Orange Avenue and Ditch Road); on the southwest by residential property and the present Selma city limits; and on the southeast, east and north by agricultural properties. Land use within the Project Study Area is mainly agricultural with a scattering of single-family residences along roads. Abraham Lincoln Middle School bounds the study area on the west. The study area is planted in stone fruit orchards and grapes. A fruit packing facility, D&L Produce/Red Lion Nectarines is located within the study area west on Del Rey Road. Overviews of the Project Area are included in Figures 2 a-b.

2.1 Natural Environment

The Project Study Area is located immediately northeast of the city limits of Selma, in central Fresno County. Elevation ranges from 310 to 323 ft (95-99 m) above mean sea level. Soils within the project area include tan sandy silt. Present vegetation is dominated by agricultural fields and orchards, and non-native ornamental trees, shrubs and grasses in residential areas.

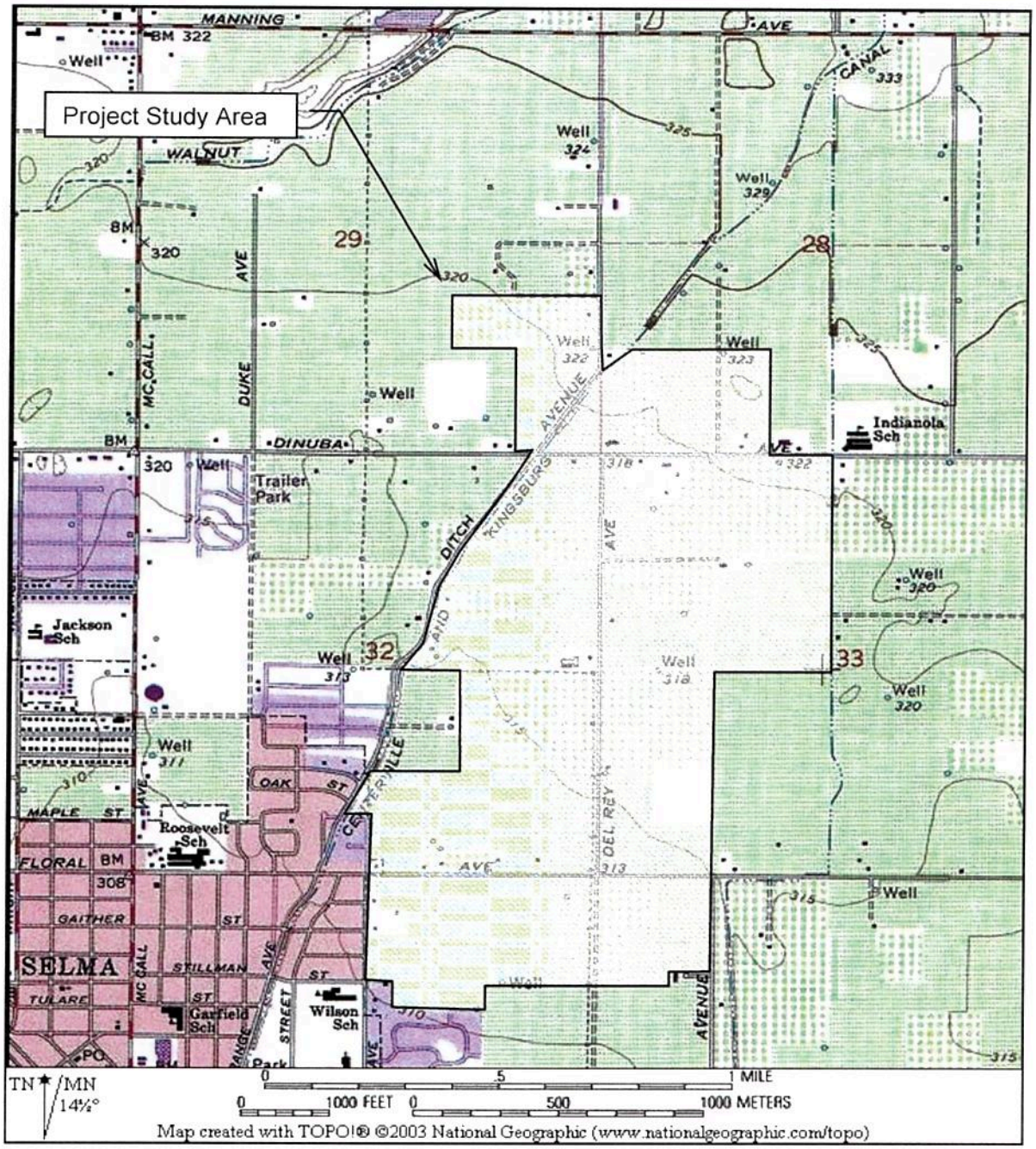

Figure 1. Project Study Area, USGS Selma, Calif., 7.5' (1981) topographic quadrangle map, Township 15S Range 22E, Sections 28, 29, 32 and 33, and Township 16S, Range 22E, Sections 4 and 5.

Figure 2a. Looking east from Nelson Blvd. to nectarine orchards east of Abraham Lincoln Middle School.

Figure 2b. Looking northeast across southern portion of the Serimian Property from the southwest project area boundary.

Before EuroAmerican intrusion and settlement in the region, much of the San Joaquin Valley was extensive grassland covered with spring-flowering herbs. Stands of trees -- sycamore, cottonwoods, and willows -- lined the major rivers as well as tributary stream courses. Groves of valley oaks occurred in well-watered localities with rich soil. Rivers yielded fish, mussels, and pond turtles; migratory waterfowl nested in the dense tules along the river. Tule elk, sometimes referred to by early Spanish explorers as wild horses, found ample forage. Smaller mammals and birds, including jackrabbits, ground squirrels, and quail were abundant.

2.2 Ethnographic Summary

Prior to EuroAmerican settlement, most of the San Joaquin Valley and the bordering foothills of the Sierra Nevada and Coastal Range were inhabited by speakers of Yokutsan languages. The southern San Joaquin Valley, from the lower Kings River to the Tehachapi Mountains, formed the nucleus of the Southern Valley Yokuts homeland (Wallace 1978:448). Population densities were highest in this area, with as many as 10+ people per square mile living along a narrow strip bordering the San Joaquin and its tributaries (Baumhoff 1963: map 7). The present project area falls between the territories of several Native groups. To the east near Sanger and Reedley were the *Wechihit*; to the southwest on Cole (Cold) and Murphy sloughs were the Wimilchi. Kroeber (1925:484) notes the *Apiachi* (Latta's *Apiche* [1999:163]) as living north of Murphy Slough west of present-day Selma. The *Apiachi* were closely related to the more widely distributed *Tache* who occupied the northern and western shore sof Tulare Lake. The *Apiachi* village of *Wohue* was situated on the north bank of Murphy Slough about seven miles above its junction with Sanjón de San José (Fresno Slough; see Figure 3).

Numerous accounts of Valley Yokuts lifeways offer details of pre-European land use in the San Joaquin Valley. The reader is referred to Gayton (1948), Kroeber (1925), Latta (1977) and Wallace (1978) for additional information on pre-contact Yokuts subsistence and culture.

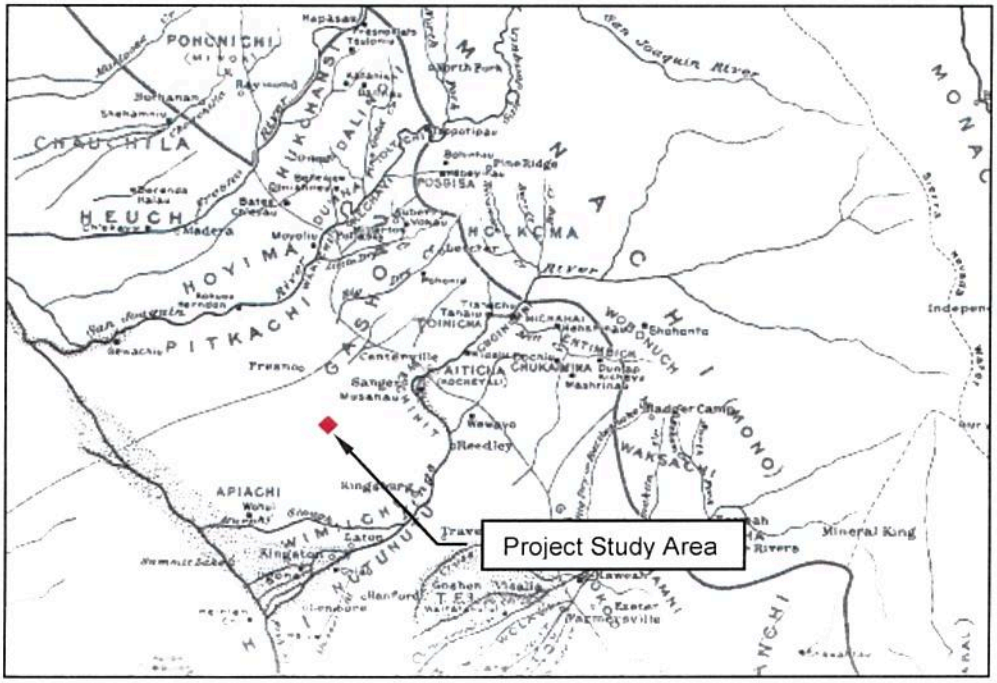

Figure 3. Northern Valley Yokuts Village Locations (from Kroeber 1925: Plate 47).

2.3 Prehistoric Period Summary

The San Joaquin Valley and adjacent Sierran foothills and Coast Range have a long and complex cultural history with distinct regional patterns that extend back more than 11,000 years (McGuire 1995). The first generally agreed-upon evidence for the presence of prehistoric peoples in the region is represented by the distinctive fluted spear points, termed Clovis points, found on the margins of extinct lakes in the San Joaquin Valley. The Clovis points are found on the same surface with the bones of extinct animals such as mammoths, sloths, and camels. Based on evidence from elsewhere, the ancient hunters who used these spear points existed during a narrow time range of 10,900 BP to 11,200 BP.

The next cultural period represented, the Western Pluvial Lakes tradition, thought by most to be after the Clovis period, is another widespread complex that is characterized by stemmed spear points. This poorly defined early cultural tradition is regionally known from a small number of sites in the Central Coast Range, San Joaquin Valley lake margins, and Sierra Nevada foothills. The cultural tradition is dated to between 8,000 and 10,000 years ago and its practitioners may be the precursors to the subsequent cultural pattern.

About 8,000 years ago, many California cultures shifted the main focus of their subsistence strategies from hunting to seed gathering, as evidenced by the increase in food-grinding implements found in archeological sites dating to this period. This cultural pattern is best known for southern California, where it has been termed the Milling Stone Horizon (Wallace 1954, 1978b), but recent studies suggest that the horizon may be more widespread than originally described and is found throughout the region. Radiocarbon dates associated with this period vary between 8,000 and 2,000 BP, although most cluster in the 6,000 to 4,000 BP range (Basgall and True 1985).

Cultural patterns as reflected in the archeological record, particularly specialized subsistence practices became codified within the last 3,000 years. The archeological record becomes more complex, as specialized adaptations to locally available resources were developed and populations expanded. Many sites dating to this time period contain mortars and pestles and/or are associated with bedrock mortars, implying the intense exploitation of the acorn. The range of subsistence resources utilized and exchange systems expanded significantly from the previous period. In the Central Valley and adjacent Sierra and Coast Range foothills, archaeological evidence of social stratification and craft specialization is indicated by well-made artifacts such as charmstones and beads, often found as mortuary items. Ethnographic lifeways serve as good analogs for this period.

2.4 Historic Period Summary

The eastern San Joaquin Valley was visited in the early 1800s by Spanish expeditions exploring the interior in search of potential mission sites. The Jose Joaquin Moraga and Juan Bautista Anza expeditions of 1776 may have passed through the region, followed by subsequent expeditions in 1805 and later (Cook 1955, 1962). It was Gabriel Moraga who gave *El Río de los Santos Reyes* its name while passing through the area to the southeast in 1805 (Cook 1962).

In California's third year as a state, the area which would later be called Selma was surveyed and included in an official government survey of the San Joaquin Valley. At that time it was still part of Mariposa County. Joseph A. Tivy, who surveyed the land under contract to the US Government, noted that "this township contains no very valuable land …is all 3rd rate, poor and sandy soil, destitute of both timber and water, and in general the grass is poor, although it is remarkable for its large droves of wild horses and antelopes" (McFarland 1980:9).

In 1858, with the inauguration of the Butterfield Stage line through the valley, wagons began to cross through the area along a dirt track known as Mustang Road (which paralleled the present Centerville and Kingsburg Canal about one-fourth mile to the southeast). Along this road was Fresno County's first telegraph line. With the coming of the Central Pacific Railroad in the early 1870s, the road and telegraph line fell into disuse. In 1881 Thomas B. Mathews, who constructed a house on the southeast corner of what is now Floral and Dockery avenues within the present study area (Thompson 1891), discovered lines of copper wire, post remnants, and glass insulators as he planted his first crop of wheat to the southeast (McFarland 1980:11). Before the area was planted by farmers, cattle and sheep dominated the landscape. Frank Dusy was the first man to have a substantial impact on the area with his large sheep grazing and shearing operation. In the mid 1870s Dusy established a sheep shearing operation at Fowler's Switch. In 1872 a two-story frame house and some smaller cabins were built along the railroad; these were the first structures built in what would soon become known as Selma. The two-story section house was located west of the tracks near the Third Street crossing. In 1923 it was moved to the northwest corner of Park and Sheridan streets where it remains today.

The first farmers arriving to settle the area were called sandlappers, a derisive term probably applied by cattlemen who were seeing their way of life come to an end. With the passage of the no-fence law in 1874, cattle and sheep grazing ended as a major economic land use in the region.

The farmers came not to grave cattle or sheep but to plant wheat and fruit and to build homes. In wet years farming the area was possible, but the new settlers soon realized that sustainable agriculture was not possible without irrigation. In 1876 the Centerville and Kingsburg Ditch Company was incorporated. Construction began in 1877 and in the following year water began to flow through the head gates. More settlers moved to the areas and turned to farming. In 1878 the first school district in the area was formed, Valley View School District, which formed the base on which the new town which was founded less than two years later in 1880 (McFarland 1980:17).

The naming of the new community has become a bit of a mystery. The new community was at first slated to be called Whitson (this was rejected by the Central Pacific Railroad as it was too similar to the existing station Whitney). Irwin was then proposed as a name. This too was rejected as to similar to existing Erwin. Crocker was suggested next, and again turned down. The Central Pacific's General Superintendent, A. N. Towne, in rejecting the last submission, offered a choice between the names of Dalton, Weymouth, Sandwich and Selma (McFarland 1980:37). The name Selma was chosen. Because the town founders neglected to inquire of Townsend exactly who the new town site was honoring, the naming of Selma became the center of a confusing debate 50+ years later, which has never thoroughly settled, with at least half a dozen claimants for the honor.

After a somewhat languid start, Selma boomed and soon numerous businesses were located in the town. By 1888 population had exceed 2000. As with many towns, fire was a constant threat in Selma; however, on September 19, 1288 the editor of the Irrigator proclaimed "she is building faster than she burns" (McFarland 1980:50). Despite the depression of the 1890s, Selma continued in the new century to grow and prosper. The discovery of oil in the Coalinga, McKittrick, and Kern River areas brought new wealth to the community. Nearly all the oil companies used the Bank of Selma for their treasuries. Subdivision of formerly large tracts into smaller farms brought a new influx of settlers to the area and business boomed. Figure 4 depicts land ownership and development within and adjacent to the study area as of 1891.

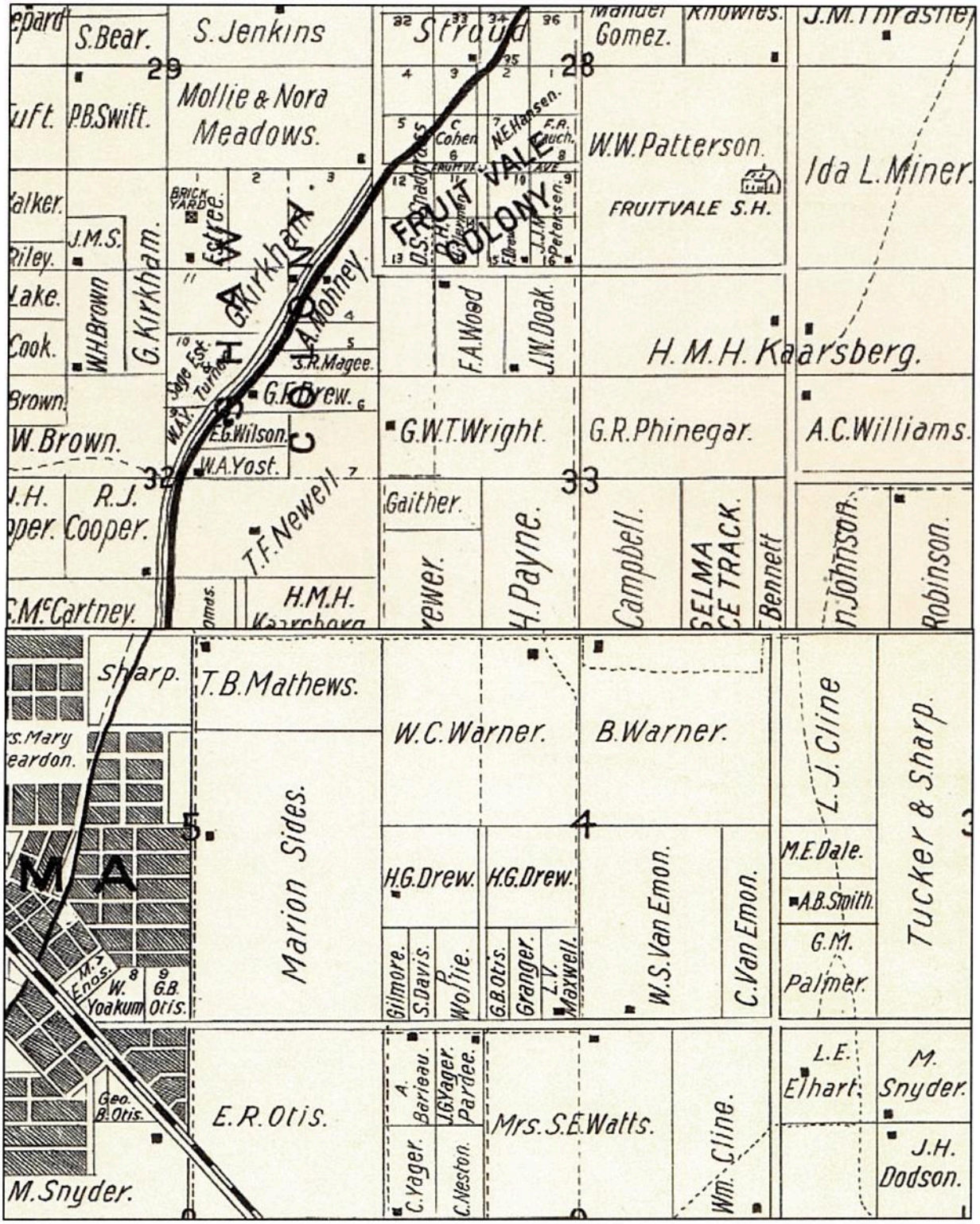

Figure 4. Land ownership and development of the Project Study Area and environs as of 1891 (Thompson 1891).

2.5 Record Search Results

Prior to field inspection, a record search was conducted with the Southern San Joaquin Valley Information Center of the California Historical Resources Information System to identify areas previously surveyed and identify known cultural resources present within or in close proximity to the project area (Attachment 1). The records search included review of the National Register of Historic Places, the California Register of Historical Resources, the *California Inventory of Historic Resources*, the *California Historical Landmarks*, and the *California Points of Historic Interest* listing, the Historic Property Data File, the Caltrans State and Local Bridge Survey, and other pertinent historic data of relevance to the project area.

There are no formally recorded prehistoric or historic cultural resources within the greater 700-acre study area. There has been one survey conducted within a very small portion of the project area, encompassing the Abraham Lincoln Middle School (see Attachment 1).

3.0 METHODS AND FINDINGS

The author conducted a cultural resources survey of a 600-acre portion of the Project Study Area between March 21 and April 14, 2005. An additional 100 acres was inspected on 20 April 2006. Surface visibility was good in most of the study area. The survey included both surface inspection for evidence of prehistoric and/or historic-period archaeological artifacts and features, as well as inspection of the built environment which included both residential and agriculture-related structures and associated outbuildings.

No archaeological deposits or isolated finds were identified during the cultural resources survey. No plant resources of potential value for Native Americans such as sedge or deer grass, which are of importance in the traditional methods of basketry construction, were observed in the surveyed area.

Twleve structures are present within the study area. Six of these are modern in construction, built during the last 50 years. These structures are depicted in Figures 5a-f.

Figure 5a. 1010 Floral Avenue. Modern mobile home

Figure 5b. 11159 Dinuba Avenue. Modern Ranch Style residence.

Figure 5c. 1050 Floral Avenue. Modern stucco and brick residence with two associated sheds.

Figure 5d. 2768 Dockery Avenue. Modern two-story residential/commercial structure.

Figure 5e. 10463 Del Rey Avenue. Modern Ranch Style residence which has been converted for commercial office use.

Figure 5f. D&L Produce, fruit processing and packing plant adjacent on the north to 10463 Del Rey Avenue.

Six structures appear to have been constructed prior to 1955. These structures, depicted in Figures 5g-l, all have been either modified and no longer represent their period of construction (lack integrity), or do not possess significant architectural qualities that would qualify for listing in the National Register of Historic Places.

Figure 5g. 11085 Dinuba Avenue. Two-story stucco residence with brick chimney, constructed ca. 1950s. Garage at rear has been converted into a living space.

Figure 5h. 10899 Dinuba Avenue. Single-story stucco residence, constructed ca. 1940s, with two outbuildings (garage and shed).

Figure 5i. Immediately to the east of 11159 Dinuba Avenue is this one-story, abandoned, wood pyramid-roof dwelling with ship-lap siding, in very poor condition. Two outbuildings (small barn and garage/shed) are located south of the structure.

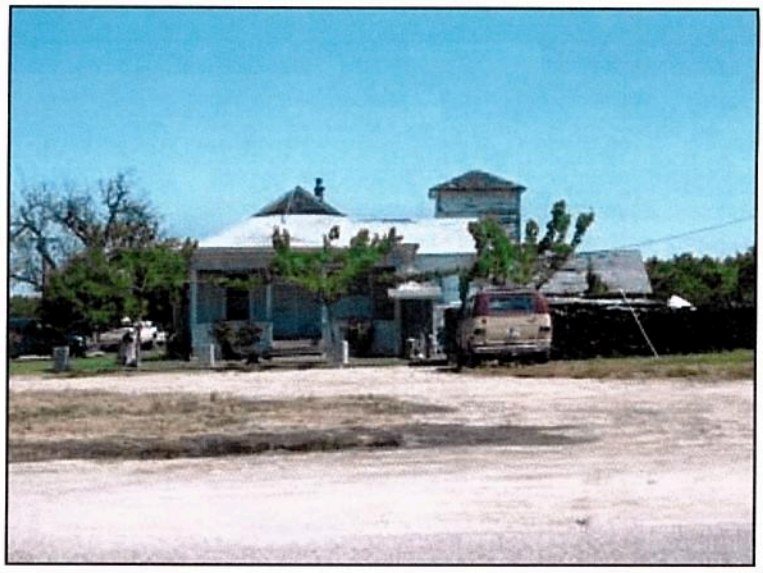

Figure 5j. 10374 Del Rey Avenue. One-story wood-frame farmhouse with an associated tank house. The original structure, as well as the tank house, have been extensively modified to add additional living space. The structure is in a poor state of repair.

Figure 5k. 11292 E. Dinuba Avenue. This structure, along with the structure depicted in Figure 5l, appears to have been built in the 1930s.

Figure 5l. 10254 Amber Avenue.

The structures depicted in Figures 5i (adjacent to 11159 Dinuba Avenue) and 5j (10374 Del Rey Avenue) appear to be in excess of 100 years in age and most likely are the structures depicted on an 1891 historic map of the study area (Thompson 1981; see Figure 3). In 1891 F.A. Wood owned the Dinuba Avenue property and G.W.T. Wright owned the Del Rey Avenue parcel. Neither Wood nor Wright figure prominently in the regional or local history of the Selma area. Both structures have been added on to and are in very poor states of repair, and as a result, lack integrity necessary for listing on the National of California registers.

The Centerville-Kingsburg Canal (see Figure 6), which borders the project area on the west, is an unlined earthen ditch and has been under-grounded along portions of its route. The portion of this existing water conveyance feature which crosses through the study area does not appear eligible for listing in the National Register of Historic Places nor in the California Register.

The 1891 atlas map of the area (Figure 4) depicts several structures which have since been removed. No historic archaeological artifacts or features were found in the former locations of these structures.

In conclusion, no historic properties (i.e., cultural resources eligible for inclusion on the National Register of Historic Places) were identified within the Project Study Area; thus, it is unlikely that residential development of the parcel will have an effect on significant or important archaeological or other cultural resources. Therefore, no further cultural resource investigation is recommended at this time. In the unlikely event that unanticipated buried archaeological deposits are encountered during Project-related activities, work in the immediate vicinity of the discovery must cease until the finds can be evaluated by a qualified archaeologist. Should human remains be encountered within the Project area, the County Coroner must be contacted immediately; if the remains are determined to be Native American, then the Native American Heritage Commission must be contacted as well.

Figure 6. Looking south along the Centerville and Kingsburg Canal adjacent to Ditch Road, adjacent to the Project Study Area on the west.

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Attachment 1:

**Cultural Resources Records Search,
Southern San Joaquin Valley Information Center
of the California Historical Resources
Information System (File # 05-145 and 06-175)**

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

FRESNO
KERN
KINGS
MADERA
TULARE

Southern San Joaquin Valley Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
661/664-2289 FAX 661/664-2415
Email: abaldwin@csub.edu

TO: C. Kristina Roper, Consulting Archaeologist
Sierra Valley Cultural Planning
40854 Oak Ridge
Three Rivers, CA 93271

(RS# 05-145)

DATE: March 27, 2005

RE: Selma Study Area

County: Fresno

PRIORITY

Map(s): Selma 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The Southern San Joaquin Valley Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The following are the results of a search of the cultural resources site files at the IC. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed in the Historic Property Data File, (3/7/05), on the National Register of Historic Places, the California Register, the California Historical Landmarks, The California Inventory of Historic Resources, and The California Points of Historical Interest.

PRIOR CULTURAL RESOURCE INVENTORIES WITHIN THE PROJECT AREAS AND A ½ MILE RADIUS

According to the information in our files, there has been one survey conducted within a very small portion of the project area, FR-1017. There have been no additional surveys within a ½ mile radius. Survey locations and their associated report numbers are on the project map.

KNOWN CULTURAL RESOURCES WITHIN THE PROJECT AREAS AND A ½ MILE RADIUS

There are no recorded cultural resources within the project area and it is not known if resources exist there. There are no recorded cultural resources within a ½ mile radius.

PRIORITY

PRIORITY (RS# 05-145)

There are no known cultural resources within the project area or a ½ mile radius that are listed in the National Register of Historic Places, Historic Property Data File, California Historic Resources Inventory, California Points of Historical Interest, or the California State Historic Landmarks.

COMMENTS

Report title page is enclosed. If you need any additional information for these projects, please don't hesitate to contact me at (661) 664-2289.

By:

Adele Baldwin
Assistant Coordinator

Date: March 27, 2005

Fee: $180.00/hr. *(Priority Service)* **Invoice # A3115**

PRIORITY

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

FRESNO KERN KINGS MADERA TULARE

Southern San Joaquin Valley Archaeological Information Center
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9001 Stockdale Highway
31 MW
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(661) 654-2289 FAX (661) 654-2415
E-mail: abaldwin@csub.edu

TO: C. Kristina Roper, Consulting Archaeologist
Sierra Valley Cultural Planning
40854 Oak Ridge
Three Rivers, CA 93271

(RS# 06-175)

DATE: April 26, 2006

RE: "Selma Project Study Area", Selma

County: Fresno

Map(s): Selma 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The Southern San Joaquin Valley Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The following are the results of a search of the cultural resources site files at the IC. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed in the Historic Property Data File, (3/2/06), on the National Register of Historic Places, the California Register, the California Historical Landmarks, The California Inventory of Historic Resources, and The California Points of Historical Interest.

PRIOR CULTURAL RESOURCE INVENTORIES WITHIN THE PROJECT AREA AND A ½ MILE RADIUS

According to the information in our files, there have been no surveys conducted within the project area. There has been one survey conducted immediately adjacent, FR-2098 and (2) two surveys within a ½ mile radius, FR-1017 & 173. Survey locations and their associated report numbers are on the project map.

KNOWN CULTURAL RESOURCES WITHIN THE PROJECT AREA AND A ½ MILE RADIUS

There are no recorded cultural resources within the project area and it is not known if resources exist there. There are no recorded cultural resources within a ½ mile radius.

(RS# 06-175)

There are no known cultural resources within the project area that are listed in the National Register of Historic Places, Historic Property Data File, the California Register, California Inventory of Historic Resources, California Points of Historical Interest, or the California State Historic Landmarks.

COMMENTS

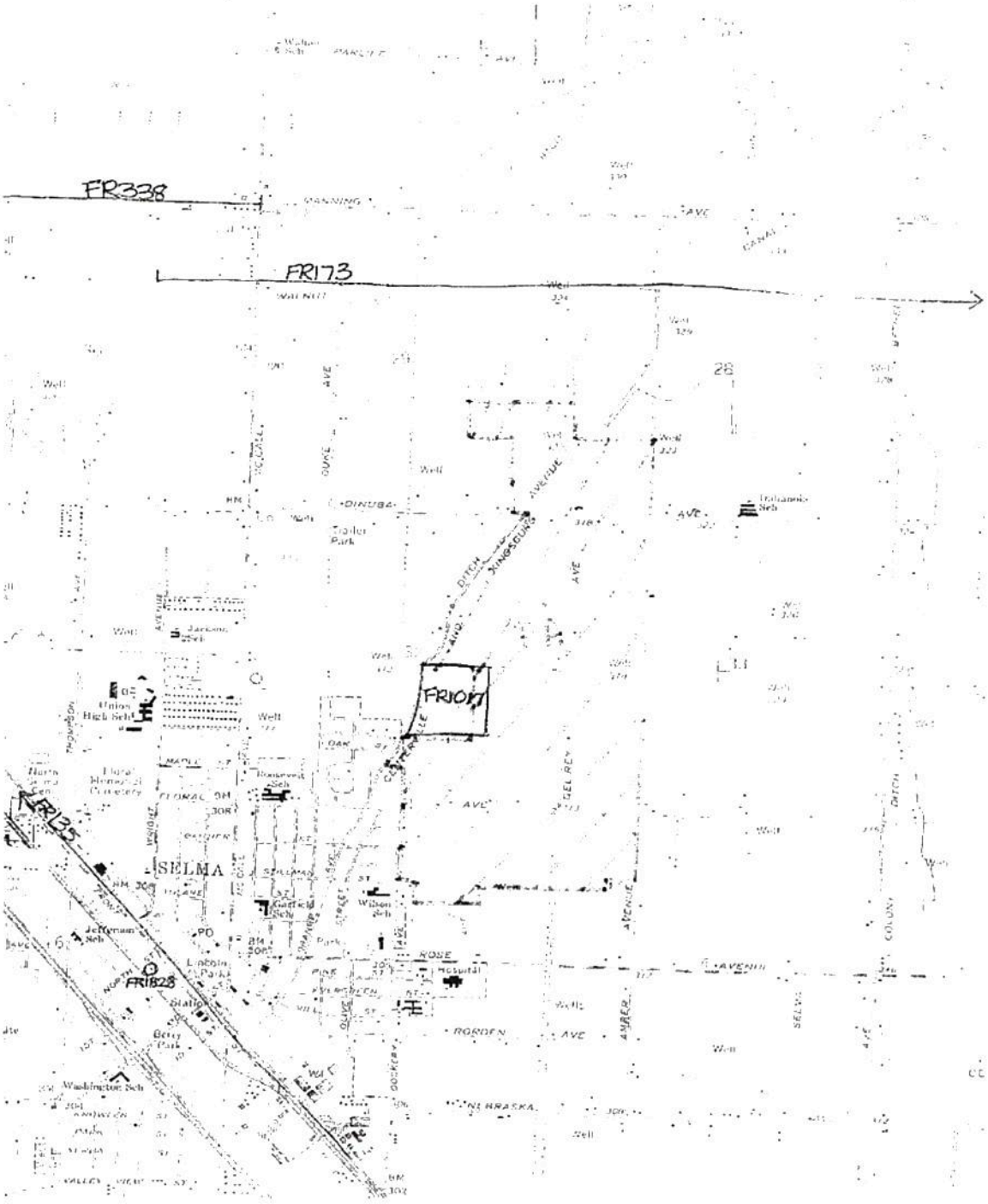
A search radius was not specified in your letter, we therefore copied only the information within a ½ mile radius. The report title pages are enclosed. If you need any additional information for this project, please don't hesitate to contact me at (661) 654-2289.

By: Adele B

Adele Baldwin
Assistant Coordinator

Fee: $180.00/hr. (Priority Service)

Invoice # A3879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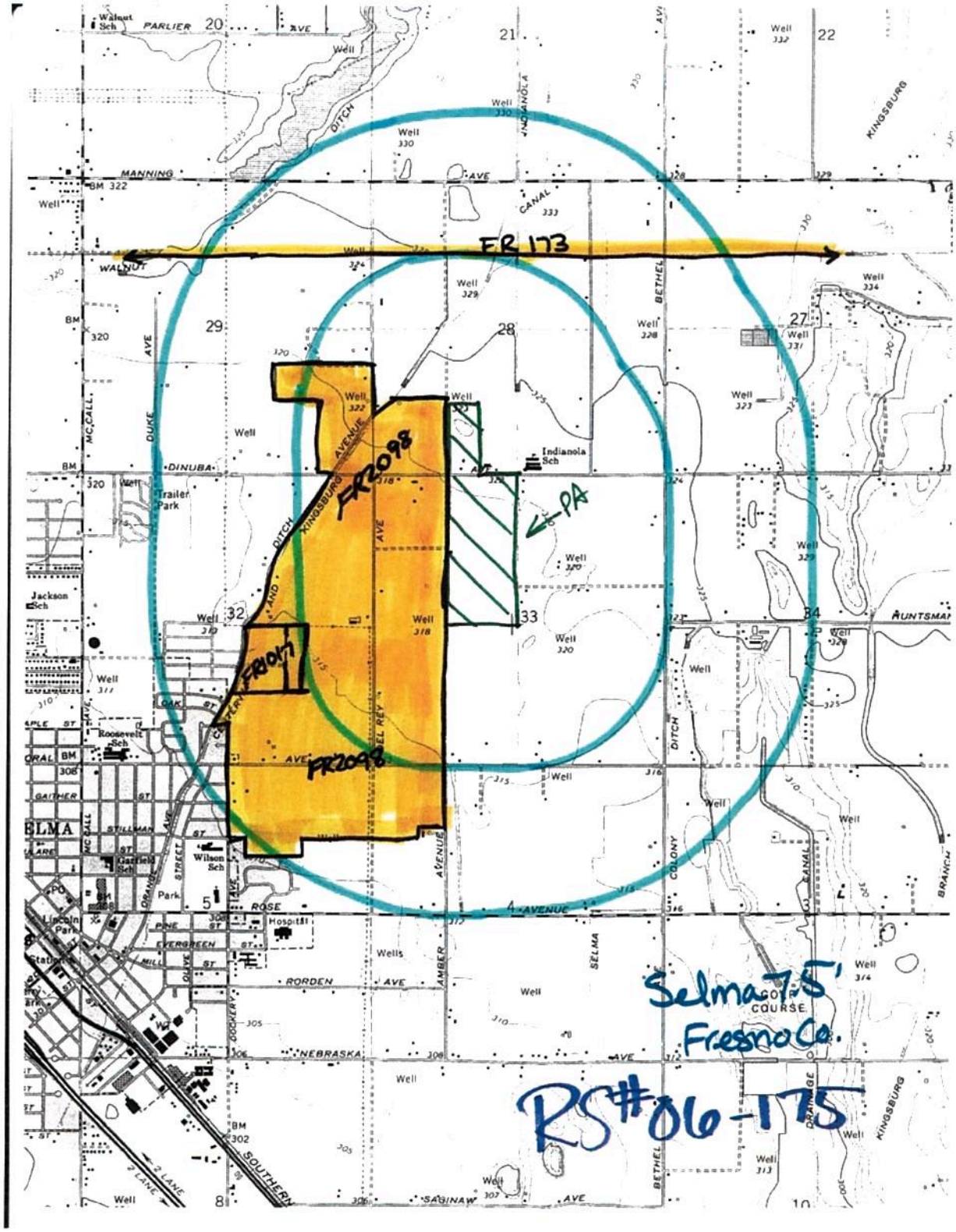
FR173
FR1017
FR135
FR1828
SELMA
Union High Sch
Jackson Sch
Roosevelt Sch
Garfield Sch
Wilson Sch
Jefferson Sch
Lincoln Park
Berry Park
Washington Sch
Hospital
Trailer Park
Indianola Sch
DINUBA
KINGSBURG
AVENUE
DITCH
AVE
ROSE
RORDEN
NEBRASKA
AVENUE
COLONY
DITCH
Well


FR 173
FR2098
FR1017
FR2098
PA
Selma 7.5'
Fresno Co.
RS#06-175
MANNING AVE
WALNUT
DINUBA
Indianola Sch
Trailer Park
Jackson Sch
Roosevelt Sch
Wilson Sch
Garfield Sch
Lincoln Park
Hospital
RORDEN AVE
NEBRASKA AVE
SAGINAW AVE
ROSE AVENUE
HUNTSMAN
KINGSBURG
BETHEL
COLONY
SELMA
AMBER AVENUE
DUKE AVE
MC CALL
KINGSBURG AVENUE
DITCH
CANAL
SOUTHERN
COUR COURSE

ARCHAEOLOGICAL FIELD RECONNAISSANCE
Report Summary

1. Project Name Selma Unified School District School Site

2. Location: T. 15S , R. 22E , S. 32 , NW 1/4 of SE 1/4,

U.S.G.S. Quad(s) Selma 7.5' 1964

3. Agency/Company Michael Baoli and Associates

Address 600 W. Shaw Ave.

Fresno, California 93704

4. Pre-field research:

X archaeological resource assessment

X search of Fresno City College records and files

____ other:

5. Type of reconnaissance:

acres 40

____ intuitive ____ sample

X complete ____ mixed strategy

6. Reconnaissance results:

Date(s) of fieldwork 4-16-89

X no cultural resources discovered

____ prehistoric sites located:

____ historic sites located:

____ other cultural resources:

7. National Register Status:

____ listed or nominated sites relocated:

X no eligible sites discovered

____ eligible sites located:

Southern San Joaquin Valley
Archaeological Information Center
9001 Stockdale Highway
Bakersfield, CA 93311-1022

FR 01017

Southern San Joaquin Valley
Archaeological Information Center
9001 Stockdale Highway
Bakersfield, CA 93311-1099

SIERRA VALLEY CULTURAL PLANNING

A CULTURAL RESOURCES SURVEY FOR THE ~600-ACRE SERIMIAN PROPERTY, SELMA, FRESNO COUNTY, CALIFORNIA

Prepared by:

C. Kristina Roper, M.A., RPA
Sierra Valley Cultural Planning
40854 Oakridge Drive
Three Rivers, CA 93271
(559) 561-6011

Submitted to:

Noreen Kakalec
Wellington Corporation of Northern California
18625 Sutter Blvd., Suite 800
Morgan Hill, CA 95037-2864
(408) 782-1669

29 April 2005

USGS Topographic Quadrangle: Selma, Calif., 7.5' (1981)

Area: ca. 600 acres / 242 hectares
(Keywords: *Selma, Fresno County, Township 15S and 16S, Range 22E)*

FR-02098

06-Fre-Z462-CR
RS-Z462(1)

HISTORICAL PROPERTY SURVEY REPORT

FOR

MANNING AVENUE

BETWEEN

McCALL AVENUE AND ACADEMY AVENUE

1978

Author VARNER, DUDLEY

SELMA 7.5' (3570)

RECEIVED
MAR 8, 1979

Southern San Joaquin Valley
Archaeological Information Center
9001 Stockdale Highway
Bakersfield, CA 93311-1099

FR 00173

APPENDIX B

BIOLOGICAL CONSTRAINTS ANALYSIS REPORT

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

SELMA/AMBERWOOD
BIOLOGICAL CONSTRAINTS ANALYSIS
CITY OF SELMA, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Ph.D., Principal and Senior Wildlife Ecologist
Melissa Denena, M.S., Director of Ecological Services and Wetland/Plant Ecologist
Davinna Ohlson, M.S., Project Manager and Wildlife Ecologist

Prepared for

Amberwood Properties, LLC
Attn: Franlinda Khuon
18640 Sutter Blvd., Suite 100
Morgan Hill, CA 95037

July 18, 2007 PN 736-02

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EXECUTIVE SUMMARY

Live Oak Associates, Inc., conducted an investigation of the biological resources of an approximately 674-acre site within and just east of the City of Selma, Fresno County, California, in order to assess the possible regulatory constraints to future site development. The site is generally located along Dinuba Avenue, east of Del Rey Avenue.

The entire site, with the exception of several homes and agricultural maintenance/storage buildings, consists of nectarine orchards and vineyards with sparse, weedy vegetation between the crop rows and along their margins. Several fields currently lay fallow. Centerville and Kingsburg Canal runs through the northwest portion of the site and is currently dry except for one arm, which has standing water, that runs north of Wilson School on the west side of the site.

The agricultural lands that dominate the site provide unsuitable habitat for all special status plant species and most special status animal species known to occur regionally. Raptors may nest in tall trees surrounding residences on the site. Ground squirrel burrows along the margins of the vineyards and fallow fields provide potentially suitable habitat for the burrowing owl. Pre-construction surveys should be conducted prior to ground disturbance to ensure that such activities would not impact either tree- or ground-nesting raptors.

The site provides unsuitable denning and foraging habitat for the San Joaquin kit fox. An expanded kit fox study on the site and on adjacent lands may nonetheless be warranted, since the U.S. Fish and Wildlife Service sometimes claims that agricultural lands facilitate regional kit fox movements. Such a study would generate the information necessary to determine if site development would result in the take of this species.

Both special and non-special status bat species may form maternity colonies in old or abandoned structures on the site. Pre-demolition surveys would be necessary to ensure that bat colonies are not harmed as a result of demolition activities.

Centerville and Kingsburg Canal flows through the site into Kings River and appears to have been channelized for development purposes and possibly replaced the function of a historical tributary. A formal wetland delineation would need to be conducted to determine whether or not this canal falls under the jurisdiction of any federal or state agencies.

Eventual site development would not be constrained by the presence of riparian habitats or other sensitive habitats, as such features are absent from the site. Wildlife movements are also not expected to constrain future site development.

The only local policy or ordinance applicable to the city is a City of Selma tree ordinance calling for the conservation of mature and healthy trees whenever feasible and for the protection of trees within the vicinity of any structures slated for removal. Mature and healthy trees onsite should be conserved and protected to the maximum extent practicable according to the City ordinance.

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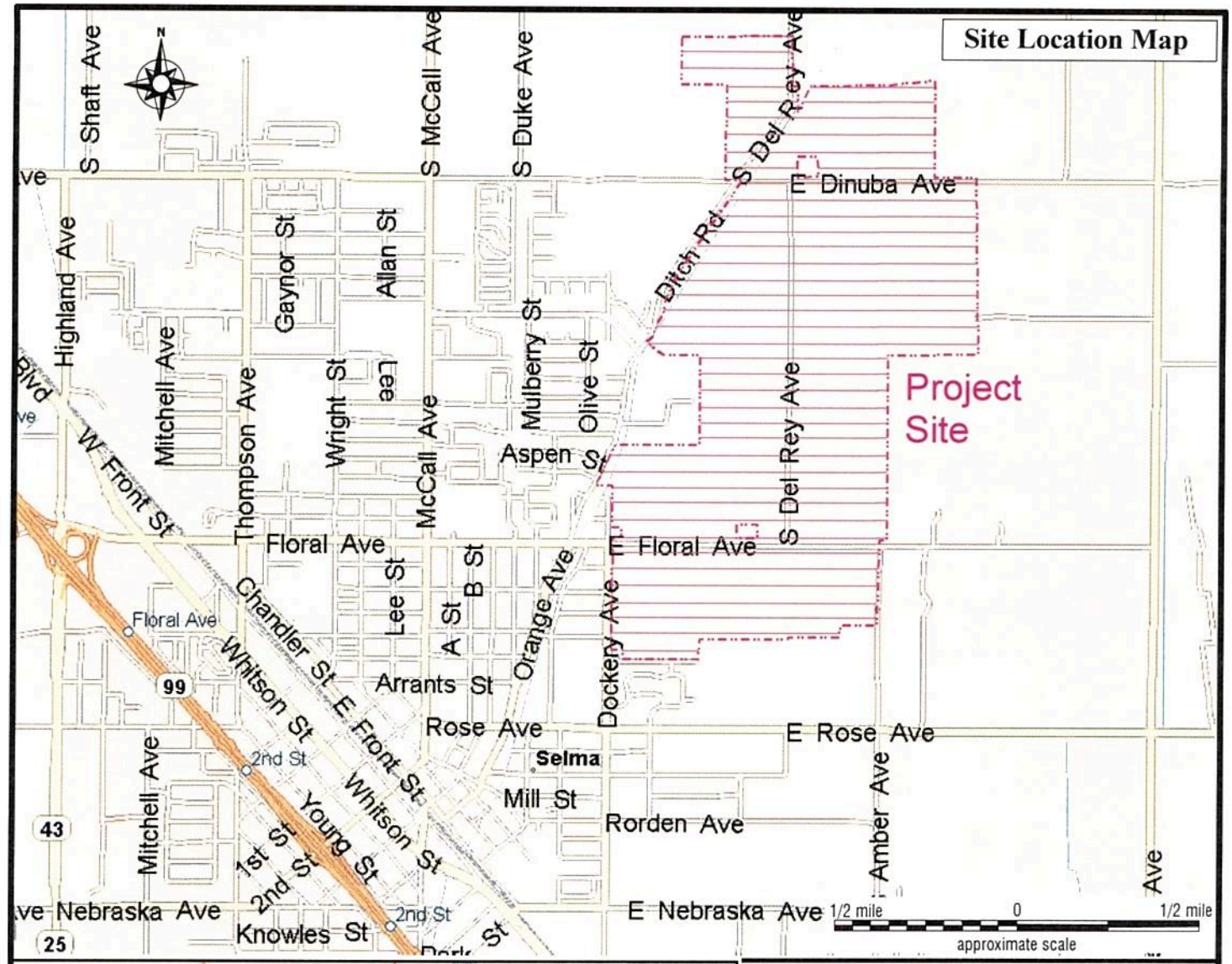
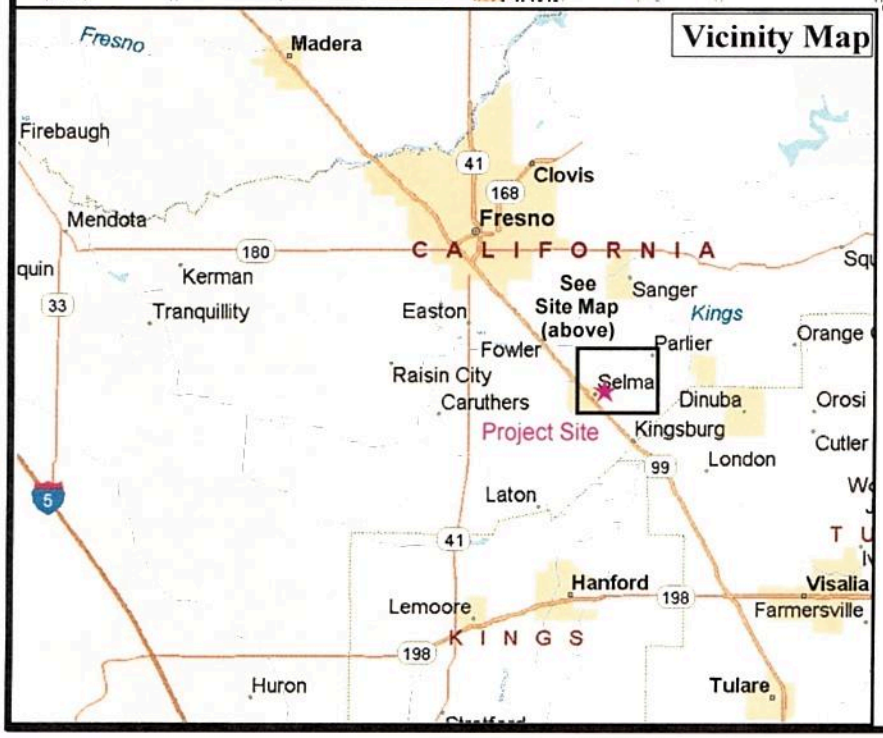
1.0 INTRODUCTION

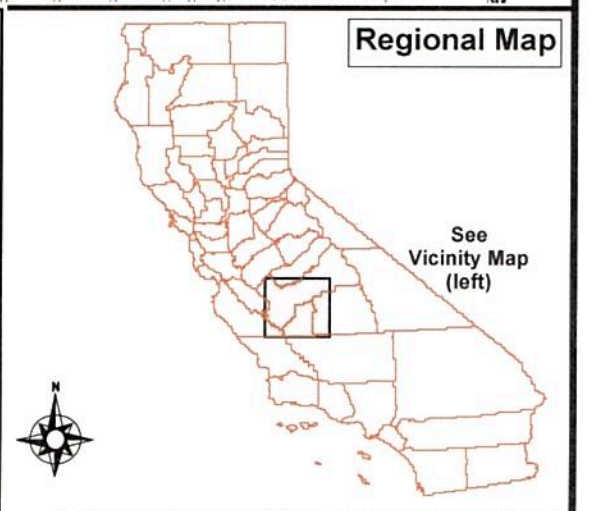
Live Oak Associates, Inc. (LOA), has prepared the following report that describes the biological resources of an approximately 674-acre site located within and just east of the City of Selma, Fresno County, California (Figure 1). The site is bounded to the north by agricultural fields and Dinuba Avenue, to the east by agricultural fields and Amber Avenue, to the south by single-family residences and agricultural fields, and to the west by adjacent residences, Ditch Road, Orange Avenue, and Dockery Avenue. The proposed project site is located in the Selma 7.5" U.S. Geological Survey (USGS) quadrangle in sections 4 and 5 of township 16 south, range 22 east and sections 28, 29, 32, and 33 of township 15 south, range 22 east.

This report identifies possible constraints to future site development related to sensitive biotic resources, significant biotic habitats, regional fish and wildlife movement corridors, and existing local, state, and federal natural resource protection laws regulating land use. Provisions of the California Environmental Quality Act (CEQA), federal Clean Water Act (CWA), state and federal endangered species acts (CESA and FESA, respectively), California Fish and Game Code, and California Water Code could greatly affect project costs, depending on the natural resources present on the site. The primary objectives of this report are as follows:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss biological resource issues specific to the site that could constrain future development; and
- Identify potential avoidance and mitigation options that could significantly reduce the magnitude of any likely impacts to biological resources associated with future site development.







Live Oak Associates, Inc.

Selma
Site / Vicinity Map

Date	Project #	Figure #
7/3/07	736-02	1

Natural resource issues related to these state and federal laws have been identified in past planning studies conducted in the Selma area, and it is reasonable to presume that such issues could be relevant to the subject parcels examined in this report. A number of state-listed, federally-listed, and special status (i.e., candidate species for state or federal listing and California species of special concern) plant and animal species have been documented in the vicinity of Selma. These species include the state and/or federally listed valley elderberry longhorn beetle, California tiger salamander, Swainson's hawk, and San Joaquin kit fox. The pallid bat, a California species of special concern, has also been documented in the vicinity of Selma. This report evaluates the site's suitability for these and other species.

CEQA is also concerned with project impact on wildlife movement corridors, fish and wildlife habitat, and jurisdictional wetlands, as well as project compliance with special ordinances and state laws protecting regionally sensitive biotic resources, and approved habitat conservation plans. Therefore, this report addresses the relevance of each of these issues to eventual site development.

The constraints analysis, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the study area described in Section 2.0 of this report. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFG 2005); (2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001); (3) *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2006); (4) numerous planning documents and biological studies for projects in the area, many of which have been prepared by LOA; and (5) manuals and references related to plants and animals of California's Central Valley.

LOA ecologists Melissa Denena and Davinna Ohlson conducted field surveys of the site on February 17, 2005, and April 10, 2006. These surveys consisted of driving around the perimeter of the agriculture fields and walking portions of the site to provide as much visual coverage of the site as possible when scanning for all biotic resources. All observations were recorded on a datasheet. Information gathered in the field was used to characterize the botanical and wildlife resources occurring on the site and in the region.

Detailed surveys for sensitive biological resources were not conducted for this study. The level of effort was sufficient to locate and establish the general extent of the biological resources that might be present on the site but was not sufficient to establish the extent of actual use of onsite habitats by special status species. Field surveys conducted for this study were sufficient to assess the significance of biological constraints associated with the site and to assess the need for more detailed studies that might be warranted if sensitive biotic resources were identified in this first round of surveys. Delineating all wetlands that may be present or mapping the extent of all endangered species habitat present would only be warranted prior to detailed site planning.

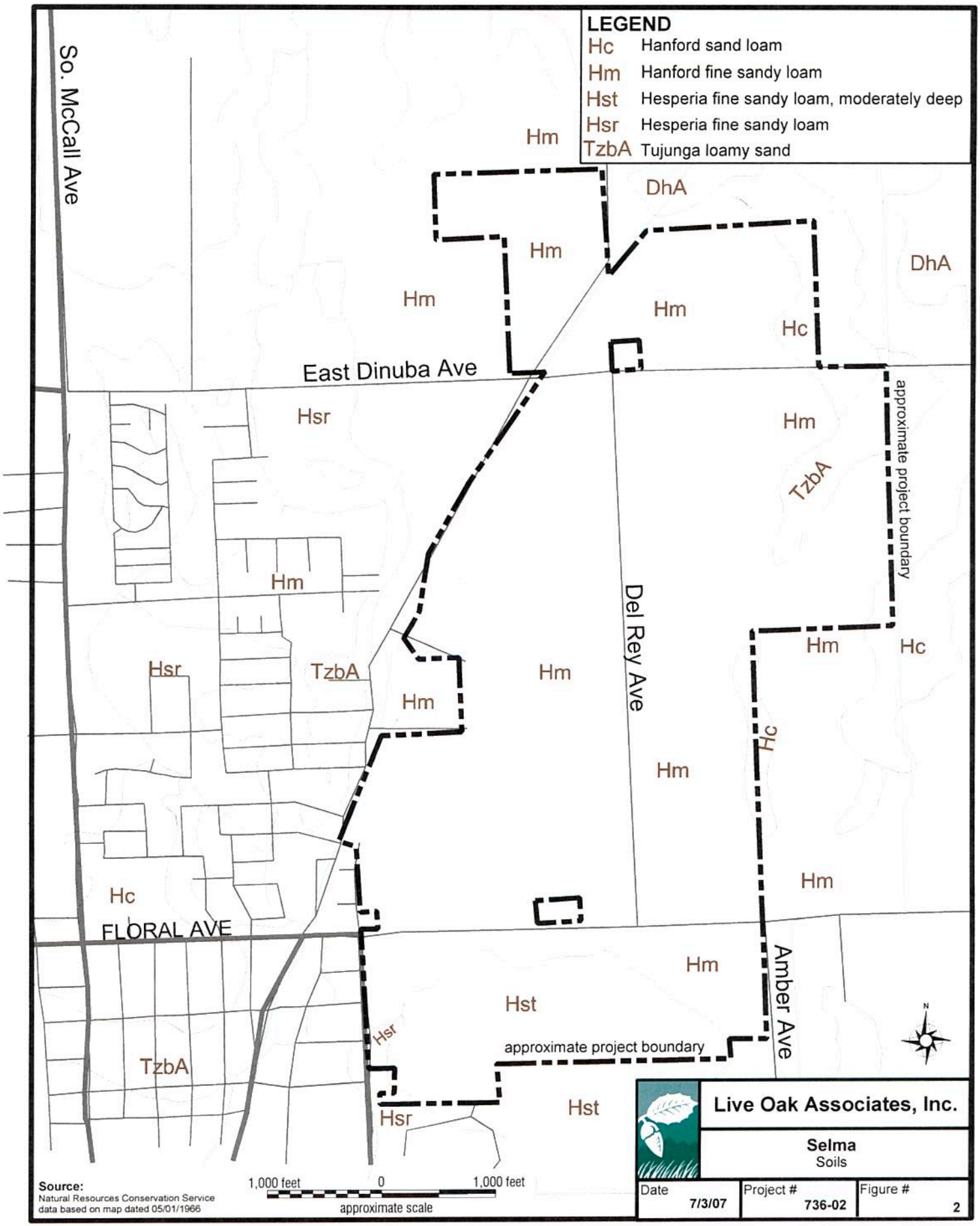
2.0 EXISTING CONDITIONS

The study area is located on the floor of the San Joaquin Valley with elevations ranging from approximately 310 ft. National Geodetic Vertical Datum (NGVD) in the southern portion of the site and slowly sloping to 322 ft. NGVD in the northern portion of the site. With the exception of a few fallow fields, the site is currently being used to produce grapes and Red Lion nectarines. Centerville and Kingsburg Canal runs along the northwest boundary of the site. Numerous structures, including houses, barns, and agriculture-related buildings, along with associated wells used to irrigate the fields, are located on the site. Therefore, farming activities over the years have substantially disturbed the site.

Five soil types from three soil series—Hanford, Hesperia, and Tujunga—were identified on the project site (Figure 2; Table 1). Like most soils of the San Joaquin Valley, the soils of the project site consist of alluvium derived primarily from granitic rock (NRCS 1912). These soils are primarily used for agricultural production, although more intense development is becoming common. None of these soils is considered hydric, although hydric inclusions may occur, nor do they contain a hardpan layer. These soils are also not known to support edaphic special status plant species (i.e., the soils of the site are neither serpentine nor alkaline).

The San Joaquin Valley, like most of California, experiences a Mediterranean climate. Summers are dry and typically quite warm with daytime temperatures regularly exceeding 90° Fahrenheit. Winters are rainy and cool with daytime temperatures rarely exceeding 60° Fahrenheit. Annual precipitation in the general vicinity of the site is highly variable from year to year but averages 11 inches, approximately 85% of which falls between October and March.

Stormwater runoff readily infiltrates the soils of the site, but when field capacity has been reached, gravitational water drains into the various irrigation canals within the agricultural fields and/or Centerville and Kingsburg Canal along the northwestern boundary of the site. Natural drainages in the form of swales and channels are absent from the site. The Centerville and Kingsburg Canal is a manmade irrigation canal owned and operated by the Consolidated Irrigation District.


LEGEND
Hc Hanford sand loam
Hm Hanford fine sandy loam
Hst Hesperia fine sandy loam, moderately deep
Hsr Hesperia fine sandy loam
TzbA Tujunga loamy sand
So. McCall Ave
East Dinuba Ave
FLORAL AVE
Del Rey Ave
Amber Ave
approximate project boundary
approximate project boundary
Hm
DhA
Hm
DhA
Hm
Hm
Hc
Hsr
Hm
TzbA
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Hsr
TzbA
Hsr
Hst
N
Source:
Natural Resources Conservation Service
data based on map dated 05/01/1966
1,000 feet
0
1,000 feet
approximate scale
Live Oak Associates, Inc.
Selma
Soils
Date
7/3/07
Project #
736-02
Figure #
2

TABLE 1. SOILS OF THE STUDY AREA (from NRCS 1912).					
Soil Series/Soil	**Map Unit Symbol**	**Parent Material**	**Drainage Class**	**Surface Permeability**	**Hydric?**
Hanford Series Hanford sand loam Hanford fine sandy loam	 Hc Hm	Alluvium of granitic and other quartz-bearing rock	Well drained	Moderately rapid	No
Hesperia Series Hesperia fine sandy loam, moderately deep Hesperia fine sandy loam	 Hst Hsr	Alluvium derived primarily from granite and related rocks	Well drained	Moderately rapid	No
Tujunga Series Tujunga loamy sand	 TzbA	Alluvium derived mainly from granitic sources	Excessively drained soils	Rapid	No

Like the site itself, surrounding lands have been highly modified for agricultural production and low-quality rangelands or otherwise developed as roads, individual residences, or residential subdivisions. Natural biotic habitats do not occur in the immediate vicinity of the site. Therefore, due to the lack of connectivity between open space and the site, many sensitive plant and animal species occurring in these natural lands would have great difficulty accessing the site, even if habitat suitable for them were present.

2.1 BIOTIC HABITATS AND/OR LAND USES

Three land uses were identified on the project site. For the purposes of this report, these have been identified as "agricultural field," "drainage canal," and "developed/ruderal" (Figure 3). A list of the vascular plant species observed within the study area and the vertebrate species using, or potentially using, the site are provided in Appendices A and B, respectively. No natural biotic habitats were present on the site.

2.1.1 Agricultural Fields

Nearly the entire site is utilized for agricultural purposes, supporting actively managed nectarine orchards or vineyards with sparse grasses and forbs occurring mainly along their margins and between rows. At the time of the surveys, five parcels, four of which had been disced, lay fallow. Natural vegetation was sparse to absent from these areas.

Live Oak Associates, Inc.

Selma
Biotic Habitats

Date	Project #	Figure #
7/3/07	736-02	3

Non-native annual grasses observed in the agricultural fields include annual bluegrass (*Poa annua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), rattail fescue (*Vulpia myuros*), and slender wild oats (*Avena barbata*). Non-native perennial grasses include Bermuda grass (*Cynodon dactylon*) and johnsongrass (*Sorghum halepense*). Other non-native forbs observed include common mustard (*Brassica rapa*), London rocket (*Sisymbrium irio*), shepherd's purse (*Capsella bursa-pastoris*), chickweed (*Stellaria media*), common mallow (*Malva neglecta*), pineapple weed (*Chamomilla suaveolens*), common groundsel (*Senecio vulgaris*), white-stemmed filaree (*Erodium moschatum*), redstem filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), henbit (*Lamium amplexicaule*), clover (*Trifolium* sp.), and bird's-eye speedwell (*Veronica persica*).

Native grasses and forbs observed include meadow barley (*Hordeum brachyantherum*), a perennial grass, and fescue (*Vulpia microstachys*), an annual grass, along with willow herb (*Epilobium brachycarpum*), dwarf nettle (*Urtica dioica*), coyote melon (*Cucurbita palmata*), fiddleneck (*Amsinckia menziesii*), and red maids (*Calandrinia ciliata*).

Compared to natural habitats, managed agricultural lands provide relatively low wildlife habitat value due to the lack of understory vegetation that would typically provide food and cover for these species. Annual management practices eliminate breeding and foraging habitat (i.e., understory vegetation) for many small birds and mammals native to the region. Discing probably results in considerable mortality to such species. The harvesting of grapes, pruning of vines, and application of chemical pesticides represent other disturbances and threats to such species at various times of the year.

Although none were observed, several reptile species potentially occur in the orchards and vineyards. The sparse cover described above, wood piles on some of the disced fields, rodent burrows observed on the site and on adjacent agricultural lands, and an occasionally large rodent population make the site suitable for at least one native species of lizard, the northwestern fence lizard (*Sceloporus occidentalis occidentalis*), and several species of snake, including the gopher snake (*Pituophis melanoleucus*) and California kingsnake (*Lampropeltis getulus californiae*).

Resident avian species observed on or near the site's agricultural fields during the field surveys include the rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), American crow (*Corvus brachyrhynchos*), ruby-crowned kinglet (*Regulus calendula*), American robin (*Turdus migratorius*), northern mockingbird (*Mimulus polyglottos*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Carpodacus mexicanus*). Winter migrants observed include the mountain bluebird (*Sialia currucoides*) and white-crowned sparrow (*Zonotrichia leucophrys*). A red-shouldered hawk (*Buteo lineatus*) was heard near the site. Raptor species potentially resident in the area include white-tailed kites (*Elanus caeruleus*), northern harriers (*Circus cyaneus*), and red-tailed hawks (*Buteo jamaicensis*). Both barn owls (*Tyto alba*) and great horned owls (*Bubo virginianus*) possibly forage over the grassy fields of the site. Potential winter migrants include the ferruginous hawk (*Buteo regalis*), rough-legged hawk (*Buteo lagopus*), and merlin (*Falco columbarius*).

Small mammals occur in agricultural lands such as those of the site, but populations would be highly variable depending on the condition of the fields. Freshly plowed or cultivated fields barren of vegetation provide minimal cover for most terrestrial vertebrates. Because the rows between the vines and orchard trees are managed for weed control, vegetative cover necessary for small mammal populations was, at best, sparse. California ground squirrels (*Spermophilus beecheyi*) and their burrows were limited to the margins of the vineyards and on fallow parcel 358-100-08. Botta's pocket gopher (*Thomomys bottae*) burrows were also observed in agricultural fields of the site. However, smaller burrows that were sparsely distributed throughout the fields likely belong to deer mice (*Peromyscus maniculatus*) or California meadow voles (*Microtus californicus*). Black-tailed jackrabbits (*Lepus californicus*) are also likely to be present in these fields. Whatever their population size, the small mammals of the site probably attract predators such as snakes and raptors described above, as well as larger mammals. For example, gray foxes (*Urocyon cinereoargenteus*) and coyotes (*Canis latrans*) may forage in the fields, although none were observed during the field surveys. A feral cat (*Felis cattus*) was also observed wandering through the site.

2.1.2 Drainage Canal

A drainage ditch, Centerville and Kingsburg Canal, bisects the parcel at the northwest corner of Del Rey Avenue and Dinuba Avenue and runs along the northwest boundary of the site. The canal branches eastward along the north boundary of an off-site school and continues into a culvert running under the nectarine orchard immediately east of the school (Figure 3). Water was absent from the drainage along the northwest boundary of the site during the February 2005 field visit. However, a small amount of standing water was present in the drainage north of the school.

Vegetation in the drainage ditch was sparse to moderately dense. Common horsetail (*Equisetum arvense*), a native fern, was the dominant plant in this habitat. Grasses observed in the canals include annual bluegrass, ripgut brome, foxtail chess (*Bromus madritensis*), and Bermuda grass. Forbs observed included red-stemmed filaree, wild geranium (*Geranium dissectum*), wild radish (*Raphanus sativus*), shepherd's purse, chickweed, red maids, and clover (*Trifolium* sp.).

The drainage ditch provides habitat for many of the same mammal species occurring in the agricultural lands, but the slightly greater vegetative cover may facilitate the movement and persistence of larger populations as well as the presence of additional species. For example, Virginia opossums (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and raccoons (*Procyon lotor*) could all occur in this habitat. Small burrows, likely belonging to deer mice or meadow voles, were observed in this habitat. Other wildlife species occurring in the agricultural fields are likely to use the drainage ditch as a corridor to adjacent fields.

2.1.3 Developed/Ruderal

Developed areas on the site consist of single-family residences and agricultural storage/maintenance facilities associated with the orchards and vineyards. The residences are surrounded by landscape vegetation and ornamentals, including pine (*Pinus* sp.), redwood (*Sequoia sempervirens*), fan palm (*Washingtonia filifera*), lemon tree (*Citrus limon*), orange trees (*Citrus sinensis*), crepe myrtle (*Lagerstroemia indica*), tulip tree (*Liriodendron tulipifera*), heavenly bamboo (*Nandina domestica*), prickly pear (*Opuntia* sp.), weeping willow (*Salix*

babylonica), valley oak (*Quercus lobata*), walnut (*Juglans* sp.), and corn (*Zea mays*). California poppies (*Eschscholzia californica*), a native forb, have also been planted for landscaping purposes.

Avian species observed in these areas include the western scrub-jay (*Aphelocoma coerulescens*), northern flicker, American crow, northern mockingbird, and Brewer's blackbird. A domestic cat was also observed wandering in the area. Wildlife species discussed in the above habitats would likely pass through these areas, and birds may periodically nest in the few trees on the site. Bat species such as the Mexican free-tailed bat (*Tadarida brasiliensis*) and pallid bat (*Antrozous pallidus*) may roost in wood shacks and other structures existing on the site. Other mammals expected to occur in this habitat include domestic dogs (*Canis familiaris*) and the small mammals mentioned in Sections 2.1.1 and 2.1.2.

2.2 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered rare and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2001). Collectively, these plants and animals are referred to as "special status species."

A number of special status plants and animals occur in the site's vicinity. These species, and their potential to occur in the study area, are listed in Table 1 on the following pages. Sources of

information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988), *California Natural Diversity Data Base* (CDFG 2006), *Endangered and Threatened Wildlife and Plants* (USFWS 2006), *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2006), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001). This information was used to evaluate the potential for special status plant and animal species that occur on site.

A search of published accounts for all of the relevant special status plant and animal species was conducted for the Selma USGS 7.5-minute quadrangle in which the project site occurs, and for the eight surrounding quadrangles (Sanger, Wahtoke, Reedley, Traver, Burris Park, Laton, Conejo, and Malaga) using the California Natural Diversity Data Base Rarefind 2005 (Figure 4). The CNDDB is a volunteer database; therefore, it may not contain all known or gray literature records. All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed.

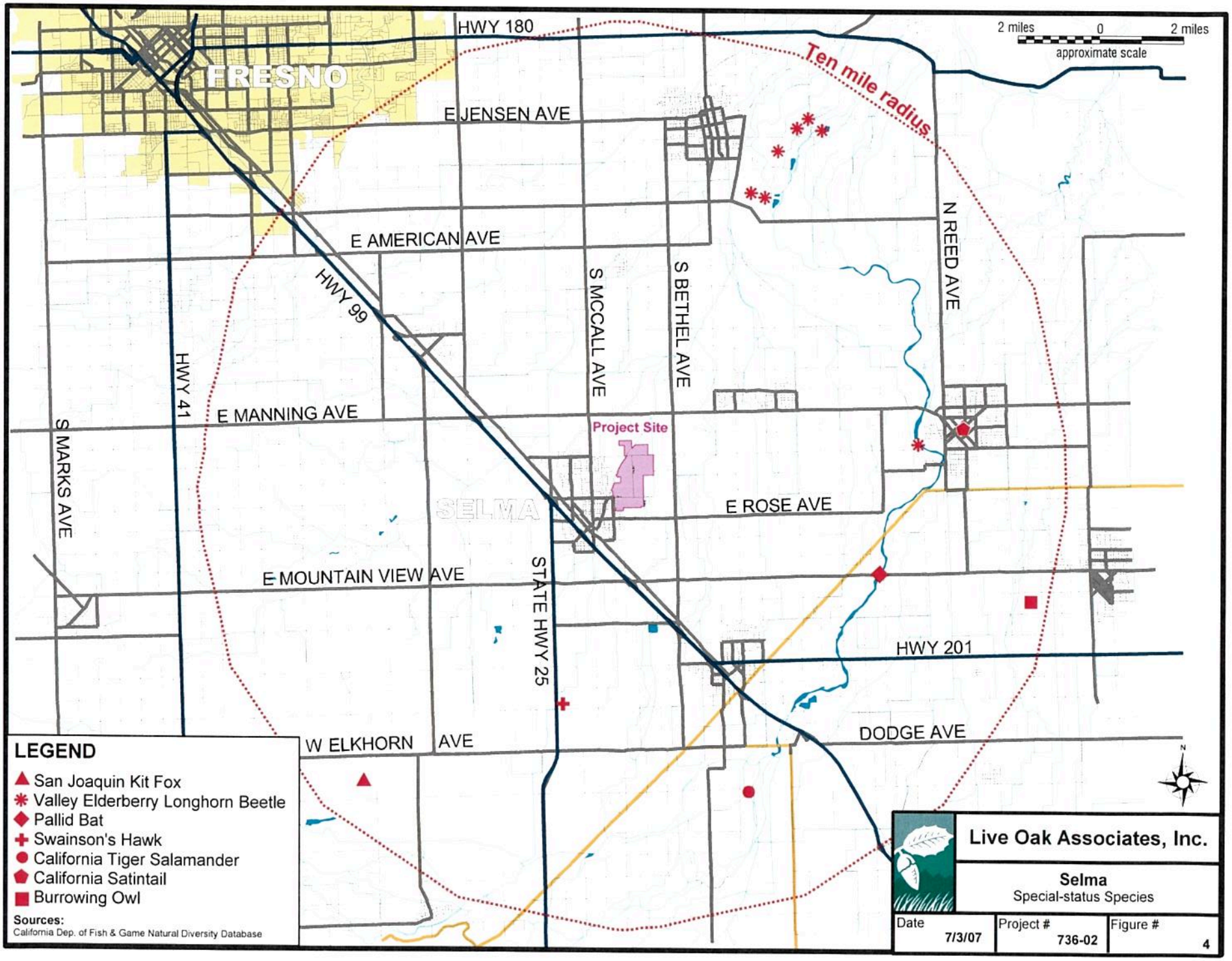
HWY 180
FRESNO
E JENSEN AVE
E AMERICAN AVE
HWY 99
HWY 41
S MARKS AVE
E MANNING AVE
S MCCALL AVE
S BETHEL AVE
N REED AVE
Project Site
SELMA
E ROSE AVE
E MOUNTAIN VIEW AVE
STATE HWY 25
HWY 201
W ELKHORN AVE
DODGE AVE
Ten mile radius
2 miles 0 2 miles
approximate scale
N
LEGEND
San Joaquin Kit Fox
Valley Elderberry Longhorn Beetle
Pallid Bat
Swainson's Hawk
California Tiger Salamander
California Satintail
Burrowing Owl
Sources:
California Dep. of Fish & Game Natural Diversity Database
Live Oak Associates, Inc.
Selma
Special-status Species
Date 7/3/07
Project # 736-02
Figure # 4

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFG 2006 and CNPS 2001)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
San Joaquin Valley Orcutt Grass (*Orcuttia inaequalis*)	FT, CE, CNPS 1B	Vernal pools at elevations between 10 and 755 meters. Endemic to the San Joaquin Valley. Blooms March-June.	**Absent.** Vernal pool habitat in which this species typically occurs was not observed on the site. Agricultural activities have eliminated any vernal pool habitat that may have once been present.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Cismontane woodlands and valley and foothill grasslands of adobe clay at elevations between 90 and 800 meters. Endemic to the San Joaquin Valley. Blooms March-April.	**Absent.** Habitats suitable for this species were absent from the site. Agricultural activities have eliminated natural habitats from the site.
Greene's tuctoria (*Tuctoria greenei*)	FE, CR, CNPS 1B	Dry bottoms of vernal pools in open valley and foothill grasslands between 30 and 1070 meters. Blooms May-September.	**Absent.** Vernal pool habitat in which this species typically occurs was not observed on the site. Agricultural activities have eliminated any vernal pool habitat that may have once been present.

Other special status plants listed by CNPS

Species	Status	Habitat	*Occurrence in the Study Area
Brittlescale (*Atriplex depressa*)	CNPS 1B	Cismontane woodland and valley and foothill grassland of the San Joaquin Valley at elevations up to 320 meters. Blooms May-July.	**Absent.** Habitats suitable for this species were absent from the site. Agricultural activities have eliminated natural habitats from the site.
Earlimart Orache (*Atriplex erecticaulis*)	CNPS 1B	Valley and foothill grasslands at elevations of 40-100 meters. Blooms August-September.	**Absent.** Habitats suitable for this species were absent from the site. Agricultural activities have eliminated natural habitats from the site.
Lesser Saltscale (*Atriplex minuscula*)	CNPS 1B	Occurs in alkali sink and sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland of the San Joaquin Valley (historically) between 15 and 200 meters. Blooms May-October.	**Absent.** Alkaline soils are absent from the site.
Shevock's copper-moss (*Schizymenium shevockii*)	CNPS 1B	Cismontane woodlands at elevations of 750-1400 meters.	**Absent.** Habitats suitable for this species were absent from the site. Agricultural activities have eliminated natural habitats from the site. Furthermore, this species would not be expected to occur at this elevation.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFG 2006 and USFWS 2006)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Found in vernal pools of California's Central Valley.	**Absent.** Vernal pools required by this species are absent from the study area. Agricultural activities have eliminated any vernal pool habitat that may have once been present.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Inhabits deep vernal pools of unplowed grasslands in the Central Valley containing clear to highly turbid water.	**Absent.** Vernal pools required by this species are absent from the study area. Agricultural activities have eliminated any vernal pool habitat that may have once been present.
Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	**Absent.** No elderberry shrubs were present on the site.
California Tiger Salamander (*Ambystoma californiense*)	FT	Breeds in vernal pools and stock ponds of central California. Adults aestivate in grassland habitats adjacent to the breeding sites.	**Absent.** Vernal pools or other seasonal wetlands in which this species typically occurs were not present on the site or immediately adjacent to the site. Because breeding habitat is absent, ground squirrel burrows on the site would not be used for aestivation.
Bald Eagle (*Haliaeetus leucocephalus*)	FE, CE, CP	Breeds near lakes, streams, or other bodies of water. Usually forages over these bodies of water.	**Unlikely**. Marginal to unsuitable foraging habitat occurs onsite; breeding habitat is absent. Bald eagles occurring onsite would likely be winter migrants passing through to more favorable habitats.
Swainson's Hawk (*Buteo swainsoni*)	CT	Summer migrant in grasslands and agricultural lands of California's Central Valley. Breeds in juniper-sage flats, riparian areas, and oak savannas.	**Possible.** The site provides marginal foraging habitat for summer migrants. Breeding habitat is absent from the site. Swainson's hawks have been documented approximately six miles southwest of the site.
Peregrine Falcon (*Falco peregrinus*)	CE	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter.	**Possible.** The site provides potential foraging habitat for transients and migrating birds. Breeding habitat is absent from the site.
Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)	FC, CE	Nests in dense riparian cottonwood-willow groves.	**Unlikely.** This species may move through the site from time to time; however, suitable breeding habitat is absent.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Open or low vegetation with loose soils. Requires under-ground dens to raise pups, avoid predators, and regulate temperature. Dens are often provided by ground squirrels.	**Unlikely.** Due to ongoing agricultural practices, any suitable biotic habitat that may have at one time occurred onsite has been eliminated. Ground squirrel burrows were very limited on the site and not of suitable size for this species. It is possible that, on rare occasions, a transient fox may pass through the site during dispersal; however, this would be highly unlikely due to the similar unsuitability of surrounding land.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont'd.

California Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Western Spadefoot Toad (*Scaphiopus hammondii*)	CSC	Found primarily in annual grassland habitats. Breeds and lays eggs in vernal pools. Aestivates during the dry season in rodent burrows.	**Absent.** Vernal pool habitat in which this species typically occurs was not present on or immediately adjacent to the site. Because breeding habitat is absent, ground squirrel burrows on the site would not be used for aestivation.
Western Pond Turtle (*Clemmys marmorata*)	CSC	An aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Needs basking sites and sandy banks or grassy open fields for egg laying.	**Unlikely.** Suitable habitat for this species is absent from the site. The canal does not provide a perennial water source for this species.
Northern Harrier (*Circus cyaneus*)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	**Likely.** The site and surrounding lands provide foraging habitat for this species. Breeding habitat is absent from the site.
White-tailed Kite (*Elanus caeruleus*)	CSC, CP	Open grasslands and agricultural areas throughout central California.	**Likely.** Suitable foraging habitat exists on the site for this species. This species is not expected to nest in the orchard trees of the site. However, this species may nest in large trees occurring in developed portions of the site.
Sharp-shinned Hawk (*Accipiter striatus*)	CSC	Breeds in the mixed conifer forests of the northern Sierra Nevada. This species winters in a variety of habitats of the state.	**Possible.** Wintering individuals may occasionally pass over or forage on the site. However, breeding habitat is absent.
Cooper's Hawk (*Accipiter cooperii*)	CSC	Breeds in oak woodlands, riparian forests and mixed conifer forests, but winters in a variety of lowland habitats.	**Possible.** Individuals may occasionally pass over or forage on the site. Marginal breeding habitat is also present on the site.
Ferruginous Hawk (*Buteo regalis*)	CSC	Breeds in the Pacific Northwest and Canada. Winters in a variety of California habitats, including grasslands, savannahs, and wetlands.	**Possible.** Wintering individuals may occasionally pass over or forage on the site. However, breeding habitat is absent.
Golden Eagle (*Aquila chrysaetos*)	CSC, CP	Frequents rolling foothill or coast range terrain where grassland turns to scattered oak, sycamores or large digger pines. Cliff-walled canyons and large trees in open areas provide nesting habitat.	**Unlikely.** The site constitutes poor foraging habitat for golden eagles due to its close proximity to human habitation. Golden eagles would be more likely to occur in foothill habitats. Breeding habitat is absent.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont'd.

California Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Merlin (*Falco columbarius*)	CSC	Breeds in Canada but winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	**Possible.** Winter migrants may pass through the site from time to time.
Prairie Falcon (*Falco mexicanus*)	CSC	Frequents dry, open terrain. Breeding sites are located on cliffs.	**Possible.** This species may forage on the site from time to time. However, suitable breeding habitat is absent.
Burrowing Owl (*Athene cunicularia*)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. This species is dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Possible.** Ground squirrel burrows along the margins of the vineyards and on one fallow parcel provide potential nesting habitat for the burrowing owl. However, no direct sightings or evidence of owls were observed during the field surveys.
Loggerhead Shrike (*Lanius ludovicianus*)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	**Possible.** Suitable foraging and marginal breeding habitat is present on the site.
Tricolored Blackbird (*Agelaius tricolor*)	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Unlikely.** Suitable breeding habitat does not exist on the site for this species. This species would not be likely to forage in vineyards.
Townsend's Big-eared Bat (*Plecotus townsendii townsendii*)	CSC	Primarily a cave-dwelling bat that may also roost in buildings. Occurs in a variety of habitats of the state.	**Possible.** Structures on the site provide marginal roosting habitat for this species.
California Mastiff Bat (*Eumops perotis californicus*)	CSC	Forages over many habitats, requires tall cliffs or buildings for roosting.	**Possible.** Structures on the site provide marginal roosting habitat for this species.
Pallid Bat (*Antrozous pallidus*)	CSC	Grasslands, chaparral, woodlands, and forests of California; most common in dry rocky open areas providing roosting opportunities.	**Possible.** Structures on the site provide marginal roosting habitat for this species.
American Badger (*Taxidea taxus*)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	**Unlikely.** The site's sparse vegetation and ongoing agricultural practices would likely preclude badgers from occupying existing burrows or establishing new burrows onsite.

***Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the sites at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the sites, but it could occur there from time to time.
Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Protected
		CSC	California Species of Special Concern

CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

2.3 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional information.

Centerville and Kingsburg Canal flows southwest along the northwestern boundary of the site and eventually empties into the Kings River offsite. This natural-bottom, manmade waterway appears to have been channelized for development purposes and possibly replaced the function of a historical tributary. A formal wetland delineation would need to be conducted to ensure that the USACE would not, in fact, claim this canal under their jurisdiction.

3.0 CONSTRAINTS ANALYSIS

Because no specific project was evaluated, the following discussion, while framed within a California Environmental Quality Act (CEQA) context, is generic and used more to identify the broader context in which LOA evaluated constraints to future site development rather than to identify specific project impacts.

As noted in Section 1.0 of this report, jurisdictional waters (including wetlands), special status plants and animals (e.g., threatened and endangered species, candidate species for threatened or endangered status, species of special concern, etc.), and animal movement corridors are all biotic resource issues that may be regulated according to provisions of federal and state laws. These issues can affect how a property is used or developed. The following discussion addresses possible constraints to the development of the subject parcels that are associated with sensitive biological resources occurring on the site or on adjoining lands. This discussion recognizes that not all impacts are significant and, therefore, establishes the criteria by which significance is determined. The discussion also examines state and federal laws that determine how sensitive habitats are developed.

3.1 SIGNIFICANCE CRITERIA

Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the significance of a proposed project's impacts on the environment before they are carried out. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the

CEQA Guidelines, a significant effect on the environment means 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 or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- 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;

- 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 U.S. Fish and Wildlife Service;

- 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;

- 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;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

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

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory findings of significance" if the project has the potential to

> Substantially 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 an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal "endangered species" legislation has provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss

of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

3.2.4 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands:
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (referred together as the Rapanos decision) impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary high water marks" on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is still regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the drainage in question.

3.2.5 Local Ordinances, General Plans, or Habitat Conservation Plans

The City of Selma has a tree ordinance "to conserve mature and healthy trees whenever feasible" unless the Director of Public Works determines that removal of such trees outweighs the interest in their conservation (Municipal Code Section 9.4.5). Furthermore, trees in any public street within the vicinity of any structures slated for removal should be protected with sufficient guards (Municipal Code Section 9.4.10). The City does not require a permit for the removal of trees unless said trees are within the public right-of-way (i.e., within ten feet of a public road), in which case the City, at a minimum, should be notified of tree removal (Connie Cantu, pers. comm., 24 April 2006). The City also does not require replacement plantings for any trees to be removed but does maintain a list of recommended tree species should replacement plantings be desired.

No known habitat conservation plans are in effect for the Selma area.

3.3 POTENTIAL CONSTRAINTS TO FUTURE SITE DEVELOPMENT

Although a site development plan was not available at the time this report was prepared, the following analysis assumes that most of or the entire site would be developed.

3.3.1 Potential Constraints to Development from the Possible Presence of Special Status Species

The site provides no habitat for special status plant species (Table 1). Therefore, state and federal laws protecting special status plants would not be relevant to development of the site.

Most special status animal species known to occur in the region would not be affected by future site development because suitable habitat is absent from the site (Table 1). For example, a number of vernal pool species, including vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamanders, and western spadefoot toads would not occur on the site because no vernal pools currently exist on the site. Any vernal pools that might have been present in the past have been eliminated by agricultural practices such as deep-ripping, leveling of terrain, and discing, all of which are activities that occurred prior to the planting of the vineyards and

surrounding agricultural lands. Aquatic habitat and elderberry shrubs were also absent for the western pond turtle and valley elderberry longhorn beetle, respectively.

Other special status species occurring on the site do so incidental to home range and migratory movements and would use the site infrequently, at most (Table 1). These include the bald eagle, golden eagle, western yellow-billed cuckoo, tricolored blackbird, and American badger. None of these species pose constraints to future development of the site.

A number of special status bird and bat species, including the sharp-shinned hawk, Cooper's hawk, ferruginous hawk, Swainson's hawk, northern harrier, white-tailed kite, merlin, prairie falcon, peregrine falcon, loggerhead shrike, Townsend's big-eared bat, California mastiff bat, and pallid bat, may forage on the site year-round or during migration (Table 1). However, site development would result in only a slight reduction in foraging habitat for these species. Foraging and nesting habitat for these special status species is still regionally abundant; therefore, the loss of such habitat onsite would not be regionally significant and would not constrain development.

The site provides potentially suitable, albeit limited, habitat for other special status animal species that may constrain eventual site development or that are otherwise of concern to state and federal resource agencies (Table 1). These species and the constraints to development posed by their presence are discussed below.

1. Tree-Nesting Raptors. Tree-nesting raptors, including special status raptors such as the Cooper's hawk and white-tailed kite, may forage over the site and nest in the taller trees surrounding existing residences and other onsite structures. To a far lesser extent, raptors may also nest in onsite orchards; however, raptors do not typically nest in orchard trees due to ongoing disturbances associated with orchard maintenance. All raptors, regardless of their status, are protected by state and federal laws (see Section 3.2.3). Therefore, construction activities that adversely affect the nesting success of raptors (i.e., lead to the abandonment of active nests) or result in mortality to individual birds constitute a violation of state and federal

laws. The timing of development (i.e., development that occurs during the raptor breeding season) could constrain development in the vicinity of any active raptor nests.

If ground disturbance activities are scheduled to commence during the breeding season (February 1through August 31), pre-construction raptor surveys should be conducted by a qualified biologist within 30 days of the onset of ground disturbance in order to identify possible nesting activity. A construction-free buffer of suitable dimensions should be established around any active raptor nests (up to 250 feet, depending on the location and species), usually in consultation with the California Department of Fish and Game. However, if no nesting birds are identified during this pre-construction survey, then the project may proceed without further concern for these species.

Based on the above analysis, raptors observed on or near the site represent a potential constraint to future site development. The possible presence of an active nest on or immediately adjacent to the site would not, however, permanently constrain development. Project development would only be delayed in the vicinity of the active nest for the duration of the breeding season or until it has been confirmed that the chicks have fledged and are independent of their parents. Mitigation would not be required for the loss of foraging habitat for tree-nesting raptors, as such habitat is abundantly available regionally.

2. Western Burrowing Owl. No direct sightings or indirect evidence of the western burrowing owl were observed on the site (Table 1), and there are no documented sightings within ten miles of the site (Figure 4). However, suitable nesting habitat for the burrowing owl occurs on the site in the form of California ground squirrel burrows observed along the margins of the vineyards and on one fallow field. Ground squirrels are likely to establish complexes on other fallow fields existing onsite. As with tree-nesting raptors, construction activities that adversely affect the nesting success of burrowing owls and other ground-nesting raptors (i.e., lead to the abandonment of active nests) or result in mortality to individual birds constitute a violation of state and federal laws. The timing of development (i.e., development that occurs during the owl breeding season) could constrain development in the vicinity of any active burrowing owl nests.

Pre-construction burrowing owl surveys should be conducted by a qualified biologist during both the breeding (February 1 through August 31) and non-breeding (September 1 through January 31) seasons within 30 days of the onset of ground disturbance. These surveys should be conducted in a manner consistent with accepted burrowing owl survey protocols.

If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation or eviction effort may be necessary so that the owls are not harmed or injured during construction. If burrowing owls are detected on the site during the breeding season (February 1 through August 31), a construction-free buffer of up to 250 feet, depending on the nest's location, must be established around any active owl nests and remain in place for the duration of the breeding season or until it has been determined that the chicks have fledged and are independent of their parents.

Should burrowing owls occur onsite, the CDFG traditionally requires the preservation of suitable nesting and foraging burrowing owl habitat offsite at a ratio of 6.5 acres per nesting pair, but in other areas of the state, the requirement has been as low as 1:1 (one acre of replacement habitat for every acre lost that was utilized by the owl(s)), depending on the abundance and location of the onsite owls.

3. San Joaquin Kit Fox. The site provides unlikely foraging habitat for the San Joaquin kit fox, a small canid species whose range has been restricted almost entirely to the Central Valley. The only kit fox sighting that has been documented near Selma occurs about nine miles southwest of the site (Figure 4). The paucity of kit fox sightings in this part of Fresno County suggests that this species does not occur there in high densities.

The likelihood of a kit fox occurring on the site is relatively low given that the areas around Selma and the site are intensively farmed. The site itself consists almost entirely of agriculture habitat, which is, at best, marginal for this species. Additionally, row crops, orchards, and vineyards are extensive between the study area and surrounding rangelands where kit foxes could occur. Should kit foxes move through these farmed areas to the site, they are not likely to forage within the vineyards, which are, at best, marginal foraging habitat for this species. As

previously noted, because the site is actively managed and periodically disced, the onsite prey base for the kit fox is periodically reduced or eliminated. Therefore, the site does not provide suitable foraging habitat for the kit fox most times of the year. Development of the site is not expected to result in significant impacts to individual kit foxes or their habitat.

Nonetheless, the USFWS has shown considerable interest in the protection of identified kit fox habitat in the region during recent years. Furthermore, the USFWS has indicated that it now considers all rangeland habitat along the east side of the San Joaquin Valley as kit fox habitat, thus expanding the range of this species into portions of Madera and Fresno Counties that had not previously been considered habitat. Consequently, the USFWS may consider the study area kit fox habitat, however unlikely it may be that kit foxes actually use it, and may require further assessments of the site to support their position.

4. Bats. Several structures onsite, including wood structures and aging detached garages next to onsite residences, provide potential roosting habitat for bat species, including the special status Townsend's big-eared bat, California mastiff bat, and pallid bat, that may forage over the site and adjacent lands. Demolition of these structure during the breeding season and during the time that young are being reared (approximately March through the end of August) may result in mortality to bats, should these structures be used as maternity roosts. Because only a few suitable structures exist on the site, it is unlikely that any would support substantial populations of roosting bats. All bat species, however, are protected according to provisions of Section 4150 of the California Fish and Game Code. The loss of a maternity colony for any bat species, regardless of the species' status, would constitute a potentially significant impact and would be unlawful if such demolition resulted in mortality to bats. Future development could be constrained in the vicinity of any active maternity roosts.

Pre-demolition bat surveys should be conducted to determine if bats are roosting or breeding on the site. If no bats are observed to be roosting or breeding in these buildings, then no further action would be required, and demolition can proceed. If a non-breeding bat colony is found in the vacant structures to be demolished, the individuals should be safely evicted prior to demolition under the direction of a qualified bat biologist to ensure that no harm or take would

occur to any bats as a result of demolition activities. If a maternity colony is detected in these structures, then a construction-free buffer should be established around the structure and remain in place until it has been that the nursery is no longer active. Demolition should occur after August 31 and before March 1 to avoid interfering with an active nursery.

3.3.2 Potential Constraints to Development from the Presence of Riparian Habitats and Other Sensitive Habitats

The entire site has been significantly altered and converted to agricultural lands, a canal, and developed areas. Therefore, eventual site development would not be constrained by the presence of riparian and other sensitive habitats, as such habitats are absent from the site.

3.3.3 Potential Constraints to Development from the Presence of Jurisdictional Waters

The United States Army Corps of Engineers (USACE) may claim jurisdiction over that portion of Centerville and Kingsburg Canal flowing southwesterly through the site, eventually emptying into the Kings River. The USACE does not typically claim manmade channels; however, they have been known to claim manmade drainages if the channel replaces the function of a historic tributary. The Centerville and Kingsburg Canal is a natural-bottom, manmade feature that appears to have been channelized for development purposes and possibly replaced the function of a historical tributary. A formal wetland delineation would need to be conducted to determine whether or not the USACE would, in fact, claim this canal under their jurisdiction. However, if the future project were not planning to impact the canal, USACE jurisdiction would not be pertinent.

3.3.4 Potential Constraints to Development Resulting from Onsite Wildlife Movements

The orchards, vineyards, and fallow fields do not appear to constitute a "movement corridor" for native wildlife, although a number of species potentially move within and through them. Although farmland does not typically facilitate movement, especially for terrestrial animals, the Centerville and Kingsburg Canal may serve as an unlikely migration corridor for certain species. Eventual site development would not adversely affect home range and dispersal movements of native wildlife now using agricultural lands where site development is to eventually occur.

Many migratory species occurring on the site are neo-tropical migrant birds that are likely to pass through and over the site, even when it is eventually converted to some developed use. A considerable amount of agricultural lands in the project vicinity will continue to be used by native species for home range and dispersal movements. Therefore, wildlife movements are not expected to constrain future site development.

3.3.5 Potential Constraints to Development from Local Ordinances and Habitat Conservation Plans

Mature, healthy trees present on the site should be protected to the maximum extent practicable consistent with the City of Selma's Municipal Code (see Section 3.2.5). A City permit and replacement plantings would not be required for the removal of trees occurring on private lands; however, the City should be notified of the removal of trees occurring within a public right-of-way.

Eventual site development would not be constrained by habitat conservation plans, as no such plans have been prepared for the Selma area.

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APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plants species listed below were observed on the study area during surveys conducted by Live Oak Associates, Inc. in February 2005 and April 2006. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NR - No review
NA - No agreement
NI - No investigation

APOCYNACEAE – Dogbane Family		
Nerium oleander	Oleander	UPL
ARECACEAE – Palm Family		
Washingtonia robusta	Fan palm	UPL
ASTERACEAE – Sunflower Family		
Chamomilla suaveolens	Pineapple weed	UPL
Senecio vulgaris	Common groundsel	NI*
BERBERIDACEAE – Barberry Family		
Nandina domestica	Heavenly bamboo	UPL
BORAGINACEAE – Borage Family		
Amsinckia menziesii	Fiddleneck	UPL
BRASSICACEAE – Mustard Family		
Brassica nigra	Black mustard	UPL
Brassica rapa	Common mustard	UPL
Capsella bursa-pastoris	Shepherd's purse	FAC-
Raphanus sativus	Wild radish	UPL
Sisymbrium irio	London rocket	UPL
CACTACEAE – Cactus Family		
Opuntia sp.	Prickly pear	UPL
CARYOPHYLLACEAE – Pink Family		
Stellaria media	Chickweed	FACU
CHENOPODIACEAE – Goosefoot Family		
Saslsola tragus	Russian thistle	FACU
CUCURBITACEAE – Gourd Family		
Cucurbita palmate	Coyote melon	UPL
EQUISETACEAE – Horsetail Family		
Equisetum arvense	Common horsetail	FAC
FABACAEAE – Legume Family		
Medicago polymorpha	Bur clover	UPL

Trifolium sp.	Clover	-
FAGACEAE – Oak Family		
Quercus lobata	Valley oak	FAC*
GERANIACEAE – Geranium Family		
Erodium cicutarium	Redstem filaree	UPL
Erodium moschatum	White-stemmed filaree	UPL
Geranium dissectum	Wild geranium	NI
JUGLANDACEAE – Walnut Family		
Juglans sp.	Walnut	-
LAMIACEAE – Mint Family		
Lamium amplexicaule	Henbit	UPL
LYTHRACEAE – Loosestrife Family		
Lagerstroemia indica	Crepe myrtle	UPL
MAGNOLIACEAE – Magnolia Family		
Liriodendron tulipifera	Tulip tree	UPL
MALVACEAE – Mallow Family		
Malva neglecta	Common mallow	UPL
ONAGRACEAE – Evening Primrose Family		
Epilobium brachycarpum	Panicled willowherb	UPL
PAPAVERACEAE – Poppy Family		
Eschscholzia californica	California poppy	UPL
PINACEAE – Pine Family		
Pinus sp.	Pine	-
POACEAE – Grass Family		
Avena barbata	Slender wild oats	UPL
Bromus diandrus	Ripgut brome	UPL
Bromus madritensis	Foxtail chess	NI
Cynodon dactylon	Bermuda grass	FAC
Hordeum brachyantherum	Meadow barley	FACW
Hordeum murinum ssp. *leporinum*	Foxtail barley	NI
Poa annua	Annual bluegrass	FACW-
Sorghum halepense	Johnsongrass	FACU
Vulpia microstachys	Fescue	UPL
Vulpia myuros	Rattail fescue	FACU*
Zea mays	Corn	UPL
POLYGONACEAE – Buckwheat Family		
Rumex crispus	Curly dock	FACW
PORTULACACEAE – Purslane Family		
Calandrinia ciliata	Red maids	FACU*
RUTACEAE – Citrus Family		
Citrus limon	Lemon tree	UPL
Citrus sinensis	Orange	UPL
SALICACEAE – Willow Family		
Salix babylonica	Weeping willow	FACW-
SCROPHULARIACEAE – Snapdragon Family		
Veronica persica	Bird's-eye speedwell	UPL

TAXODIACEAE – Bald Cypress Family		
Sequoia sempervirens	Coast redwood	UPL
URTICACEAE – Nettle Family		
Urtica urens	Dwarf nettle	UPL
VISCACEAE – Mistletoe Family		
Arceuthobium sp.	Mistletoe	UPL

APPENDIX B: VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE STUDY AREA

The species listed below are those that may reasonably be expected to use the habitats of the study area from time to time. The list was not intended to include birds that are vagrants or occasional transients. Vertebrate species observed in or adjacent to the study area in February 2005 and April 2006 have been noted with an asterisk.

CLASS: REPTILIA

ORDER: SQUAMATA (Lizards and Snakes)

SUBORDER: SAURIA (Lizards)

FAMILY: PHRYNOSOMATIDAE

Western Fence Lizard	*Sceloporus occidentalis*

FAMILY: ANGUIDAE (Alligator Lizards and Relatives)

Southern Alligator Lizard	*Elgaria multicarinata*

SUBORDER: SERPENTES (Snakes)

FAMILY: COLUBRIDAE (Colubrids)

Coachwhip	*Masticophis flagellum*
Gopher Snake	*Pituophis melanoleucus*
Common Kingsnake	*Lampropeltis getula*
Common Garter Snake	*Thamnophis sirtalis*

CLASS: AVES

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)

FAMILY: CATHARTIDAE (New World Vultures)

Turkey Vulture	*Cathartes aura*

FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)

White-tailed Kite	*Elanus caeruleus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperi*
*Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Swainson's Hawk	*Buteo swainsoni*
Ferruginous Hawk	*Buteo regalis*
Rough-legged Hawk	*Buteo lagopus*

FAMILY: FALCONIDAE (Caracaras and Falcons)

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*

ORDER: GALLIFORMES (Megapodes, Currassows, Pheasants, and Relatives)

FAMILY: PHASIANIDAE (Quails, Pheasants, and Relatives)

Ring-Necked Pheasant	*Phasianus colchicus*

FAMILY: ODONTOPHORIDAE (New World Quail)

California Quail *Callipepla californica*

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)

FAMILY: CHARADRIIDAE (Plovers and relatives)

Killdeer *Charadrius vociferous*

Mountain Plover *Charadrius montanus*

FAMILY: LARIDAE (Skuas, Gulls, Terns and Skimmers)

Ring-billed Gull *Larus delawarensis*

California Gull *Larus californicus*

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

*Rock Dove *Columba livia*

*Mourning Dove *Zenaida macroura*

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)

Barn Owl *Tyto alba*

FAMILY: STRIGIDAE (Typical Owls)

Western Screech Owl *Otus kennicottii*

Great Horned Owl *Bubo virginianus*

Burrowing Owl *Athene cunicularia*

Short-eared Owl *Asio flammeus*

ORDER: CAPRIMULGIFORMES (Goatsuckers and Relatives)

FAMILY: CAPRIMULGIDAE (Goatsuckers)

Lesser Nighthawk *Chordeiles acutipennis*

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Black-chinned Hummingbird *Archilochus alexandri*

Anna's Hummingbird *Calypte anna*

ORDER: PICIFORMES (Woodpeckers and Relatives)

FAMILY: PICIDAE (Woodpeckers and Wrynecks)

Downy Woodpecker *Picoides pubescens*

*Northern Flicker *Colaptes auratus*

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

Western Wood-pewee *Contopus sordidulus*

Ash-throated Flycatcher *Myiarchus cinerascens*

Black Phoebe *Sayornis nigricans*

Say's Phoebe *Sayornis saya*

Western Kingbird *Tyrannus verticalis*

FAMILY: LANIIDAE (Shrikes)

Loggerhead Shrike *Lanius ludovicianus*

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

*Western Scrub-Jay *Aphelocoma coerulescens*

*American Crow *Corvus brachyrhynchos*

Common Raven *Corvus corax*

Yellow-billed Magpie *Pica nuttalli*

FAMILY: ALAUDIDAE (Larks)

California Horned Lark	*Eremophila alpestris*
FAMILY: HIRUNDINIDAE (Swallows)	
Violet-green Swallow	*Tachycineta thalassina*
Barn Swallow	*Hirundo rustica*
FAMILY: SITTIDAE (Nuthatches)	
White-breasted Nuthatch	*Sitta carolinensis*
FAMILY: TROGLODYTIDAE (Wrens)	
House Wren	*Troglodytes aedon*
FAMILY: REGULIDAE (Kinglets)	
*Ruby-crowned Kinglet	*Regulus calendula*
FAMILY: TURDIDAE (Thrushes)	
Western Bluebird	*Sialia mexicana*
*Mountain Bluebird	*Sialia currucoides*
*American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus naevius*
FAMILY: MIMIDAE (Mockingbirds and Thrashers)	
*Northern Mockingbird	*Mimus polyglottos*
FAMILY: STURNIDAE (Starlings and Allies)	
European Starling	*Sturnus vulgaris*
FAMILY: MOTACILLIDAE (Wagtails and Pipits)	
American Pipit	*Anthus rubrescens*
FAMILY: BOMBYCILLIDAE (Waxwings)	
Cedar Waxwing	*Bombycilla cedrorum*
FAMILY: PARULIDAE (Wood Warblers and Relatives)	
Yellow Warbler	*Dendroica petechia*
FAMILY: EMBERIZIDAE (Emberizines)	
California Towhee	*Pipilo crissalis*
Chipping Sparrow	*Spizella passerina*
Lark Sparrow	*Chondestes grammacus*
Savannah Sparrow	*Passerculus sandwichensis*
Vesper Sparrow	*Pooecetes gramineus*
*White-crowned Sparrow	*Zonotrichia leucophrys*
*Golden-crowned Sparrow	*Zonotrichia atricapilla*
FAMILY: CARDINALIDAE (Cardinals, Grosbeaks and Allies)	
Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Guiraca caerulea*
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)	
Western Meadowlark	*Sturnella neglecta*
*Brewer's Blackbird	*Euphagus cyanocephalus*
Brown-headed Cowbird	*Molothrus ater*
Hooded Oriole	*Icterus cucullatus*
Bullock's Oriole	*Icterus bullocki*
FAMILY: FRINGILLIDAE (Finches)	
Purple Finch	*Carpodacus purpureus*
*House Finch	*Carpodacus mexicanus*
Pine Siskin	*Carduelis pinus*

Lesser Goldfinch	*Carduelis psaltria*
American Goldfinch	*Carduelis tristis*

FAMILY: PASSERIDAE (Old World Sparrows)

House Sparrow	*Passer domesticus*

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia Opossum	*Didelphis virginiana*

ORDER: CHIROPTERA (Bats)

FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)

Yuma Myotis	*Myotis yumanensis*
California Myotis	*Myotis californicus*
Western Pipistrelle	*Pipistrellus hesperus*
Big Brown Bat	*Eptesicus fuscus*
Townsend's Western Big-eared Bat	*Corynorhinus townsendii townsendii*
Pallid Bat	*Antrozous pallidus*

FAMILY: MOLOSSIDAE (Free-tailed Bat)

Brazilian Free-tailed Bat	*Tadarida brasiliensis*
Western Mastiff Bat	*Eumops perotis*

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

FAMILY: LEPORIDAE (Rabbits and Hares)

Desert Cottontail	*Sylvilagus audubonii*
Black-tailed Jackrabbit	*Lepus californicus*

ORDER: RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

California Ground Squirrel	*Spermophilus beecheyi*

FAMILY: GEOMYIDAE (Pocket Gophers)

Botta's Pocket Gopher	*Thomomys bottae*

FAMILY: HETEROMYIDAE (Kangaroo Rats, Kangaroo Mice, and Pocket Mice)

San Joaquin Pocket Mouse	*Perognathus inornatus*

FAMILY: MURIDAE (Mice, Rats and Voles)

Western Harvest Mouse	*Reithrodontomys megalotis*
Deer Mouse	*Peromyscus maniculatus*
Black Rat	*Rattus rattus*
Norway Rat	*Rattus norvegicus*
House Mouse	*Mus musculus*
California Vole	*Microtus californicus*

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and Relatives)

Coyote	*Canis latrans*
Red Fox	*Vulpes vulpes*
Gray Fox	*Urocyon cinereoargenteus*
Domestic Dog	*Canis familiaris*

FAMILY: MUSTELIDAE (Weasels and Relatives)

Long-tailed Weasel	*Mustela frenata*

Western Spotted Skunk	*Spilogale gracilis*
Striped Skunk	*Mephitis mephitis*
FAMILY: FELIDAE (Cats)	
*Feral Cat	*Felis cattus*

APPENDIX C

NOISE ASSESSMENT REPORT

ENVIRONMENTAL NOISE ASSESSMENT

AMBERWOOD SPECIFIC PLAN
SELMA, CALIFORNIA

BBA Report 10-014

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JUNE 30, 2010

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1. INTRODUCTION

1.1 Project Description and Location

The Amberwood project consists of approximately 691 acres located in the northeast portion of the Selma Sphere of Influence, in Fresno County, California. The project includes the development of approximately 1,558 detached residential units on 489.3 acres, a 7.5-acre neighborhood/commercial shopping center, a new elementary school, a new police and fire public safety facility and several public or private parks. It is expected that the project will be constructed in up to 20 phases, and will take approximately 15 years to build out. At present, the project site consists primarily of rural residential and agricultural land uses. The project site location is shown by Figure 1.

1.2 Environmental Noise Assessment

This environmental noise assessment has been prepared by Brown-Buntin Associates, Inc. (BBA) to determine if significant noise impacts would be expected to occur within the project site or in areas outside the project site as a result of development of the project, and to describe mitigation measures for noise if significant impacts are determined.

Appendix A provides a description of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dB). 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 health effects.

2. REGULATORY SETTING

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified for proposed development projects, and that such impacts be eliminated or mitigated to the extent feasible. A significant effect from noise may exist if a project would:

- Result in 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,
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project,
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, or
- Result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels.

3. THRESHOLDS OF SIGNIFICANCE

3.1 Local Noise Level Standards

The project site is located within the City of Selma Sphere of Influence and would be annexed into the city. Applicable local noise standards are contained within the City of Selma 2035 General Plan.

3.1.1 City of Selma Noise Element:

The Noise Element of the 2035 Selma General Plan[1] establishes noise level standards for noise compatibility planning within the city. The noise level descriptors utilized within the noise element for transportation and non-transportation noise sources are the Day Night Average Level (DNL or L_{dn}) and Community Noise Equivalent Level (CNEL). The DNL represents the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The CNEL descriptor is identical the DNL except that an additional penalty of 5 dB is added to noise levels occurring during the evening hours between 7:00 p.m. and 10:00 p.m. Both descriptors represent cumulative exposure to noise over an extended period of time and are therefore calculated based upon *annual average* conditions. The CNEL is applicable only to aircraft noise exposure, as required by the State of California.

Policy 3.3 of the noise element refers to a land use compatibility table that is difficult to interpret because there are overlapping ranges of allowable exterior noise exposure. However, it is clear from Policies 3.5, 3.7 and 3.10 that exterior noise exposure is considered unacceptable if it exceeds 65 dB DNL/CNEL within outdoor activity areas of noise-sensitive uses. Outdoor activity areas include backyards of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas for multi-family developments.

Policy 3.5 specifies an interior noise level standard 45 dB DNL/CNEL within noise-sensitive rooms of noise-sensitive buildings. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

3.1.2 Significant Increases in Ambient Noise Levels:

CEQA or the City of Selma does not define what constitutes a substantial increase in ambient noise levels. Some guidance is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON)[2], which assessed changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the DNL (or CNEL). Annoyance is a summary measure of the general adverse reaction of people to noise that results in speech interference, sleep disturbance, or interference with other daily activities.

Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for transportation noise sources that are described in terms of cumulative noise exposure metrics such as the DNL. Table 1 summarizes the FICON recommendations.

TABLE 1

MEASURES OF SUBSTANTIAL NOISE INCREASE FOR TRANSPORTATION SOURCES

Ambient Noise Level Without Project (DNL/CNEL)	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+ 5 dB or more
60-65 dB	+3 dB or more
>65 dB	+1.5 dB or more
Source: FICON, 1992, as applied by Brown-Buntin Associates, Inc.	

For noise sources that are not transportation related, which generally include commercial or industrial activities and other stationary noise sources, it is common to assume that a 3-5 dB increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3 dB increase is the minimum change perceptible to most people, and that a 5 dB increase is perceived as a "definitely noticeable change."

3.1.3 Construction Noise and Vibration:

Noise due to construction activities is generally considered to be less than significant if the construction activity is temporary, use of heavy equipment and noisy activities is limited to daytime hours, pile driving or surface blasting would not occur, and all industry-standard noise abatement measures are implemented for noise-producing equipment. These general parameters acknowledge that people are not as likely to be annoyed by activities that are perceived as being necessary for normal commerce, so long as the inconveniences due to noise are of relatively short duration and all practical measures are being implemented to reduce the impacts of noise-producing activities.

Policy 3.1 of the noise element restricts the hours of operation for noise-producing devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses. Such operations are not permitted between 7:00 p.m. and 6:00 a.m. during weekdays or between 7:00 p.m. and 9:00 a.m. during weekends.

The City of Selma does not have regulations that define acceptable levels of vibration. One reference suggesting vibration standards is the Federal Transit Administration (FTA) publication concerning noise and vibration impact assessment from transit activities[3]. Although the FTA guidelines are to be applied to transit activities, they may be reasonably applied to the assessment of the potential for annoyance or structural damage resulting from other activities. To prevent vibration annoyance in residences, a vibration velocity level of 80 VdB or less is suggested when

there are fewer than 70 vibration events per day. A level of 100 VdB or less is suggested by the FTA guidelines to prevent damage to fragile buildings.

4. EXISTING CONDITIONS

The predominant existing noise sources affecting the project site and surrounding area include vehicular traffic on local roadways and noise generated from agricultural activities.

4.1 Ambient Noise Survey:

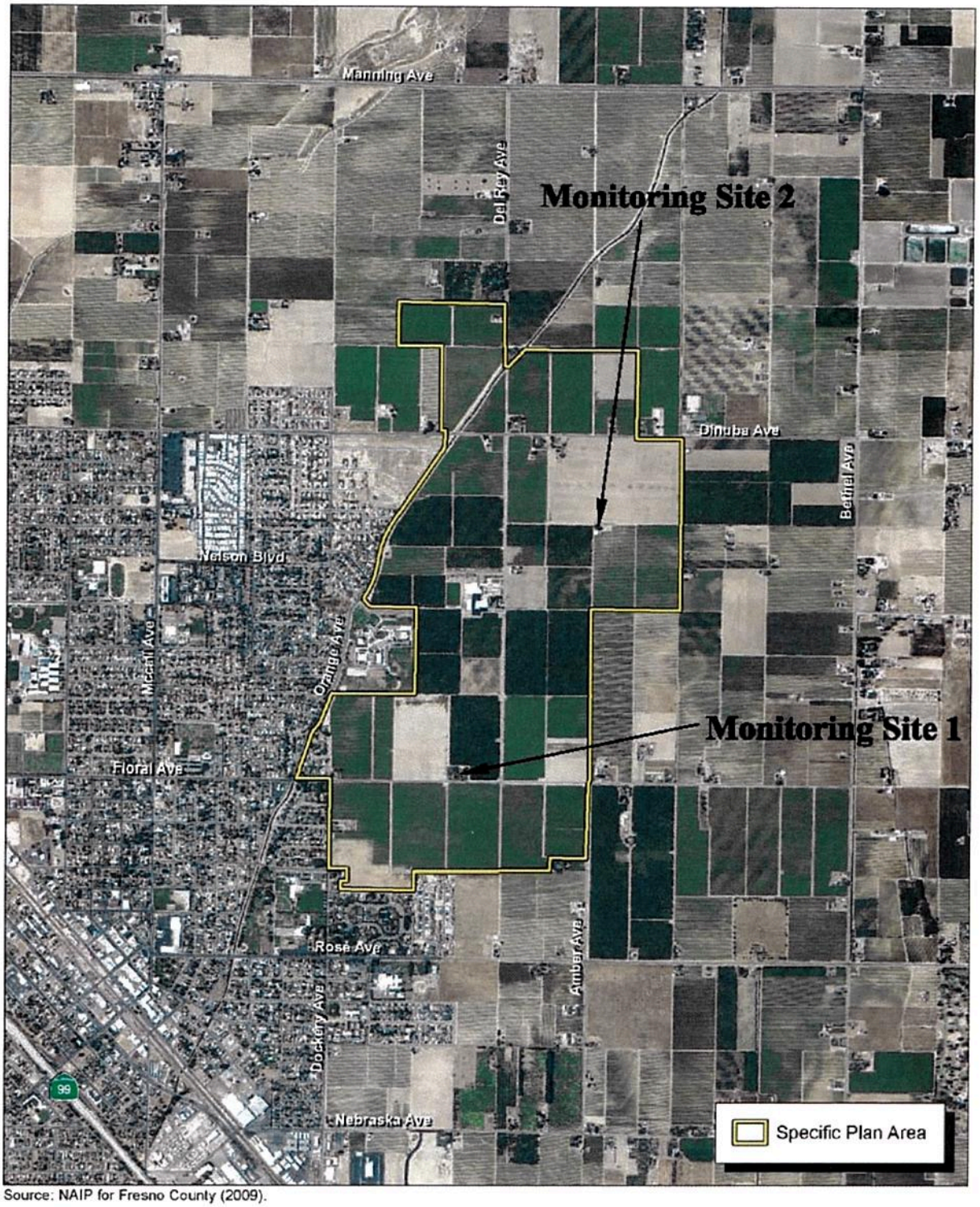
Existing ambient noise levels were measured at two locations within the project site on June 9, 2010. Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL 820 sound level analyzers equipped with Bruel & Kjaer (B&K) Type 4176 ½″ microphones. The microphones were located on tripods at approximately five (5) feet above the ground. The noise monitoring equipment was calibrated with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements. The equipment complies with applicable specifications of the American National Standards Institute (ANSI) for Type 1 sound measurement systems.

The locations of the ambient noise monitoring sites are noted on Figure 1. Site 1 was located in the southern portion of the site, approximately 150 feet from the center of Floral Avenue. Site 2 was located in the northeast portion of the site, approximately 1,300 feet south of the center of Dinuba Avenue and approximately 1,300 feet east of the center of Del Rey Avenue. Figure 2 summarizes hourly ambient noise levels measured in terms of the energy average level (L_{eq}), maximum level (L_{max}) and L_{90} noise descriptors. The L_{90} describes the noise level exceeded 90 percent of the time during each hour, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

Figure 2 shows that hourly background noise levels (L_{90}) at Site 1 ranged from 38 dBA during the early morning hours to 49 dBA in the evening hours. Hourly L_{eq} values ranged from approximately 41-57 dBA and hourly maximum noise levels ranged from approximately 58-77 dBA. The highest measured L_{max} value was most likely caused by farm equipment operations in close proximity to the microphone. The measured DNL for the 24-hour noise measurement period was 55.9 dB. This is well below the city's 65 dB DNL standard for development of new noise-sensitive land uses.

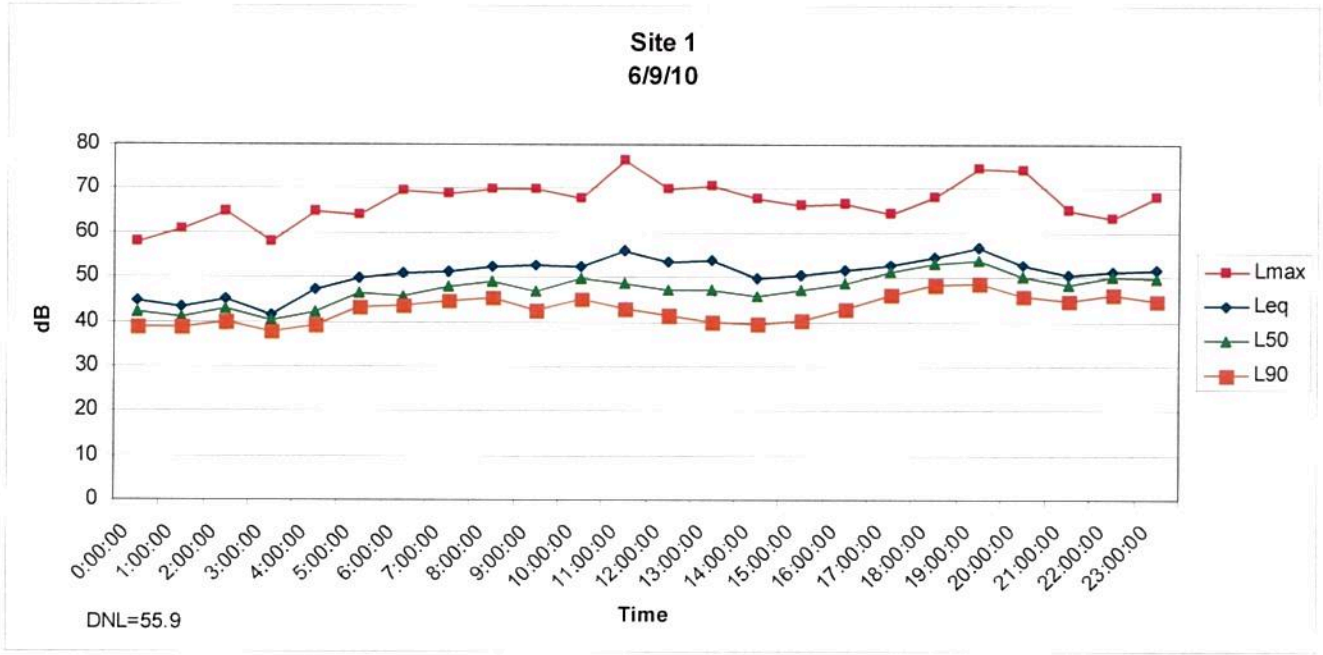
Hourly background noise levels (L_{90}) at Site 2 ranged from 36 dBA during the early morning hours to 46 dBA around dawn. Hourly L_{eq} values ranged from approximately 39-53 dBA and hourly maximum noise levels ranged from approximately 48-72 dBA. The measured DNL for the 24-hour noise measurement period was 51.8 dB. This is well below the city's 65 dB DNL standard for development of new noise-sensitive land uses. Measured DNL values were higher at Site 1 than at Site 2 due to its closer proximity to a major transportation noise source (Floral Avenue).

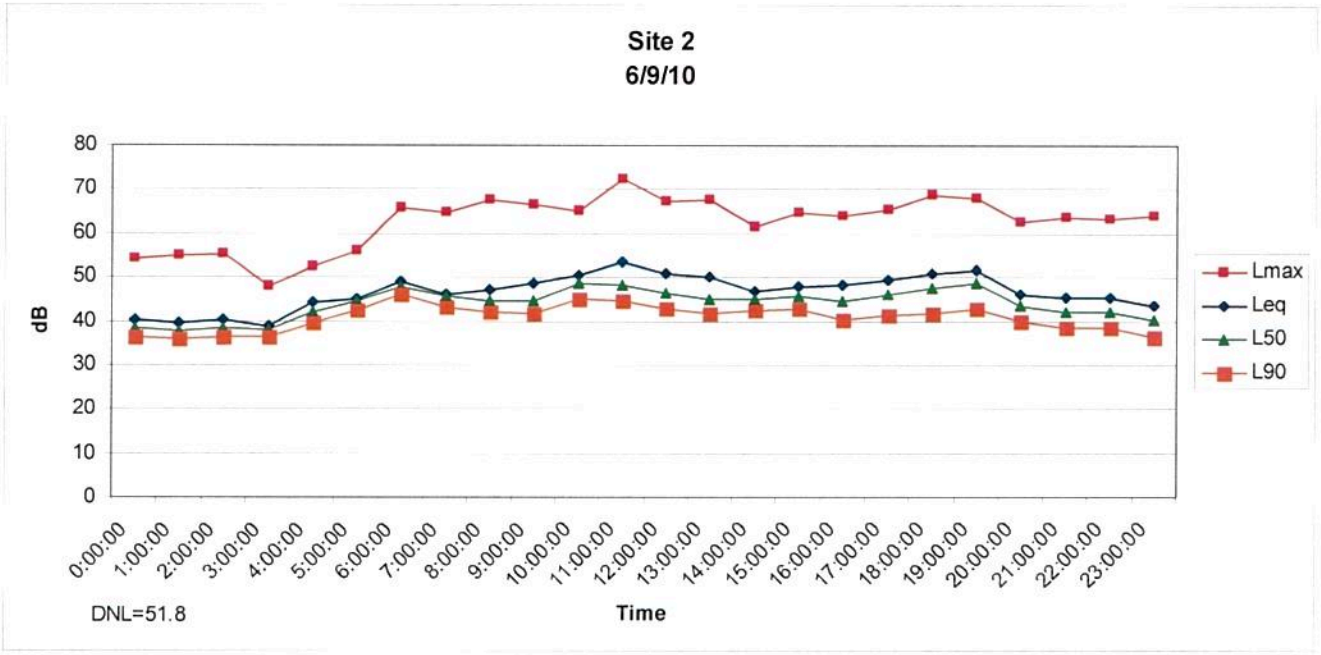
Figure 1: Amberwood Specific Plan Area and Ambient Noise Monitoring Sites



Source: NAIP for Fresno County (2009).

Figure 2: Measured Hourly Noise Levels





4.2 Existing Traffic Noise Exposure:

Existing traffic noise levels within and near the project site were modeled using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model[4] and traffic data obtained from the Traffic Impact Study prepared for the project by Dowling Associates, Inc. (June 2010)[5].

The FHWA Model is an analytical method utilized by many 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. To predict DNL values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Appendix B summarizes the noise modeling assumptions used to calculate traffic noise exposure for existing conditions near the project site. The day/night distribution of traffic and the percentage of trucks on project area roadways were estimated by BBA based upon studies performed along similar roadways. The traffic noise modeling assumptions summarized by Appendix B represent the best information known to BBA at the time this analysis was prepared.

Table II summarizes existing traffic noise exposure, as defined by the annual average DNL, for various roadways within and near the project site at typical residential setbacks. A typical residential building setback was assumed to be 75 feet from the center of the roadway.

TABLE II

SUMMARY OF EXISTING TRAFFIC NOISE EXPOSURE
AMBERWOOD SPECIFIC PLAN

Roadway	Roadway Segment	DNL (dB) @ Typical Residential Setback[1]
McCall Avenue	n/o Manning Ave	60.1
	s/o Manning Ave	62.0
	n/o Dinuba Ave	61.6
	s/o Dinuba Ave	61.3
	n/o Floral Ave	63.1
	s/o Floral Ave	61.6
Manning Avenue	w/o McCall Ave	65.4
	e/o McCall Ave	65.7
	w/o Del Rey Ave	65.8
	e/o Del Rey Ave	65.9
	w/o Bethel Ave	65.9
	e/o Bethel Ave	66.0
Del Rey Avenue	s/o Manning Ave	48.8
Bethel Avenue	n/o Manning Ave	53.5
	s/o Manning Ave	53.8
	n/o Dinuba Ave	53.2
	s/o Dinuba Ave	54.3
	n/o Floral Ave	55.1
	s/o Floral Ave	54.1
Dinuba Avenue	w/o McCall Ave	60.7
	e/o McCall Ave	60.2
	w/o Orange Ave	59.9
	e/o Orange Ave	56.2
	w/o Bethel Ave	57.7
	e/o Bethel Ave	57.7
Orange Avenue	s/o Dinuba Ave	53.7
Floral Avenue	w/o McCall Ave	62.3
	e/o McCall Ave	60.5
	w/o Dockery Ave	57.3
	e/o Dockery Ave	54.6
	w/o Amber Ave	54.7
	e/o Amber Ave	54.7
Dockery Avenue	n/o Floral Ave	46.4
	s/o Floral Ave	54.9
Amber Avenue	s/o Floral Ave	43.8

[1]A typical residential setback was assumed to be 75 feet from the center of the roadway.

Source: Brown-Buntin Associates, Inc.

4.3 Existing Stationary Noise Source Exposure:

Agricultural activities represent the only existing stationary noise sources within the project site. The noise levels measured at Site 2 during the ambient noise survey are considered to be representative of noise produced by existing agricultural activities. Hourly L_{eq} values at that site ranged from approximately 39 to 53 dBA.

4.4 Existing Aircraft Noise Exposure:

The project site is located approximately 3.5 miles east of the Selma Airport. The airport is a small municipal airport with an average of 33 daily operations, the majority of which are single engine operations. The project site is subject to periodic aircraft over-flights, but such over-flights are not considered to be a significant source of noise within the project site.

5. PROJECT-RELATED NOISE IMPACTS

The Amberwood project could cause noise levels to increase within the project site and in areas near the project site. The proposed project includes noise-sensitive land uses as defined by the policies of the city's noise element. There are also existing noise-sensitive uses located adjacent to and near the project site. Such uses include existing single-family homes and an existing middle school, both of which are located to the west of the project site along Orange Avenue. Additionally, existing residential uses are located at various locations along major roadways near the project site that could experience project-related increases in traffic.

5.1 On-Site Traffic Noise Impacts (Not significant with mitigation)

Traffic noise levels within the project site have the potential to exceed the requirements of the City of Selma Noise Element. Using the previously described FHWA Model and future traffic volumes, the future (2035) plus project traffic noise levels were calculated for roadways located within the project site. Table III shows distances to the 65 dB DNL contour for future (2035) plus project conditions. Appendix B summarizes traffic noise modeling assumptions.

<u>Mitigation of On-Site Traffic Noise Exposure</u>

Proposed noise-sensitive land uses that will result in the placement of outdoor activity areas closer to the roadway than the 65 dB DNL contour shown in Table III will require noise mitigation. Potential noise mitigation measures include increasing the setbacks from the roadway to avoid areas exposed to greater than 65 dB DNL, the construction of sound walls or a combination of both. A 6 foot-high sound wall may be expected to reduce traffic noise exposure by approximately 5 dB provided the roadway and project site are at approximately the same elevation. An interior noise level standard of 45 dB DNL may be achieved by normal construction provided the exterior noise exposure does not exceed 65 dB DNL and windows and doors may be closed for noise insulation purposes. Requiring that it be possible to keep windows and doors be closed means that air conditioning or some other form of mechanical ventilation will be required.

TABLE III

DISTANCE TO 65 dB DNL CONTOURS WITHIN PROJECT SITE
AMBERWOOD SPECIFIC PLAN

Roadway	Roadway Segment	Distance (feet) to 65 dB DNLContour[1] (2035 Plus Project)
Dinuba Avenue	e/o Orange Ave	60
	w/o Bethel Ave	44
Orange Avenue	n/o Dinuba Ave	13
	s/o Dinuba Ave	25
Floral Avenue	e/o Dockery	62
	w/o Amber	30
Dockery Avenue	n/o Floral Ave	5
	s/o Floral Ave	38
Amber Avenue	n/o Floral Ave	41
	s/o Floral Ave	40

[1]Distances are from the center of the roadway.

Source: Brown-Buntin Associates, Inc.

5.2 On-Site Stationary Noise Source Impacts (Not significant with mitigation)

The proposed neighborhood/commercial shopping center, elementary school and police and fire public safety facility have the potential to generate significant noise levels at nearby noise-sensitive uses. The noise levels produced by such sources can also be highly variable. Typical examples of commercial and institutional noise sources are:

- Fans and blowers
- Truck deliveries
- Loading Docks
- Compactors
- School bus movements
- Voices/P.A. systems
- Machine shop equipment
- Waste collection activities

Noise levels from commercial or institutional land uses associated with the project cannot be predicted with any certainty at this time since detailed development plans are not yet available. However, under some circumstances there is a potential for such uses to cause annoyance to nearby noise-sensitive uses and/or exceed the city's noise standards. This may be especially true for the proposed neighborhood/commercial shopping center if loading docks, truck routes or mechanical equipment are to be located adjacent to or near residential uses.

Mitigation of On-site Stationary Noise Source Impacts

Noise levels from commercial and institutional sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources, and the path of transmission between noise sources and sensitive receptors. Noise levels from proposed commercial or institutional uses should not exceed 65 dB DNL within outdoor activity areas of noise-sensitive land uses. Options for noise mitigation include the use of building setbacks and the construction of sound walls and/or equipment enclosures. Additionally, Policy 3.9 of the noise element specifies preferred mitigation measures that should be considered during the design of new commercial or institutional uses that may affect nearby noise-sensitive uses.

5.3 Off-Site Traffic Noise Impacts (Significant and unavoidable):

The project could result in an increase in traffic on some roadways in the project area. The potential for significant increases in traffic noise exposure at off-site noise-sensitive uses was analyzed using the above-referenced Dowling Associates Traffic Impact Study and the FHWA Model. Traffic noise modeling assumptions are summarized in Appendix B.

Traffic noise levels were calculated at typical residential setbacks for selected roadways outside of the project area for future (2035) conditions. Calculated DNL values with and without the project were compared to determine if the project would cause traffic noise levels to exceed the city's 65 dB DNL exterior standard or result in a significant increase in ambient noise levels as defined by Table 1. Existing noise barriers or other noise mitigation features were not accounted for in the calculations since the analysis is intended to demonstrate the *relative change* in traffic noise exposure that could occur as a result of the project.

Table IV summarizes the findings of the off-site traffic noise analysis. Shown by the table are future (2035) with project and future (2035) without project traffic noise levels at typical residential setbacks along roadways analyzed by the traffic impact study. Table IV shows that future (2035) with project traffic exposure along McCall Avenue (south of Dinuba Avenue) and Floral Avenue (west of McCall Avenue) could increase to above 65 dB DNL as a result of the project. This is considered a significant noise impact. Table IV also shows that the project could result in significant increases in traffic noise exposure along Dinuba Avenue (west of Orange Avenue) and Floral Avenue (west of Dockery Avenue).

Mitigation of Off-site Traffic Noise Impacts

The most effective form of noise mitigation at existing noise-sensitive uses is the construction of effective sound walls. Due to the many complications of working with individual landowners to implement such measures, it may not be feasible to achieve successful noise mitigation for all existing noise-sensitive uses that could be impacted by the project. For that reason, this impact could remain significant and unavoidable.

TABLE IV

SUMMARY OF OFF-SITE TRAFFIC NOISE IMPACTS
AMBERWOOD SPECIFIC PLAN

Roadway	Roadway Segment	DNL (dB) @ Typical Residential Setback[1]			
		2035 No Project	2035 Project	Change[2]	Significant?
McCall Avenue	n/o Manning Ave	63.2	63.5	+0.3	No
	s/o Manning Ave	64.7	64.8	+0.1	No
	n/o Dinuba Ave	65.2	65.7	+0.5	No
	s/o Dinuba Ave	64.8	65.1	+0.3	No
	n/o Floral Ave	65.6	65.9	+0.3	No
	s/o Floral Ave	63.7	63.7	-0-	No
Manning Avenue	w/o McCall Ave	67.6	67.6	-0-	No
	e/o McCall Ave	68.5	68.7	+0.2	No
	w/o Del Rey Ave	68.1	68.3	+0.2	No
	e/o Del Rey Ave	67.9	68.0	+0.1	No
	w/o Bethel Ave	68.0	68.1	+0.1	No
	e/o Bethel Ave	67.6	67.8	+0.2	No
Del Rey Avenue	n/o Manning Ave	49.9	49.9	-0-	No
	s/o Manning Ave	56.3	59.0	+2.7	No
Bethel Avenue	n/o Manning Ave	59.3	60.0	+0.7	No
	s/o Manning Ave	55.5	58.3	+2.8	No
	n/o Dinuba Ave	55.1	58.1	+3.0	No
	s/o Dinuba Ave	55.2	56.0	+0.8	No
	n/o Floral Ave	55.8	56.4	+0.6	No
	s/o Floral Ave	54.8	54.8	-0-	No
Dinuba Avenue	w/o McCall Ave	63.5	64.6	+1.1	No
	e/o McCall Ave	62.4	64.5	+2.1	No
	w/o Orange Ave	60.3	63.3	+3.0	**Yes**
	e/o Bethel Ave	59.1	60.9	+1.8	No
Floral Avenue	w/o McCall Ave	63.7	65.0	+1.3	No
	e/o McCall Ave	60.9	63.6	+2.7	No
	w/o Dockery Ave	57.7	62.9	+5.2	**Yes**
	e/o Amber Ave	54.9	55.6	+0.7	No

[1]A typical residential setback was assumed to be 75 feet from the center of the roadway.
[2] Reported changes determined by subtracting 2035 No Project noise levels from 2035 Project noise levels.

Source: Brown-Buntin Associates, Inc.

5.4 Construction Noise and Vibration Impacts (Not significant with mitigation)

During construction of the various phases of the project, noise from construction activities could potentially impact noise-sensitive land uses in the immediate area. Activities associated with construction would generate noise levels at 50 feet as indicated by Table V. The heavy

equipment that produces the highest noise levels would be associated with project grading and excavation, roadway construction or utility construction.

Vibration from construction activities could occasionally be perceptible at the closest sensitive land uses. The primary vibratory sources during construction activities within the project area would likely be large bulldozers or excavators and loaded trucks. Typical bulldozer or loaded truck activities generate an approximate vibration level of 86-87 VdB at a distance of 25 feet. Typically, vibration levels must exceed 80 VdB before annoyance occurs or 100 VdB before building damage occurs.

TABLE V

TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Maximum Level, dB (50 Ft.)
Backhoe	78
Concrete Saw	90
Crane	81
Excavator	81
Front End Loader	79
Jackhammer	89
Paver	77
Pneumatic Tools	85
Bulldozer	82

Source: FHWA[6]

Mitigation of Off-site Construction Noise and Vibration Impacts

Noise or vibration from construction activities are not usually considered to be significant if construction occurring near noise-sensitive land uses is limited to the daytime hours, extraordinary noise-producing activities (e.g., pile driving) are not anticipated, and construction equipment is adequately maintained and muffled. Policy 3.1 of the noise element restricts the hours of operation for noise-producing devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses. Such operations are not permitted between 7:00 p.m. and 6:00 a.m. during weekdays or between 7:00 p.m. and 9:00 a.m. during weekends.

6. SOURCES CONSULTED

1. City of Selma, Noise Element of the 2035 General Plan, September 2009.

2. *Federal Agency Review of Selected Airport Noise Analysis Issues*, Federal Interagency Committee on Noise, August, 1992.

3. U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995.

4. Federal Highway Administration, Traffic Noise Model, Version 2.5, April 14, 2004.

5. Dowling Associates, Inc., *Traffic Impact Study for Amberwood Specific Plan*, December 4, 2009.

6. Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, January 2006.

APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B

TRAFFIC NOISE MODELING ASSUMPTIONS

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #: 10-014
Description: Existing
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
1	McCall Ave.	n/o Manning Ave.	5090	87		13	2	1	40	75	
2	McCall Ave.	s/o Manning Ave.	7950	87		13	2	1	40	75	
3	Manning Ave.	w/o McCall Ave.	14210	87		13	3	2	40	75	
4	Manning Ave.	e/o McCall Ave.	15310	87		13	3	2	40	75	
5	Del Rey Ave.	n/o Manning Ave.		87		13	2	1	40	75	
6	Del Rey Ave.	s/o Manning Ave.	380	87		13	2	1	40	75	
7	Manning Ave.	w/o Del Rey Ave.	15560	87		13	3	2	40	75	
8	Manning Ave.	e/o Del Rey Ave.	15880	87		13	3	2	40	75	
9	Bethel Ave.	n/o Manning Ave.	1110	87		13	2	1	40	75	
10	Bethel Ave.	s/o Manning Ave.	1190	87		13	2	1	40	75	
11	Manning Ave.	w/o Bethel Ave.	16070	87		13	3	2	40	75	
12	Manning Ave.	e/o Bethel Ave.	16190	87		13	3	2	40	75	
13	McCall Ave.	n/o Dinuba Ave.	7170	87		13	2	1	40	75	
14	McCall Ave.	s/o Dinuba Ave.	6670	87		13	2	1	40	75	
15	Dinuba Ave.	w/o McCall Ave.	5870	87		13	2	1	40	75	
16	Dinuba Ave.	e/o McCall Ave.	5240	87		13	2	1	40	75	
17	Orange Ave.	n/o Dinuba Ave.					2	1		75	
18	Orange Ave.	s/o Dinuba Ave.	1160	87		13	2	1	40	75	
19	Dinuba Ave.	w/o Orange Ave.	4870	87		13	2	1	40	75	
20	Dinuba Ave.	e/o Orange Ave.	2090	87		13	2	1	40	75	
21	Bethel Ave.	n/o Dinuba Ave.	1040	87		13	2	1	40	75	

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #:	10-014
Description:	Existing
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	Bethel Ave.	s/o Dinuba Ave.	1360	87		13	2	1	40	75	
23	Dinuba Ave.	w/o Bethel Ave.	2930	87		13	2	1	40	75	
24	Dinuba Ave.	e/o Bethel Ave.	2910	87		13	2	1	40	75	
25	McCall Ave.	n/o Floral Ave.	10180	87		13	2	1	40	75	
26	McCall Ave.	s/o Floral Ave.	7230	87		13	2	1	40	75	
27	Floral Ave.	w/o McCall Ave.	8560	87		13	2	1	40	75	
28	Floral Ave.	e/o McCall Ave.	5590	87		13	2	1	40	75	
29	Dockery Ave.	n/o Floral Ave.	220	87		13	2	1	40	75	
30	Dockery Ave.	s/o Floral Ave.	1560	87		13	2	1	40	75	
31	Floral Ave.	w/o Dockery Ave.	2670	87		13	2	1	40	75	
32	Floral Ave.	e/o Dockery Ave.	1430	87		13	2	1	40	75	
33	Amber Ave.	n/o Floral Ave.	---	87		13	2	1	40	75	
34	Amber Ave.	s/o Floral Ave.	120	87		13	2	1	40	75	
35	Floral Ave.	w/o Amber Ave.	1490	87		13	2	1	40	75	
36	Floral Ave.	e/o Amber Ave.	1480	87		13	2	1	40	75	
37	Bethel Ave.	n/o Floral Ave.	1610	87		13	2	1	40	75	
38	Bethel Ave.	s/o Floral Ave.	1270	87		13	2	1	40	75	
39	Floral Ave.	w/o Bethel Ave.	1150	87		13	2	1	40	75	
40	Floral Ave.	e/o Bethel Ave.	10	87		13	2	1	40	75	

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #:	10-014
Description:	2035 No Project
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
1	McCall Ave.	n/o Manning Ave.	10390	87		13	2	1	40	75	
2	McCall Ave.	s/o Manning Ave.	14600	87		13	2	1	40	75	
3	Manning Ave.	w/o McCall Ave.	23420	87		13	3	2	40	75	
4	Manning Ave.	e/o McCall Ave.	28990	87		13	3	2	40	75	
5	Del Rey Ave.	n/o Manning Ave.	490	87		13	2	1	40	75	
6	Del Rey Ave.	s/o Manning Ave.	2140	87		13	2	1	40	75	
7	Manning Ave.	w/o Del Rey Ave.	26410	87		13	3	2	40	75	
8	Manning Ave.	e/o Del Rey Ave.	25540	87		13	3	2	40	75	
9	Bethel Ave.	n/o Manning Ave.	4220	87		13	2	1	40	75	
10	Bethel Ave.	s/o Manning Ave.	1770	87		13	2	1	40	75	
11	Manning Ave.	w/o Bethel Ave.	26040	87		13	3	2	40	75	
12	Manning Ave.	e/o Bethel Ave.	23650	87		13	3	2	40	75	
13	McCall Ave.	n/o Dinuba Ave.	16710	87		13	2	1	40	75	
14	McCall Ave.	s/o Dinuba Ave.	15210	87		13	2	1	40	75	
15	Dinuba Ave.	w/o McCall Ave.	11150	87		13	2	1	40	75	
16	Dinuba Ave.	e/o McCall Ave.	8750	87		13	2	1	40	75	
17	Orange Ave.	n/o Dinuba Ave.					2	1		75	
18	Orange Ave.	s/o Dinuba Ave.	2230	87		13	2	1	40	75	
19	Dinuba Ave.	w/o Orange Ave.	5300	87		13	2	1	40	75	
20	Dinuba Ave.	e/o Orange Ave.	5750	87		13	2	1	40	75	
21	Bethel Ave.	n/o Dinuba Ave.	1630	87		13	2	1	40	75	

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #: 10-014
Description: 2035 No Project
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	Bethel Ave.	s/o Dinuba Ave.	1660	87		13	2	1	40	75	
23	Dinuba Ave.	w/o Bethel Ave.	4930	87		13	2	1	40	75	
24	Dinuba Ave.	e/o Bethel Ave.	4060	87		13	2	1	40	75	
25	McCall Ave.	n/o Floral Ave.	18310	87		13	2	1	40	75	
26	McCall Ave.	s/o Floral Ave.	11810	87		13	2	1	40	75	
27	Floral Ave.	w/o McCall Ave.	11610	87		13	2	1	40	75	
28	Floral Ave.	e/o McCall Ave.	6090	87		13	2	1	40	75	
29	Dockery Ave.	n/o Floral Ave.	250	87		13	2	1	40	75	
30	Dockery Ave.	s/o Floral Ave.	1770	87		13	2	1	40	75	
31	Floral Ave.	w/o Dockery Ave.	2960	87		13	2	1	40	75	
32	Floral Ave.	e/o Dockery Ave.	1520	87		13	2	1	40	75	
33	Amber Ave.	n/o Floral Ave.	3330	87		13	2	1	40	75	
34	Amber Ave.	s/o Floral Ave.	3400	87		13	2	1	40	75	
35	Floral Ave.	w/o Amber Ave.	1540	87		13	2	1	40	75	
36	Floral Ave.	e/o Amber Ave.	1550	87		13	2	1	40	75	
37	Bethel Ave.	n/o Floral Ave.	1900	87		13	2	1	40	75	
38	Bethel Ave.	s/o Floral Ave.	1520	87		13	2	1	40	75	
39	Floral Ave.	w/o Bethel Ave.	1220	87		13	2	1	40	75	
40	Floral Ave.	e/o Bethel Ave.	60	87		13	2	1	40	75	

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #:	10-014
Description:	2035 Project
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
1	McCall Ave.	n/o Manning Ave.	11140	87		13	2	1	40	75	
2	McCall Ave.	s/o Manning Ave.	14950	87		13	2	1	40	75	
3	Manning Ave.	w/o McCall Ave.	23890	87		13	3	2	40	75	
4	Manning Ave.	e/o McCall Ave.	30420	87		13	3	2	40	75	
5	Del Rey Ave.	n/o Manning Ave.	490	87		13	2	1	40	75	
6	Del Rey Ave.	s/o Manning Ave.	3950	87		13	2	1	40	75	
7	Manning Ave.	w/o Del Rey Ave.	27840	87		13	3	2	40	75	
8	Manning Ave.	e/o Del Rey Ave.	25920	87		13	3	2	40	75	
9	Bethel Ave.	n/o Manning Ave.	5010	87		13	2	1	40	75	
10	Bethel Ave.	s/o Manning Ave.	3340	87		13	2	1	40	75	
11	Manning Ave.	w/o Bethel Ave.	26410	87		13	3	2	40	75	
12	Manning Ave.	e/o Bethel Ave.	24800	87		13	3	2	40	75	
13	McCall Ave.	n/o Dinuba Ave.	18710	87		13	2	1	40	75	
14	McCall Ave.	s/o Dinuba Ave.	16090	87		13	2	1	40	75	
15	Dinuba Ave.	w/o McCall Ave.	14260	87		13	2	1	40	75	
16	Dinuba Ave.	e/o McCall Ave.	14240	87		13	2	1	40	75	
17	Orange Ave.	n/o Dinuba Ave.	1080	87		13	2	1	40	75	
18	Orange Ave.	s/o Dinuba Ave.	3070	87		13	2	1	40	75	
19	Dinuba Ave.	w/o Orange Ave.	10790	87		13	2	1	40	75	
20	Dinuba Ave.	e/o Orange Ave.	11280	87		13	2	1	40	75	
21	Bethel Ave.	n/o Dinuba Ave.	3200	87		13	2	1	40	75	

Brown Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
June 30, 2010

Project #:	10-014
Description:	2035 Project
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	Bethel Ave.	s/o Dinuba Ave.	1990	87		13	2	1	40	75	
23	Dinuba Ave.	w/o Bethel Ave.	7210	87		13	2	1	40	75	
24	Dinuba Ave.	e/o Bethel Ave.	6110	87		13	2	1	40	75	
25	McCall Ave.	n/o Floral Ave.	19530	87		13	2	1	40	75	
26	McCall Ave.	s/o Floral Ave.	11810	87		13	2	1	40	75	
27	Floral Ave.	w/o McCall Ave.	15630	87		13	2	1	40	75	
28	Floral Ave.	e/o McCall Ave.	11330	87		13	2	1	40	75	
29	Dockery Ave.	n/o Floral Ave.	250	87		13	2	1	40	75	
30	Dockery Ave.	s/o Floral Ave.	5660	87		13	2	1	40	75	
31	Floral Ave.	w/o Dockery Ave.	9780	87		13	2	1	40	75	
32	Floral Ave.	e/o Dockery Ave.	11810	87		13	2	1	40	75	
33	Amber Ave.	n/o Floral Ave.	6310	87		13	2	1	40	75	
34	Amber Ave.	s/o Floral Ave.	6040	87		13	2	1	40	75	
35	Floral Ave.	w/o Amber Ave.	4020	87		13	2	1	40	75	
36	Floral Ave.	e/o Amber Ave.	1810	87		13	2	1	40	75	
37	Bethel Ave.	n/o Floral Ave.	2160	87		13	2	1	40	75	
38	Bethel Ave.	s/o Floral Ave.	1520	87		13	2	1	40	75	
39	Floral Ave.	w/o Bethel Ave.	1480	87		13	2	1	40	75	
40	Floral Ave.	e/o Bethel Ave.	60	87		13	2	1	40	75	

APPENDIX D

AIR QUALITY AND CLIMATE CHANGE ANALYSIS REPORT

Air Quality and Climate Change Analysis Report
Amberwood Specific Plan
City of Selma, Fresno County, California

Prepared for:

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Prepared by:

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Michael Brandman Associates

May 10, 2010

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ACRONYMS AND ABBREVIATIONS

µg	micrograms
µg/m3	micrograms per cubic meter
AB	Assembly Bill
ACM	Asbestos Containing Material
ADT	Average Daily Trips
AIA	Air Impact Assessment
AQP	Air Quality Attainment Plan
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
C_2F_6	hexafluoroethane
C_2H_6	ethane
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAT	Climate Action Team
CCAP	Climate Change Action Plan
CF_4	tetrafluoromethane
CFC	chlorofluorocarbons
COG	Fresno Council of Governments
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH_4	methane
CKH	Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000
CO	carbon monoxide
CO_2	carbon dioxide
COG	council of governments
DPM	Diesel Particulate Matter
DU	dwelling units
EPA	Environmental Protection Agency
ETRIP	Employer Trip Reduction Implementation Plan
FCEOC	Fresno County Economic Opportunities Commission
FCRTA	Fresno County Rural Transit Agency

GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas emissions
H_2O	water
HFC	hydrofluorocarbons
IPCC	International Panel on Climate Change
LAFCo	Fresno County Local Agency Formation Commission
LCFS	low carbon fuel standard
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
MEI	Maximally Exposed Individual
$MTCO_2e$	metric tons of carbon dioxide equivalent
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
PFC	perfluorocarbons
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
ROG	Reactive Organic Gases
RTP	Regional Transportation Plans
SB	Senate Bill
sf	square feet
SF_6	sulfur hexafluoride
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SIP	State Implementation Plans
SO_X	sulfur oxides
SOI	Sphere of Influence
TAC	Toxic Air Contaminant
TIS	Traffic Impact Study

tpy	tons per year
URBEMIS	Urban Emissions Model
VOC	volatile organic compounds
VMT	vehicle miles traveled

SECTION 1: INTRODUCTION

1.1 - Purpose and Methods of Analysis

The following air quality analysis was prepared to evaluate whether the expected criteria air pollutant emissions and greenhouse gas emissions (GHG) generated from the proposed project would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for quantification of emissions and evaluation of potential impacts to air resources (SJVAPCD 2002).

In 2006, Governor Arnold Schwarzenegger signed AB 32, which charged the California Air Resources Board (ARB) with developing regulations on how the State would address climate change (also known as "global warming"). This analysis evaluates the potential impact of the project's greenhouse gas emissions.

1.2 - Findings

- The proposed project would conflict with or obstruct implementation of the applicable air quality plan.
- The proposed project would not significantly contribute to a carbon monoxide hotspot that would exceed federal or State air quality standards.
- After mitigation, the proposed project will exceed the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Thresholds of Significance.
- The proposed project would not expose sensitive receptors to substantial pollutant concentrations.
- The proposed project would not create objectionable odors affecting a substantial number of people.
- After mitigation, the proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
- After mitigation, the proposed project would not significantly hinder or delay California's ability to meet the reduction targets contained in AB 32.

1.3 - Project Description

1.3.1 - Amberwood Specific Plan

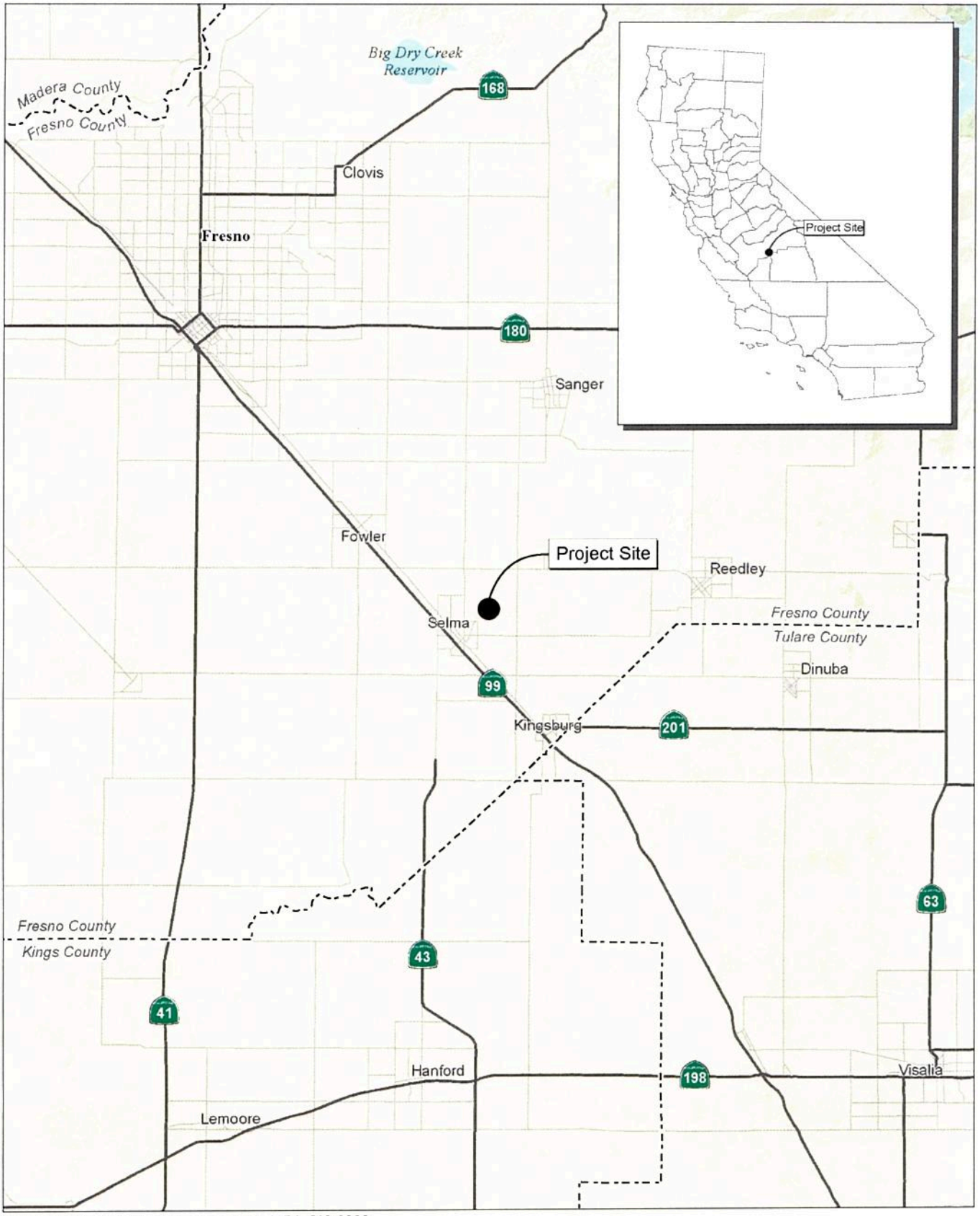
The purpose of the Amberwood Specific Plan is to implement the City of Selma General Plan in a comprehensive and orderly manner. To achieve this, the Specific Plan establishes the land use, infrastructure, public services, and financing plans to direct future development. Amberwood provides an opportunity to create a new residential and mixed-use community through comprehensive and systemic planning. Amberwood will be neighborhood oriented with numerous parks and open spaces to promote outdoor recreation and social activities along with safe pedestrian and bicycle access to the elementary school, middle school, and neighborhood shopping. The community will also offer a broad mix of housing types to support the expansion of jobs and population in the region. The Amberwood Specific Plan offers a compact, mixed-use, transit-oriented development with pedestrian-friendly streets, sidewalks, and trail system. Air quality enhancing design features are discussed in greater detail in Section 1.3.4, Design Features.

1.3.2 - Project Location

The Amberwood project site is located immediately east of the existing city limits of the City of Selma. The majority of the project site is located within the existing Sphere of Influence for the City of Selma, as approved by the Fresno County Local Agency Formation Commission (LAFCo). The Amberwood project site is located immediately east of the existing city limits of the City of Selma, California. The City of Selma is located in Fresno County, approximately 17 miles south of the City of Fresno, 3 miles north of the City of Kingsburg, and 4 miles south of the City of Fowler (Exhibit 1).

The project site is located on approximately 690.7 acres of land in the northeastern portion of the Selma Sphere of Influence (Exhibit 2).

Exhibit 1: Regional Vicinity Map



Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

NORTH

5 2.5 0 5 Miles

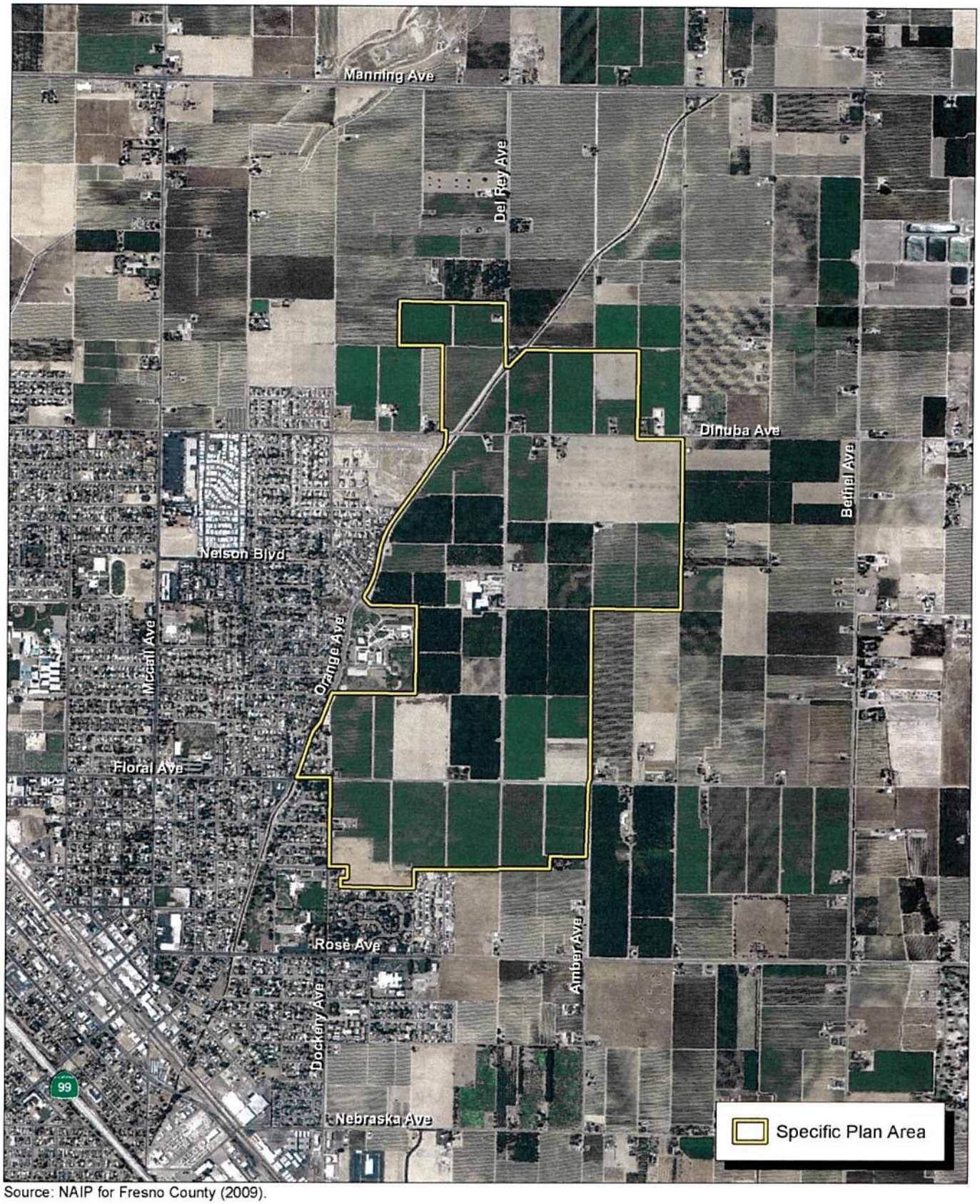
Michael Brandman Associates

Exhibit 1
Regional Vicinity Map

36150001 • 02/2010 | 1_regional.mxd

MICHAEL GASTON ASSOCIATES • AMBERWOOD SPECIFIC PLAN
AIR QUALITY AND CLIMATE CHANGE ANALYSIS REPORT

Exhibit 2: Local Vicinity Map



Source: NAIP for Fresno County (2009).

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

Exhibit 2
Local Vicinity Map

36150001 • 02/2010 | 2_Local_Vicnity.mxd

1.3.3 - Project Components

The County of Fresno General Plan currently designates the project site as Agriculture, and the current County Zoning is AE-20 (agriculture minimum 20 acre parcels). Upon annexation of the project site to the City of Selma, the area will be designated for urban uses as outlined in the Amberwood Specific Plan and the updated City of Selma General Plan. The Amberwood project will consist of the following types and approximate acreages of land uses:

- A 7.5-acre Community Commercial project site.
- A 10.8-acre Elementary School site.
- A 3-acre site for a new Police and Fire public safety facility.
- 54.3 acres for Public Park area.
- 15.2 acres for Private Park areas.
- 30.2 acres for two Private Lake areas.
- 80.4 acres of streets.
- 489.3 acres of residential lots of various sizes from 3,600 to over 10,000 square ft.

Table 1 summarizes the proposed land uses. Exhibit 3 provides a site map.

Table 1: Summary of Land Uses

Land Use Designation	Acres	Planned Dwelling Units	Planned Square Footage
Low Density Residential	122.9	432	NA
Medium Low Density Residential	258.3	1,332	NA
Medium Density Residential	108.1	794	NA
Community Commercial	7.5	0	131,200
Parks/Open Space*	99.7	NA	NA
Elementary School	10.8	NA	NA
Streets/Public Facilities**	83.4	NA	NA
Totals	690.7	2,558	131,200

Notes:
NA = Not Applicable
* Includes Private Lake Areas of approximately 45 acres.
** Includes 3 acre Police and Fire Facility
Source: Michael Gaston Associates.

It is anticipated that the Amberwood project will be built out in up to 20 phases by the year 2035, depending upon future market demand for new housing. The first phase of the project development will begin at the southern end of the project and will include the private lake areas. The project will then be completed in a south to north direction. The last phases of the project will include the areas

east of Amber Avenue. For purposes of estimating annual air emissions, the phasing was conservatively combined into five phases; see Section 1.4 - Modeling Parameters and Assumptions.

The Amberwood project site will be annexed into the City of Selma in two separate annexations. The first annexation area will include that portion of the project site that is located within the existing Selma Sphere of Influence. Prior to the annexation of the project areas located east of Amber Avenue, a Sphere of Influence amendment will be required.

1.3.4 - Design Features

Certain design features and project components impact air quality through avoiding or reducing air quality impacts from the project. A major source of air pollutants emissions from the project is vehicular activity, particularly passenger vehicles. Therefore, project design features that reduce on-road vehicular trips associated with the project would avoid air pollutant emissions generation. Features that reduce vehicular trips include (but are not limited to) bicycle, pedestrian and transit infrastructure. Features that improve pedestrian activity include increased safety, access, and visibility. Other sources of emissions are energy consumption (through both electricity use and water transport) and waste generation (solid and liquid).

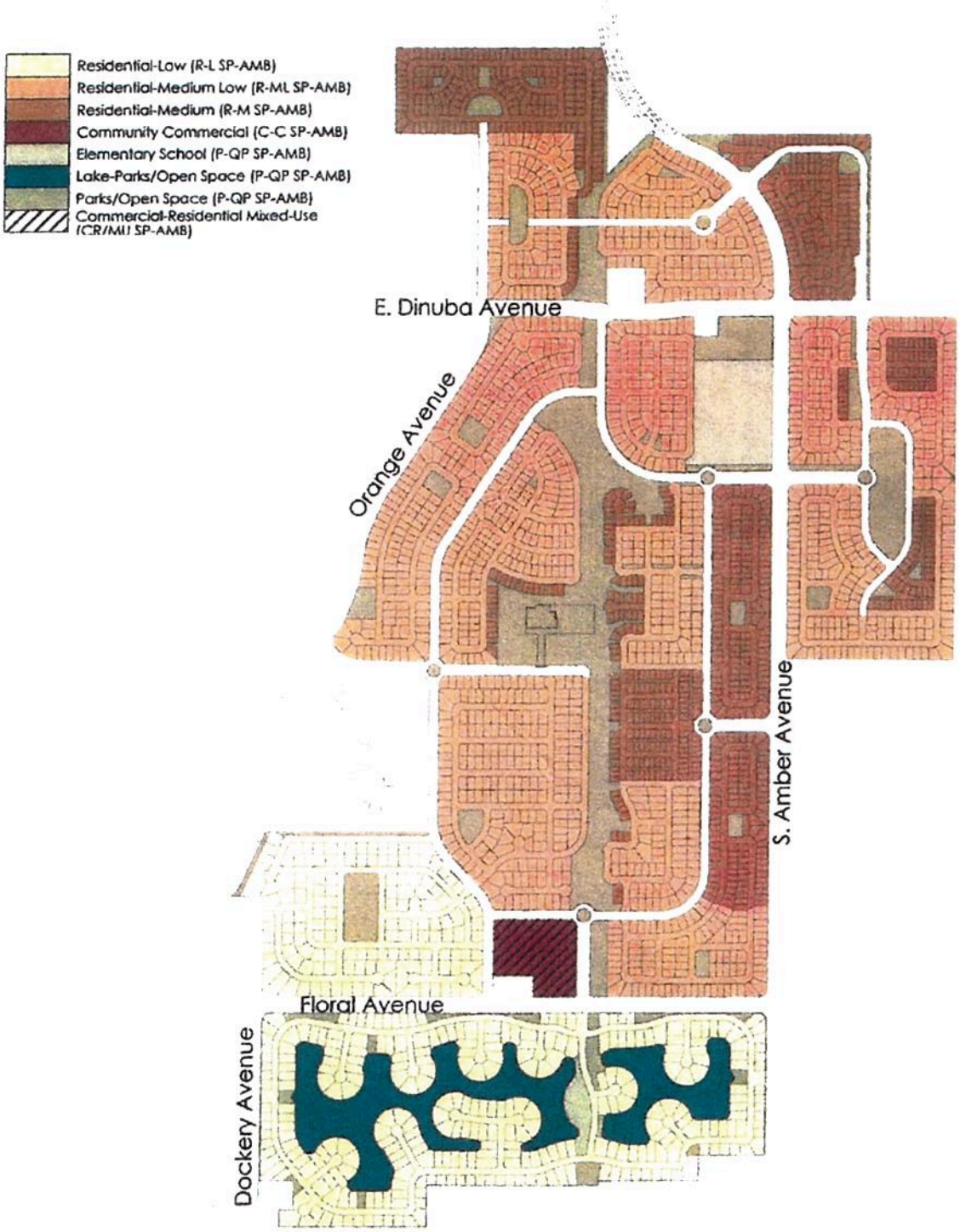
Measures that improve one area of air quality are often of benefit to other impact areas (such as water conservation and landscaping) and vice-versa. For example, xeriscaping is a "landscape" measure that reduces water consumption by using plants that require much less irrigation than regular landscaping; because water consumption is reduced, xeriscaping also reduces air emissions through reducing the amount of energy used to procure, clean and transport water—thereby reducing emissions associated with energy generation.

Features that avoid or reduce air quality impacts contained in the Amberwood Specific Plan include:

Bicycle and Pedestrian Infrastructure

All streets within community have sidewalks with bulbouts at intersections to slow down traffic and increase safety for pedestrians. All collector streets will have a Class 2 bicycle lane. The bicycle circulation system includes Class 1 bicycle trails along arterial streets and the linear park.

Exhibit 3: Site Plan



Source: Dowling Associates, Inc.

NORTH

Not To Scale

Michael Brandman Associates

Exhibit 3
Site Plan

Transportation System Management and Transportation Demand Management Program

Provide a Transportation System Management and Transportation Demand Management Program to the City of Selma as part of the Final Map Street Improvements Plan. This Program shall address the following items:

1. Public transit service and facilities within Amberwood.
2. Ridesharing, including a location for a park and ride lot within Amberwood.
3. Bicycle parking facilities in the community center, linear park, lake oriented recreation center, major neighborhood parks, the commercial center and transit facilities.
4. Provision of internet and other communication amenities to facilitate telecommuting.
5. Provision of day-care facilities in the community center.
6. Provision of pedestrian enhancing infrastructure including trails throughout the linear park and other open space and park areas, safe walk to school routes, separate sidewalks with street tree shading, traffic calming at the intersections within residential areas, and appropriate street and pathway lighting.
7. Preferential carpool parking for employees within the community commercial area.

Public Transportation

The transit route within Amberwood uses the main northern and southern entrances to the community and follows the collector roadways within the central and northern areas. Bus stops and transit shelters will be located at the commercial center and other locations spaced along the collector routes to be determined by the transit authority. The following Actions will be included in the improvement plans for all Amberwood subdivisions to implement the intent of the Public Transportation plan:

- Coordinate transit services and routing with the City of Selma and its transit providers.
- Provide for future public transit stops and shelters at schools, commercial areas, parks and selected arterial street intersections.

Landscaping

Plant large canopy tree species at regular spacing on both sides of streets. Plant accent shade trees, which complement the street trees, along medians, thereby creating visual continuity in the streetscape. Street trees shall be planted with root barriers to prevent root damage to sidewalks, utility lines, and streets.

Plant street trees along the parkways and within medians of community collectors and neighborhood entries to accentuate the main streets and entries to the project.

Water Efficiency and Reuse

Water pumped from the lakes will be used for irrigation of both public and private open spaces. As a result, a large volume of the water used for irrigation will be reused water. The source of lake water will be a combination of storm drain runoff and well water pumped from aquifers located under the planning area. A separate distribution system will be installed for the irrigation water system. In addition, Amberwood will provide for future use of reclaimed water, should it become available, though the irrigation system that could be hooked into a reclaimed water distribution system. The irrigation water system will be owned, operated and maintained by a homeowners association.

In the Public/Quasi Public District of the project (elementary schools, pubic parks and open space, public facilities and quasi-public facilities such as the lake and private recreation center), landscaping shall incorporate drought tolerant trees, shrubs, and groundcover to the maximum extent possible. All landscaped areas shall be watered by an automatic irrigation system and, where feasible, a subsurface drip irrigation system shall be installed. Drought resisting landscaping will be encouraged throughout the planning area. In addition, the project will install water conserving low flow appliances in all new buildings.

Energy Conservation

The following measures are incorporated into the project to conserve energy through site planning, architectural design and landscape design:

Architectural Design

1. Install high efficiency, energy-conserving windows to reduce heat gain during the summer and provide warmer temperatures during the winter.

2. Encourage designs with more and larger windows on the north and east sides of buildings to reduce heat gain.

3. Encourage architectural designs that allow the option for integrated solar energy collectors with roofing materials.

Landscape Design

1. Use energy efficient street lighting that ensures adequate light levels for safety and minimizes unnecessary light dispersal and unnecessary hours of operation.

2. Encourage landscape designs that can reduce solar heat gain during the summer.

3. Plant street trees along all park strips and medians to provide shade and cooling to streets and sidewalks. Encourage landscape plans that provide shade to the homes in the summer and sun in the winter.

Site Planning

The Land Use Plan for Amberwood conserves energy by locating most public facilities in the center of the project, providing loop roads, which link with major access roads, and providing alternative transportation for residents to reduce the amount of vehicular travel needed to access services within the community.

Construction Activities

The project will utilize best management practices (BMP) erosion control techniques for all site trenching and grading operations. In addition, upon completion of site preparation activities, the project will plant permanent groundcover to stabilize all ground surfaces.

1.4 - Modeling Parameters and Assumptions

Development of the project site is anticipated to occur in approximately 20 phases over more than 20 years. However, in order to estimate annual emissions during the construction and operation phases, it was necessary to make assumptions regarding the build out rate. Five phases for project construction and buildout were identified for modeling purposes only, and are identified in Table 2.

Phase 1 would begin construction in 2014 and would entail grading, and the construction of roadways, lakes and private parks, low density residential and other public facilities in the southern end of the project. Phase 2 would include the construction of the commercial facilities, medium low and medium density residential, and other facilities to the immediate north and east of Phase 1. Phase 3 would include the medium low and medium density residential, and other facilities, including a 3-acre police and fire facility. Phase 4 includes construction of medium low and medium density residential, and the elementary school. Phase 5 would include construction of the remaining land uses. As there is no phasing plan associated with the project, the acreage for streets/public facilities, parks, and open space were assumed to be distributed equally among Phases 1 through 5. The acreage and units for medium and medium low density residential were assumed to be distributed equally among Phases 2 through 5. Therefore, the analysis uses buildout years of 2015, 2020, 2025, 2030, and 2035 for Phases 1 through 5.

Table 2: Modeling Phases and Percent Land Use Constructed

Land Use Designation	Percent of Land Use Constructed per Phase				
	Phase 1 2015	Phase 2 2020	Phase 3 2025	Phase 4 2030	Phase 5 2035
Low Density Residential	100%	—	—	—	—
Medium Low Density Residential	—	25%	25%	25%	25%
Medium Density Residential	—	25%	25%	25%	25%
Community Commercial	—	100%	—	—	—
Parks/Open Space*	20%	20%	20%	20%	20%
Private Lake Areas	100%	—	—	—	—
Elementary School	—	—	—	100%	—
Streets/Public Facilities**	20%	20%	20%	20%	20%

Notes:
NA = Not Applicable
* Includes Private Lake Areas, approximately 45 acres.
** Includes 3 acre Police and Fire Facility

Table 3: Phase Acreages

Land Use Designation	Acres				
	2015	2020	2025	2030	2035
Low Density Residential	122.9	—	—	—	—
Medium Low Density Residential	—	64.58	64.58	64.58	64.58
Medium Density Residential	—	27.03	27.03	27.03	27.03
Community Commercial	—	7.5	—	—	—
Parks/Open Space	10.94	10.94	10.94	10.94	10.94
Private Lake Areas	45.00	—	—	—	—
Elementary School	—	—	—	10.80	—
Streets/Public Facilities**	16.68	16.68	16.68	16.68	16.68
Total	195.52	126.72	119.22	130.02	119.22

Notes:
NA = Not Applicable
* Includes Private Lake Areas
** Includes 3 acre Police and Fire Facility

Table 4: Units Per Phase

Land Use Designation	Units				
	2015	2020	2025	2030	2035
Low Density Residential (DU)	432	—	—	—	—
Medium Low Density Residential (DU)	—	333	333	333	333
Medium Density Residential (DU)	—	199	199	198	198
Police and Fire Facility (sf)	—	—	10,000	—	—
Community Commercial (sf)	—	131,200	—	—	—

Notes:
DU = Dwelling Units.
sf = Square feet.

URBEMIS 2007 version 9.2.4 was used to quantitatively analyze the construction and operation of this project. URBEMIS is a California-specific computer model that is owned and modified by the local air pollution control districts and air quality management districts in the State of California. URBEMIS estimates construction, area source, and operational emissions from potential land uses, using the most recent approved version of relevant ARB emissions models and emission factors and/or District-specific emission factors; and estimates emissions reductions.

1.4.1 - Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of activity, and the prevailing weather conditions. Construction emissions result from onsite and offsite activities. Onsite emissions principally consist of exhaust emissions (NO_X, ROG, PM_{10}, and $PM_{2.5}$) from heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles and worker traffic. During the finishing phase, paving operations and application of architectural coatings will release ROG emissions.

The methodology developed for the purposes of quantitative air quality analysis was based on information available at the time of analysis; actual equipment and activity intensity at the time of construction may vary from those analyzed in this document. However, it is anticipated that the level of activity analyzed is representative of activities that will occur during construction. The main air emissions-generating construction activities associated with the Project include rough grading, pipeline construction, and final grading/paving. The main sources of air pollutants associated with the Project include off-road construction equipment exhaust, worker trips, and fugitive PM_{10} emissions. Major construction-related activities include the following:

- Grading/clearing, including the excavation;

- Excavation and earth moving for infrastructure construction of the utilities, both on and offsite, as well as excavation of the private lakes.
- Building construction;
- Asphalt paving of access roads throughout the development; and
- Application of architectural coatings on surfaces such as exterior stucco and interior painting.

Default URBEMIS equipment types and hours of operation were used. The default URBEMIS construction activity types and schedule were used for mass grading, construction, architectural coating, and asphalt phases. Default URBEMIS equipment types were used and it was assumed that construction equipment would operate for 6 to 8 hours per day. Because the default timeline was used, the construction analysis is highly conservative since a longer-duration development schedule would result in lower annual emissions.

The volume of soil to be excavated and moved for construction of the lakes is currently unknown. Assuming the lakes area is approximately 30 acres, with an average depth of 10 feet, total excavated volume would be 13,068,000 cubic feet, or 484,000 cubic yards. The analysis assumes that excavation of the lakes would occur concurrent with grading of Phase 1, and any soil excavation or needs will be balanced on-site (for the entire project). Over the course of the default grading period, 42 days, approximately 11,524 cubic yards would be cut/filled per day.

Regulatory Compliance

The unmitigated analyses include compliance with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions). Compliance with Regulation VIII is required. When reviewing the URBEMIS printouts, please note that the URBEMIS program lists any measure that reduces emissions to be "mitigation," regardless if the measure fulfills a requirement or is truly considered mitigation by CEQA standards. The following measures were included in the analyses:

- Apply soil stabilizers to inactive areas.
- Replace ground cover in disturbed areas quickly.
- Water exposed surfaces twice daily.
- Stabilize soil in equipment loading/unloading areas.
- Reduce speed on unpaved roads to less than 15 mph.
- Manage haul road dust by watering twice daily.

Additionally, the URBEMIS default values for VOC content for architectural coatings are overestimated at 250 grams VOC/liter of coating in the model. The SJVAPCD accepted values for nonresidential coating is 136 grams VOC/liter of coating. An URBEMIS "mitigation measure" with

a 45.6 percent emission reduction was applied to the non-residential architectural coatings to reflect the difference in VOC content.

1.4.2 - Operation

Operational, or long-term, emissions would occur over the life of the project. Operational emissions include mobile and area source emissions. Area source emissions are from consumer products, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile emissions from motor vehicles are the largest long-term source of air pollutants from the project. URBEMIS 2007 version 9.2.4 was used to estimate long-term emissions from the proposed project.

Vehicle trip generation and pass-by rates were obtained from the Draft Traffic Impact Study prepared by Dowling Associates in October 2009, and are shown below in Table 5. Of the project's 30,188 total trip generation, approximately 3,836 trips were estimated to be 'internal' or between land uses in the Amberwood Specific Plan, leaving 26,352 trips as "new" to the area outside of the Specific Plan boundaries. For the purposes of a conservative analysis, all trips were considered "new."

Table 5: Trip Generation Rates

Specific Plan Land Use	ITE Land Use Code	Units	Size	Daily Trips	Daily Trip Rate
Low Density Residential (DU)	210, Res-SF	Du	2,558	20,521	8.02
Medium Low Density Residential (DU)					8.02
Medium Density Residential (DU)					8.02
Community Commercial	820, Shopping Center	ksf	131.2	8,102	61.75
Police and Fire Facility	710, Office (eqn) (Public Safety Facility)	ksf	10	227	22.70
Elementary School	520, Elem. School	Students	700	903	1.29
Parks/Open Space*	411, City Park	acres	54.3	434	7.99

Notes:
* Excludes Private Lake Areas.
du = Dwelling units
ksf = Thousand square feet.
Source: Dowling Associates, Inc. 2009

URBEMIS provides trip reductions for incorporating specific design and locational features into a project. URBEMIS classifies these features as mitigation measures; however, they are not really mitigation in the sense that many of the features are required by municipal code or are a result of the

project's location. The project was able to benefit from trip reductions as a result of the following URBEMIS mitigation measures:

- Bicycle/Pedestrian Friendliness - The project will provide Class 1 bicycle paths and Class 2 bicycle lanes throughout the project. All arterials and collector streets would have bicycle infrastructures. Therefore, the project's coverage of bicycle infrastructure is 100 percent. In addition, all streets would be constructed with sidewalks. Of the fourteen street "types" proposed by the Specific Plan, only one does not have any sidewalks (the 22 foot wide "Lane"). All other streets would have sidewalks on both sides. Based on the project layout and use of street types, it is assumed that 95 percent of the streets would have sidewalks on both sides.
- Local Serving Retail - The project would construct community commercial land uses. Therefore, the project would provide local serving retail to the Specific Plan area.
- Bike Parking - The project would construct secure bicycle parking.

SECTION 2: SETTING

2.1 - Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level and SJVAPCD regulates at the county level.

2.1.1 - Federal and State

EPA handles global, international, national, and interstate air pollution issues and policies. EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans (SIPs), provides research and guidance in air pollution programs, and sets National Ambient Air Quality Standards (NAAQS), also known as federal standards. There are NAAQS for six common air pollutants, called criteria air pollutants, which were identified resulting from provisions of the Clean Air Act (CAA) of 1970. The six criteria pollutants are:

- Ozone
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Nitrogen dioxide
- Carbon monoxide (CO)
- Lead
- Sulfur dioxide

The NAAQS were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants.

The SIP for the State of California is administered by ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. A SIP is prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain NAAQS. The SIP incorporates individual federal attainment plans for regional air districts. Federal attainment plans prepared by each air district are sent to ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring) control measures and strategies and enforcement mechanisms.

ARB also administers California Ambient Air Quality Standards (CAAQS) for the ten air pollutants designated in the California Clean Air Act (CCAA). The ten state air pollutants are the six criteria pollutants listed above as well as visibility reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. Federal and state ambient air quality standards and the most relevant effects are summarized in Table 6.

Table 6: Ambient Air Quality Standards

Air Pollutant	Averaging Time	California Standard	National Standard	Most Relevant Effects
Ozone	1 Hour	0.09 ppm	—	(a) Decrease of pulmonary function and localized lung edema in humans and animals; (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) increased mortality risk; (d) risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) vegetation damage; (f) property damage.
	8 Hour	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm	(a) Aggravation of angina pectoris (chest pain or discomfort) and other aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) impairment of central nervous system functions; (d) possible increased risk to fetuses.
	8 Hour	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm	188 $\mu g/m^3$*	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) contribution to atmospheric discoloration.
	Annual	0.030 ppm	0.053 ppm	
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm	—	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
	24 Hour	0.04 ppm	0.14 ppm	
	Annual	—	0.030 ppm	
Particulate Matter (PM_{10})	24 hour	50 $\mu g/m^3$	150 $\mu g/m^3$	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; (c) increased risk of premature death from heart or lung diseases in the elderly.
	Annual	20 $\mu g/m^3$	—	
Particulate Matter ($PM_{2.5}$)	24 Hour	—	35 $\mu g/m^3$**	
	Annual	12 $\mu g/m^3$	15.0 $\mu g/m^3$	
Sulfates	24 Hour	25 $\mu g/m^3$	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.
Lead	30-day	1.5 $\mu g/m^3$	—	(a) Learning disabilities; (b) impairment of blood formation and nerve conduction.
	Quarter	—	1.5 $\mu g/m^3$	

Table 6 (cont.): Ambient Air Quality Standards

Air Pollutant	Averaging Time	California Standard	National Standard	Most Relevant Effects

Notes:
* EPA set a new one-hour standard for nitrogen dioxide (NO_2) at a level of 188 $\mu g/m^3$ or 100 parts per billion (ppb) on January 25, 2010, which will become effective April 12, 2010. EPA expects to identify or designate areas not meeting the new standard, based on the existing community-wide monitoring network, by January 2012.
ppm = parts per million (concentration) µg/m3 = micrograms per cubic meter
Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter
Source: South Coast Air Quality Management District, 2003 Air Quality Management Plan. California Air Resources Board, Ambient Air Quality Standards, 2008.

Recent Air Quality Standard Actions

In 2006, EPA changed the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$ and retained the existing annual standard of 15.0 $\mu g/m^3$. EPA promulgated a new 8-hour standard for ozone on March 12, 2008, effective March 27, 2008. In February 2007, ARB established a new annual average nitrogen dioxide standard of 0.030 parts per million (ppm) and lowered the 1-hour nitrogen dioxide standard to 0.18 ppm. These changes became effective March 20, 2008.

On October 15, 2008, EPA reduced the federal lead standard from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. In addition, EPA revised the averaging time and form of the lead standard. EPA will retain the existing 1978 lead standard until one year after designations for the new 2008 standard. ARB is required to make recommendations for areas to be designated attainment, nonattainment, or unclassifiable by October 2009. Final designations will be effective no later than 2012. On January 25, 2010, EPA set a new one-hour standard for nitrogen dioxide (NO_2) at a level of 188 $\mu g/m^3$ or 100 parts per billion (ppb), which will become effective April 12, 2010. EPA expects to identify or designate areas not meeting the new standard, based on the existing community-wide monitoring network, by January 2012.

Applicable Toxic Air Contaminant Regulation

ARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of heavy-duty diesel vehicles (ARB 2005a). The driver of any vehicle subject to this section (1) shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location and (2) shall not idle a diesel-fueled auxiliary power system for more than 5 minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).

ARB's Land Use Handbook

ARB adopted the Air Quality and Land Use Handbook: A Community Health Perspective (Land Use Handbook) in 2005. The Land Use Handbook provides information and guidance on siting sensitive receptors in relation to sources of toxic air contaminants (TACs). The sources of TACs identified in the Land Use Handbook are high-traffic freeways and roads, distribution centers, rail yards, ports,

refineries, chrome plating facilities, dry cleaners, and large gasoline dispensing facilities. If the project involves siting a sensitive receptor or source of TAC discussed in the Land Use Handbook, siting mitigation may be added to avoid potential land use conflicts, thereby reducing the potential for health impacts to the sensitive receptors (ARB 2005b). This project does not propose new sensitive receptors near existing sources of TACs, nor does it contain the sources of air pollution discussed in the Land Use Handbook.

2.1.2 - Local and Regional

San Joaquin Valley Air Pollution Control District

The air pollution control agency for the San Joaquin Valley Air Basin (SJVAB) is the SJVAPCD. The SJVAPCD is responsible for controlling emissions primarily from stationary sources. The SJVAPCD maintains air quality monitoring stations throughout the basin. The SJVAPCD, in coordination with the eight countywide transportation agencies, is also responsible for developing, updating, and implementing the Air Quality Plans (AQPs) for the SJVAB. In addition, the SJVAPCD has prepared the GAMAQI, which sets forth recommended thresholds of significance, analysis methodologies, and provides guidance on mitigating significant impacts.

Attainment Status and Current Air Quality Plans

There are three terms used to describe if an air basin is exceeding or meeting federal and state standards: Attainment, Nonattainment, and Unclassified. Air basins are assessed for each applicable pollutant and receive a designation for each standard based on that assessment. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

Areas are designated attainment or nonattainment on a per-pollutant basis. If an air basin exceeds the "form" of a federal or state standard, the air basin is designated as "nonattainment" for that air pollutant. An air basin is designated as "attainment" for pollutant if all the standards for that pollutant are met. If there is inadequate or inconclusive data to make a definitive attainment designation for a pollutant, the air basin is considered "unclassified." The current attainment designations for the project area are shown in Table 7.

Table 7: SJVAPCD Attainment Status

Pollutant	Designation	
	Federal	State
Ozone	Nonattainment	Nonattainment
PM_{10}	Attainment	Nonattainment

Table 7 (cont.): SJVAPCD Attainment Status

Pollutant	Designation	
	Federal	State
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment
Nitrogen Dioxide	Unclassified*	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment

* EPA set a new one-hour standard for nitrogen dioxide (NO_2) at a level of 188 $\mu g/m^3$ or 100 parts per billion (ppb) on January 25, 2010, which will become effective April 12, 2010. EPA expects to identify or designate areas not meeting the new standard, based on the existing community-wide monitoring network, by January 2012.
Source: SJVAPCD 2009.

Attainment Redesignation Actions

On October 17, 2006, the EPA approved the State of California's request to find the SJVAB has attained coarse particulate matter, or PM_{10} standards. Data from the ARB's and the SJVAPCD's official air monitoring network demonstrated that the SJVAB had not violated the PM_{10} standards from 2003 through the present. The network consists of 15 monitoring sites from Stockton to Bakersfield, operated in accordance with the EPA's regulations and guidelines to ensure precision and accuracy. The EPA also suspended the SJVAB's PM_{10} contingency measures requirement, consistent with EPA's Clean Data Policy. However, this finding does not allow the ARB, the SJVAPCD, or the EPA to relax any of the measures and commitments that are currently being implemented. On September 25, 2008, the EPA redesignated the SJVAB as attainment for the Federal PM_{10} standards, and approved the SJVAPCD's PM_{10} Maintenance Plan.

Attainment Plans

As described above under Federal and State Regulatory Agencies, an SIP is a federal requirement; each state prepares a SIP to describe existing air quality conditions and measures that will be followed to attain and maintain the NAAQS. In addition, state ozone standards have planning requirements. However, state PM_{10} standards have no attainment planning requirements, but air districts must demonstrate that all measures feasible for the area have been adopted.

Ozone Plans

The SJVAB is designated nonattainment of state and federal health-based air quality standards for ozone. To meet CAA requirements for the one-hour ozone standard, the SJVAPCD has adopted an Extreme Ozone Attainment Demonstration Plan (2004), which has an attainment date of 2010. However, the federal one-hour ozone standard has been revoked by EPA and replaced with an 8-hour standard. The planning requirements for the one-hour plan remain in effect until replaced by a federal 8-hour ozone attainment plan. The EPA proposed to approve the 2004 Extreme Ozone Attainment Demonstration Plan in October 2008. On June 30, 2009, EPA's Regional Administrator signed a proposal to approve in part and disapprove in part the San Joaquin Valley's 2004 Extreme Ozone

Attainment Demonstration Plan. The plan, prepared by the SJVAPCD, shows that the area will have in place the controls necessary to meet the 1-hour ozone standard by the area's Clean Air Act deadline of 2010. EPA is proposing to approve the plan as meeting the Clean Air Act's requirements for rate of progress, control measures, and rate of progress contingency measures. EPA is proposing to disapprove the plan as not meeting the Clean Air Act's requirement for attainment contingency measures.

The SJVAB is classified as serious nonattainment for the federal 8-hour ozone standard with an attainment date of 2013. On April 30, 2007, the SJVAPCD's Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be unfeasible. The 2007 Ozone Plan details the plan for achieving attainment on schedule with an "extreme nonattainment" deadline of 2026. At adoption of the 2007 Ozone Plan, the SJVAPCD also requested a reclassification to extreme nonattainment. ARB approved the plan in June 2007.

In December 2008, the SJVAPCD adopted the "Amendment to the 2007 Ozone Plan to Extend the Rule Adoption Schedule for Organic Waste Operations." This amendment revised a table of the 2007 plan to extend the completion date for the Composting Green Waste control measure to the fourth quarter of 2010. This extension allows time for further study before rule adoption, and this rule extension does not impact Reasonable Further Progress (RFP) or the attainment demonstration.

State ozone standards do not have an attainment deadline but require implementation of all feasible measures to achieve attainment at the earliest date possible.

PM Plans

The SJVAB was designated nonattainment of state and federal health-based air quality standards for PM_{10}. To meet CAA requirements for the PM_{10} standard, the SJVAPCD adopted a PM_{10} Attainment Demonstration Plan (Amended 2003 PM_{10} Plan and 2006 PM_{10} Plan), which has an attainment date of 2010.

The SJVAPCD adopted the 2007 PM_{10} Maintenance Plan and Request for Redesignation (2007 PM_{10} Plan) on September 20, 2007. The 2007 PM_{10} Plan contains modeling demonstrations that show the SJVAB will not exceed the federal PM_{10} standard for 10 years after the expected EPA redesignation, monitoring, and verification measures, and a contingency plan. Even though EPA revoked the federal annual PM_{10} standard, the 2007 PM_{10} Maintenance Plan addresses both the annual and 24-hour standards because both standards were included in the EPA-approved SIP. EPA finalized the determination that the SJVAB attained the PM_{10} standards on October 17, 2007, effective October 30, 2007. On September 25, 2008, EPA redesignated the SJVAB as attainment for the federal PM_{10} standard and approved the PM_{10} Maintenance Plan.

The SJVAB is also designated nonattainment for the new federal $PM_{2.5}$ annual standard. The SJVAPCD adopted the 2008 $PM_{2.5}$ Plan on April 30, 2008. The $PM_{2.5}$ Plan that demonstrates the

SJVAB will attain the 1997 federal standard by 2014 and make progress toward attaining the 2006 federal 24-hour standard. Barring delays due to legal challenges, the SJVAPCD estimates that attainment plans for the federal 2006 standard will be required by 2012 or 2013 with an attainment deadline of 2020. Measures contained in the 2003 PM_{10} Plan will also help reduce $PM_{2.5}$ levels and will provide progress toward attainment until new measures are implemented for the $PM_{2.5}$ Plan, if needed.

State PM_{10} standards have no attainment planning requirements, but air districts must demonstrate that all measures feasible for the area have been adopted.

Rules Applicable to the Project

The SJVAPCD rules and regulations that apply to this project include but are not limited to the following:

- SJVAPCD Rule 2201 - New and Modified Stationary Source Review.
- SJVAPCD Rule 4101 (Visible Emissions). This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants. The applicant will be required to contact the District's Small Business Assistance Office for more information and instructions.
- SJVAPCD Rule 4102 - Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials. Odor emissions are subject to the rule.
- SJVAPCD Rule 4601 (Architectural Coatings) limits volatile organic compounds from architectural coatings. This rule specifies architectural coatings storage, clean up, and labeling requirements.
- SJVAPCD Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).
- SJVAPCD Rule 4902 limits emission of NO_X from residential water heaters.
- SJVAPCD Regulation VIII - Fugitive PM_{10} Prohibitions. Rule 8011-8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc. Among the Regulation VIII Rules applicable to the project are the following:
    - Rule 8011 - General Requirements
    - Rule 8021 - Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities. The purpose of this rule is to limit fugitive dust emissions from earthmoving activities through a combination of opacity limits, equipment and activity prohibitions,

and dust-suppressing requirements. A Dust Control Plan will be required for this project.

- Rule 8031 - Bulk Materials
- Rule 8041 - Carryout and Trackout
- Rule 8051 - Open Areas
- Rule 8061 - Paved and Unpaved Roads
- Rule 8071 - Unpaved Vehicle/Equipment Traffic Areas. The purpose of this rule is to limit dust emissions from travel on unpaved parking areas. If the project exceeds the applicability threshold of 25 daily vehicle trips by vehicles with three or more axles, control requirements listed in the rule must be met.

- SJVAPCD Rule 9410 - Employer Based Trip Reduction. The purpose of this rule is reduce vehicle miles traveled (VMT) from private vehicles used by employees to commute to and from their worksites to reduce emissions of NO_X, VOCs and PM. The rule would require larger employers (those with 100 or more eligible employees) to establish employee trip reduction programs to reduce VMT, reducing emissions associated with work commutes. The rule uses a menu-based Employer Trip Reduction Implementation Plan (ETRIP) and periodic reporting requirements to evaluate performance on a phased-in compliance schedule.

- SJVAPCD Rule 9510 (Indirect Source Review) requires that construction and operational emissions be mitigated by certain percentages on-site or by the payment of off-site emission reduction fees. The purposes of this rule are to: 1) fulfill the District's emission reduction commitments in the PM_{10} and Ozone Attainment Plans; 2) achieve emission reductions from the construction and use of development projects through design features and on-site measures; and 3) provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures. The rule applies to the proposed project because the project will have over 50 residential units and over 2,000 square feet of commercial space (Section 2.0 of Rule 9510).

- SJVAPCD Rule 3180 (Air Impact Assessment Application Fee) is to cover the District's costs for administering the requirements of Rule 9510.

Compliance with Rule 9510 (ISR)

Compliance with SJVAPCD Rule 9510 reduces the emissions impact of the project through incorporation of on-site measures as well as payment of an off-site fee that funds emission reduction projects in the SJVAB. The emissions analysis for Rule 9510 is highly detailed and dependant on the exact project design that is expected to be constructed or installed. Minor changes to project components between the CEQA analysis and project construction often occur. An example of such a change is a change in square footage. The required amounts of emission reductions required by Rule 9510 are known as follows:

Construction Exhaust: 20 percent of the total NO_X emissions, and
45 percent of the total PM_{10} emissions.

Operational Emissions: 33 percent of NO_X emissions over the first 10 years, and
50 percent of the PM_{10} emissions over the first 10 years.

District Guidance

The District prepared a Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI 2002). The GAMAQI is an advisory document that provides lead agencies, consultants, and project applicants with guidance and uniform procedures for addressing air quality in environmental documents. It recommends thresholds for determining significant impacts, discusses methodologies for estimating project emissions and impacts, and identifies mitigation measures that can be used to avoid or reduce air quality impacts. The GAMAQI is used in this analysis where appropriate.

City of Selma

General Plan

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.

Land Use Element

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 2.45 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 2.60 The City shall encourage the use of energy efficient and non-polluting fuels and modes of transportation.

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 0.5 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 0.25 mile.

2.1.3 - Climate Change/Greenhouse Gas Regulation

International and Federal

In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess "the scientific, technical and socio economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation."

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

A particularly notable result of the United Nations Framework Convention on Climate Change efforts is a treaty known as the Kyoto Protocol, which went into effect on February 16, 2005. When countries sign the Protocol, they demonstrate their commitment to reduce their emissions of greenhouse gases or engage in emissions trading. More than 170 countries are currently participating in the Protocol. Industrialized countries are required to reduce their greenhouse gas emissions by an average of 5 percent below their 1990 levels by 2012. In 1998, United States Vice President Al Gore symbolically signed the Protocol; however, in anticipation of the signing, the U.S Senate approved a non-binding "Sense of the Senate" resolution in July 1997 by a margin of 95-0 that expressed opposition to the treaty's provisions, most notably the disparity in greenhouse gas emissions reduction obligations between industrialized nations and developing nations. In 2001, President, George W. Bush, indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto, which yielded a non-binding agreement. A future conference is scheduled for Mexico City in 2010.

EPA currently does not regulate greenhouse gas emissions from motor vehicles. Massachusetts v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on

November 29, 2006, in which it was petitioned that EPA regulate four greenhouse gases, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Court held that petitioners have a standing to challenge EPA and that EPA has statutory authority to regulate emissions of greenhouse gases from new motor vehicles.

In April 2009, EPA published a Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act. EPA is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations. EPA is further proposing to find that the combined emissions of CO_2, CH_4, N_2O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change. The proposed action does not itself impose any requirements on industry or other entities. The finding, finalized by the EPA and effective January 14, 2010, is a key step in regulating greenhouse gases under the Clean Air Act.

Federal regulation of greenhouse gases can occur through other means, such as fuel efficiency standards. President Barrack Obama put into motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. The new standards would cover model years 2012 through 2016 and would require an average fuel economy standard of 35.5 miles per gallon in 2016. A new Corporate Average Fuel Economy (CAFE) law was passed by Congress in 2007, which required an average fuel economy of 35 miles per gallon in 2020. EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, released a notice of intent to conduct joint rulemaking to establish vehicle greenhouse gas emissions and fuel economy standards in May 2009. It should be noted, however, that EPA's involvement in the joint rulemaking is dependent upon finalizing the endangerment finding discussed above, thereby providing regulatory authority over greenhouse gas emissions to the EPA.

On January 29, 2010, President Barack Obama announced that the Federal government will reduce its greenhouse gas (GHG) pollution by 28 percent by 2020. Executive Order 13514 requires reducing and reporting GHG pollution by the Federal government.

In addition, the Council on Environmental Quality released draft guidance on February 23, 2010, for consideration of climate change in documents prepared for National Environmental Policy Act compliance. The draft guidance explains how Federal agencies should analyze the environmental impacts of greenhouse gas emissions and climate change when they describe the environmental impacts of a proposed action under the National Environmental Policy Act. It provides tools for agency reporting, including a presumptive threshold of 25,000 metric tons of carbon dioxide equivalent emissions from the proposed action to trigger a quantitative analysis, and instructs agencies how to assess the effects of climate change on the proposed action and their design. The

draft guidance does not apply to land and resource management actions and does not propose to regulate greenhouse gases. CEQ is receiving public comment on this guidance for 90 days.

State

There have been significant legislative and regulatory activities that affect climate change and greenhouse gases in California. Relevant legislation is discussed below.

Title 24. Although it was not originally intended to reduce greenhouse gas emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The 2008 Standards went into effect January 1, 2010, and supersede the 2005 Standards. Projects that apply for a building permit on or after this date must comply with the 2008 Standards. Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

AB 1493. California Assembly Bill 1493 (Pavley), enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light-duty trucks. Regulations adopted by the ARB would apply to 2009 and later-model-year vehicles. The ARB estimates that the regulation would reduce climate change emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030. However, the regulation was stalled by automaker lawsuits and by EPA's refusal to grant California an implementation waiver. However, President Obama asked the EPA to review its denial of the waiver. EPA granted California's waiver June 30, 2009, enabling California to enforce AB 1493.

Executive Order S-3-05. California Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which established the following reduction targets for greenhouse gas emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target. To meet these targets, the Governor directed the Secretary of the California EPA to lead a Climate Action Team (CAT) made up of representatives from the Business, Transportation, and Housing Agency; the Department of Food and Agriculture; the Resources Agency; the ARB; the Energy Commission; and the Public Utilities Commission. The CAT's Report to the Governor in 2006 contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

Executive Order S-01-07 was signed by the Governor on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

SB 97 was passed in August 2007 and added Section 21083.05 to the Public Resources Code. The code states, "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

AB 32. In 2006, the California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing greenhouse gas emissions in California. Greenhouse gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. ARB is the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions of greenhouse gases. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 $MMTCO_2e$ on December 6, 2007. Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$.

Under the current "business as usual"[12] scenario, statewide emissions are increasing at a rate of approximately 1 percent per year as noted below. Also shown are the average reductions needed

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[1] The 2020 business-as-usual forecast does not take any credit for reductions from measures included in the AB 32 Scoping Plan, including the Pavley greenhouse gas emissions standards for vehicles, full implementation of the Renewables Portfolio Standard beyond current levels of renewable energy, or the solar measures.

from all statewide sources (including all existing sources) to reduce greenhouse gas emissions back to 1990 levels.

- 1990: 427 $MMTCO_2e$
- 2004: 480 $MMTCO_2e$ (an average 11 percent reduction needed to achieve 1990 base)
- 2008: 495 $MMTCO_2e$ (an average 14 percent reduction needed to achieve 1990 base)
- 2020: 596 $MMTCO_2e$ Business As Usual (an average 28 percent reduction needed to achieve 1990 base)

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California in 2007. Discrete early action measures are currently underway or are enforceable by January 1, 2010. Early action measures are regulatory or non-regulatory and are currently in progress or to be initiated by the ARB in the 2007 to 2012 timeframe. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of those early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 $MMTCO_2e$ by 2020, representing approximately 25 percent of the 2020 target.

The ARB Board approved the Climate Change Scoping Plan (Scoping Plan) in December 2008. The Scoping Plan outlines actions to obtain the goal set out in AB 32 of reducing emissions to 1990 levels by the year 2020. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (California Air Resources Board, 2008a). The measures in the Scoping Plan will be in place by 2012. The Scoping Plan's recommendations for reducing greenhouse gas emissions to 1990 levels by 2020 providing for emission reduction measures, including a cap-and-trade program linked to Western Climate Initiative partner jurisdictions, green building strategies, recycling and waste-related measures, and Voluntary Early Actions and Reductions. AB 32 did not amend CEQA or establish regulatory standards to be applied to new development or environmental review of projects within the State.

The Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

The Scoping Plan states, "The 2020 goal was established to be an aggressive, but achievable, mid-term target, and the 2050 greenhouse gas emissions reduction goal represents the level scientists

believe is necessary to reach levels that will stabilize climate" (California Air Resources Board, 2008a, page 4). The year 2020 goal of AB 32 corresponds with the mid-term target established by S-3-05, which aims to reduce California's fair-share contribution of greenhouse gases in 2050 to levels that will stabilize the climate.

Emission reductions in California would not be able to stabilize the concentration of greenhouse gases in the atmosphere. However, California's actions set an example and drive progress towards a reduction in greenhouse gases. If other countries were to follow California's emission reduction targets, this could avoid medium or higher ranges of global temperature increases. Thus, severe consequences of climate change could also be avoided.

SB 375 passed the Senate on August 30, 2008 and was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of greenhouse gas emissions, which emits over 40 percent of the total greenhouse gas emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing greenhouse gas emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies. Concerning CEQA, SB 375, section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
3. Incorporates the mitigation measures required by an applicable prior environmental document.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, in December 2009, the California Natural Resources Agency released its 2009 California Climate Adaptation Strategy. The Strategy is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Global Climate Change and CEQA

There are several unique challenges to analyzing global warming under CEQA, largely because of its "global" nature. Typical CEQA analyses address local actions that have local—or, at most, regional—impacts, whereas global warming presents the considerable challenge of analyzing the relationship between local and global activities and the resulting potential, if any, for local or global environmental impacts. Most environmental analyses examine the "project-specific" impacts that a particular project is likely to generate. With regard to global warming, however, it is generally accepted that the magnitude of global warming effects is so significant and the contribution of an individual project to global warming is so small that direct significant adverse impacts (albeit not necessarily cumulative significant adverse impacts) would be highly unlikely. The issue of global climate change is also fundamentally different from any other areas of air quality impact analysis, which are all linked to some region or area in which the impact is significant. Instead, a global climate change analysis must be conducted on a global level, rather than the typical local or regional setting, and requires consideration of not only emissions from the project under consideration, but also the extent of the displacement, translocation, and redistribution of emissions. In usual context, where air quality is linked to a particular location or area, it is appropriate to consider the creation of new emissions in that specific area to be an environmental impact whether or not the emissions are truly "new" emissions to the overall globe. In fact, the approval of a new developmental plan or project does not necessarily create new automobile drivers—the primary source of land use project's emissions. Rather, new land use projects merely redistribute existing mobile emissions[3]; accordingly, the use of models that measure overall emissions increases without accounting for existing emissions will substantially overstate the impact of the development project on global warming. This makes an accurate analysis of greenhouse gas emissions substantially different from other air quality impacts, where the "addition" of redistributed emissions to a new locale can make a substantial difference to overall air quality.

Local Public Agencies

The City of Selma does not currently have formal greenhouse gas emissions reduction plans or recommended emission threshold for determining significance associated with greenhouse gas emissions from development projects.

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[3] For example, a subdivision of 500 homes generates approximately 3,000 new trips per day, those trips would be added to the local streets and intersections. In the case of global warming, the trips that are associated with those same 500 homes presumably emit roughly the same volume of greenhouse gases in Fresno as they would if they were traveling the same miles anywhere else. As a result, a methodology which assumes that raw vehicle trip counts occurring within a project will accurately predict change in global climate conditions as reliably as they will predict congestion at intersections is seriously flawed. While trips certainly could increase the number of vehicles that will pass through local intersections, they will not increase the amount of greenhouse gas emissions into the world's atmosphere if those trips have been relocated from another location on the planet.

SJVAPCD

Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved a proposal, called the Climate Change Action Plan (CCAP), to begin a public process to bring together stakeholders, land use agencies, environmental groups, and business groups, and conduct public workshops to develop comprehensive policies for CEQA guidelines and a carbon exchange bank, and voluntary greenhouse gas emissions mitigation agreements for the Governing Board's consideration. The Climate Change Action Plan contained the following goals and actions:

Goals:

1. Assist local land-use agencies with California Environmental Quality Act (CEQA) issues relative to projects with greenhouse gas emissions increases.
2. Assist Valley businesses in complying with mandates of AB 32 (Global Warming Solutions Act of 2006).
3. Ensure that climate protection measures do not cause increases in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

1. Authorize the Air Pollution Control Officer to develop greenhouse gas significance threshold(s) or other mechanisms to address CEQA projects with greenhouse gas emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.
2. Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary greenhouse gas reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
3. Authorize the Air Pollution Control Officer to enhance the District's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB 32 emission reporting requirements to submit simultaneous streamlined reports to the District and the state of California with minimal duplication.
4. Authorize the Air Pollution Control Officer to develop and administer voluntary greenhouse gas emission reduction agreements to mitigate proposed greenhouse gas increases from new projects.
5. Direct the Air Pollution Control Officer to support climate protection measures that reduce greenhouse gas emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted areas.

SJVAPCD CEQA Greenhouse Gas Guidance

On December 17, 2009, the SJVAPCD Governing Board adopted: "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and the policy: "District Policy - Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific greenhouse gas emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their greenhouse gas emissions, whether through project design elements or mitigation.

The SJVAPCD's approach is intended to streamline the process of determining if project specific greenhouse gas emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified Final CEQA document.

Best Performance Standards would be established according to performance-based determinations. Projects complying with Best Performance Standards would not require specific quantification of greenhouse gas emissions and would be determined to have a less than significant cumulative impact for greenhouse gas emissions. Projects not complying with Best Performance Standards would require quantification of greenhouse gas emissions and demonstration that greenhouse gas emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of greenhouse gas emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates Best Performance Standards.

For stationary source permitting projects, Best Performance Standards means "The most stringent of the identified alternatives for control of greenhouse gas emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class. For development projects, Best Performance Standards means "Any combination of identified greenhouse gas emission reduction measures, including project design elements and land use decisions that reduce project specific greenhouse gas emission reductions by at least 29 percent as compared to business as usual." The SJVAPCD proposes to create a list of all approved Best Performance Standards to help in the determination as to whether a proposed project has reduced its greenhouse gas emissions by 29 percent. No timeline has been established for the development of said list.

San Joaquin Valley Carbon Exchange

The SJVAPCD initiated work on the San Joaquin Valley Carbon Exchange in November 2008. The purpose of the carbon exchange is to quantify, verify, and track voluntary greenhouse gas emissions reductions generated within the San Joaquin Valley. To investigate the various issues concerning the development of a mechanism to register greenhouse gas emission reductions, the SJVAPCD formed a technical workgroup consisting of SJVAPCD staff, land use agency representatives, industry representatives, agricultural representatives, environmental group representatives, and other interested parties. The workgroup met several times in public meetings during late 2008 and early 2009 to discuss several areas of concern regarding a greenhouse gas emission reduction registration program, including:

- The differences between the upcoming AB 32 cap and trade program and a greenhouse gas emission reduction registration program.
- Potential uses of registered greenhouse gas emission reductions. Registered greenhouse gas emission reductions could possibly be used to provide mitigation in the CEQA process, as a means to comply with a greenhouse gas cap and trade program, or other purposes.
- A review of other greenhouse gas emission reduction registration programs currently in existence, including the Chicago Climate Exchange, New York Climate Exchange, Northeast Climate Exchange, Climate Action Reserve, and South Coast Air Quality Management District's SoCal Climate Solutions Exchange.
- Required elements of a District-administered greenhouse gas emission reduction registration program, including the establishment of criteria for greenhouse gas emission reduction registration, the use of ARB protocols, and the requirement to quantify some emission reductions.
- The advantages and disadvantages of development of a greenhouse gas emission reduction registration program.
- Alternatives to the development of a District-administered greenhouse gas emission reduction registration program were discussed, including the District's possible role in California Climate Action Reserve as an emission reduction project verifier and/or providing technical assistance to project proponents quantify and mitigate their projects greenhouse gas emissions as part of the CEQA process.

While the Climate Change Action Plan indicated that the greenhouse gas emission reduction program would be called the San Joaquin Valley Carbon Exchange, SJVAPCD staff has proposed to incorporate a method to register voluntary greenhouse gas emission reductions into its existing Rule 2301- Emission Reduction Credit Banking through amendments of the rule.

In its present draft form, the amendments to Rule 2301 would provide a mechanism to preserve voluntary, high-quality greenhouse gas emission reductions. The draft rule will allow the use of

registered greenhouse gas emission reductions for any purpose and will not impose any restrictions on their use. The draft amendments to Rule 2301 will allow greenhouse gas emission reductions that fall into two different categories to be registered with the SJVAPCD: non-protocol greenhouse gas emission reductions and protocol-based greenhouse gas emission reduction credits.

The non-protocol based reductions would be quantified using the criteria in Rule 2301; i.e., that the emission reductions be real, enforceable, permanent, surplus, and quantifiable. Emission reductions would not be required to be additional; in other words, greenhouse gas emission reductions that occur as a collateral benefit of another requirement may qualify for registration, provided they are surplus of existing regulations. Emission Reduction Credits quantified without ARB-approved protocols could likely be retired as one possible method to provide mitigation for a project's greenhouse gas emissions as part of the CEQA process, if approved by the lead agency.

ARB approved greenhouse gas emission reduction project protocols include detailed procedures on how to quantify emission reductions for specific project types and specific criteria to ensure that the emission reductions are additional. To date, there are three ARB-approved greenhouse gas emission reduction project protocols—forestry preservation, urban forestry, and manure management.

The SJVAPCD has held two workshops on the proposed rule in May and June 2009. The SJVAPCD staff expects to present the final rule to the Governing Board the first quarter of 2010.

2.2 - Air Quality Setting

2.2.1 - San Joaquin Valley Air Basin (SJVAB)

The project site is located in the City of Selma, which is located in the San Joaquin Valley Air Basin (SJVAB). Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The combination of topography and inversion layers generally prevents dispersion of air pollutants.

The SJVAB has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the SJVAB averages over 260 sunny days per year. At the Yosemite International Airport, the closest meteorological station located approximately 20 miles north of the project, the maximum daily average temperatures (approximately 98.6 degrees Fahrenheit [°F]) occur in July. The range of daily temperature in the summer can vary as much as 30°F. The lowest average high temperatures (approximately 54.4°F) occur in January.

The majority of rainfall in the SJVAB occurs between November and April. Since 1971, precipitation at the Fresno airport weather station, annually averaged 10.84 inches with 89 percent of the precipitation occurring between November and April.

Topography

The SJVAB is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation) (SJVAPCD 2002).

Dominant Airflow

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the SJVAB form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Southeast Desert Air Basin portion of Kern County (SJVAPCD 2006). As the wind moves through the SJVAB, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter (SJVAPCD 2006).

Inversions

Generally, the temperature of air decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation. This gradient of cooler air over warm air is known as the environmental lapse rate. Inversions occur when warm air sits over cooler air, trapping the cooler air near the ground. These inversions trap pollutants from dispersing vertically and the mountains surrounding the San Joaquin Valley trap the pollutants from dispersing horizontally. Strong temperature inversions occur throughout the SJVAB in the summer, fall, and winter (SJVAPCD 2006). Daytime temperature inversions occur at elevations of 2,000 to 2,500 feet above the San Joaquin Valley floor during the summer and at 500 to 1,000 feet during the winter. The result is a relatively high concentration of air pollution in the valley during inversion episodes. These inversions cause haziness, which in addition to moisture may include suspended dust, a variety of chemical aerosols emitted from vehicles, particulates from wood stoves, and other pollutants.

Location and Season

Because of the prevailing daytime winds and time-delayed nature of ozone, concentrations are highest in the southern portion of the SJVAB, such as around Bakersfield. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be localized and can consist of (but are not exclusive to) odors from agricultural operations; soot or smoke around residential, agricultural, and hazard-reduction wood burning; or dust near mineral resource recovery operations.

2.2.2 - Regional Air Quality

Background

An emissions inventory is an account of the amount of air pollution generated by various emissions sources and is organized by source categories: mobile, stationary, area wide, and natural sources.

Mobile sources include on-road sources and off-road mobile sources. The on-road emissions inventory, which includes automobiles, motorcycles, and trucks, is an estimation of population, activity, and emissions of the on-road motor vehicles used in California. The off-road emissions inventory is an estimate of the population, activity, and emissions of various off-road equipment, including recreational vehicles, farm and construction equipment, lawn and garden equipment, forklifts, locomotives, and commercial marine and marine pleasure craft.

Stationary sources are large, fixed sources of air pollution, such as power plants, refineries, and manufacturing facilities. Stationary sources also include aggregated point sources. These include many small point sources, or facilities, that are not inventoried individually but are estimated as a group and reported as a single-source category. Examples include gas stations and dry cleaners. Each of the local air districts estimates the emissions for the majority of stationary sources within its jurisdiction.

Area wide sources include source categories associated with human activity, and these emissions take place over a wide geographic area. Consumer products, fireplaces, farming operations (such as tilling), and unpaved road dust are examples of area wide sources.

Natural, or non-anthropogenic, sources include source categories with naturally occurring emissions such as wildfires and biogenic emissions from plants.

Fresno County Emissions Inventory

ARB publishes emissions inventory data for air districts and counties.

Table 8 summarizes Fresno County's estimated 2008 emissions inventory for major categories of air pollutants presented in tons per day. Detailed breakdowns of the emissions sources and categories are available at the ARB's website. According to the 2008 data (the most recent year available) for Fresno County, stationary sources contributed only minimal amounts of ROG, CO, NO_X and both PM_{10} and $PM_{2.5}$. Over 43 percent of the ROG emissions came from natural (non-anthropogenic) sources such as wildfires, geogenic and biogenic emissions (including agricultural, natural, and urban sources).

For the CO inventory, mobiles sources accounted for approximately 69 percent of emissions, area sources approximately 30 percent of the inventory, and natural sources for 4 percent. The 2008 NO_X inventory is dominated by mobile sources (approximately 79 percent) and stationary sources

(approximately 15 percent), with natural sources and area wide sources contributing minor amounts of NO_X.

Area wide sources generated the majority of PM_{10} and $PM_{2.5}$ emissions in Fresno County. The PM_{10} inventory is dominated by area wide sources with 88 percent, stationary sources account for 5 percent, mobile sources for 5 percent, and natural sources for 2 percent. The inventory for $PM_{2.5}$ is also concentrated in area wide sources at approximately 73 percent, stationary sources account for 10 percent, mobile sources for 13 percent, and natural sources for 4 percent.

Table 8: Fresno County 2008 Estimated Annual Emissions in Tons per Day

Emissions Classification	Emission Category	Pollutants (tons per day)					
		ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Stationary	Fuel Combustion	0.83	8.60	11.57	4.52	1.25	1.19
	Waste Disposal	1.46	0.06	0.03	0.01	0.03	0.03
	Cleaning and Surface Coatings	6.19	0	0	0	0.01	0.01
	Petroleum Production and Marketing	3.00	0.01	0.03	0.00	0.00	0.00
	Industrial Processes	5.21	0.25	5.00	3.43	2.92	1.65
	Total Stationary Sources	16.69	8.93	16.64	7.96	4.21	2.88
Area wide	Solvent Evaporation	15.11	0	0	0	0	0
	Miscellaneous Processes	21.15	110.30	6.89	0.53	71.98	21.66
	Total Area wide Sources	36.26	110.30	6.89	0.53	71.98	21.66
Mobile	On-Road Motor Vehicles	17.16	154.68	63.35	0.14	2.79	2.23
	Other Mobile Sources	13.40	77.32	25.54	0.22	1.64	1.47
	Total Mobile Sources	30.55	232.00	88.88	0.36	4.44	3.70
Natural (Non-Anthropogenic)	Biogenic Sources	62.88	0	0	0	0	0
	Geogenic Sources	0.05	0	0	0	0	0
	Wildfires	1.01	14.63	0.46	0.14	1.49	1.26
	Total Natural Sources	63.94	14.63	0.46	0.14	1.49	1.26
	Total For Fresno County*	147.44	365.86	112.87	8.99	82.12	29.5

Notes:
* The sum of values may not equal total shown due to rounding.
Source: California Air Resources Board, 2009.

2.2.3 - Local Air Quality

The SJVAPCD operates monitoring stations throughout the SJVAB. Existing local air quality, historical trends, and projections of air quality are best evaluated by reviewing relevant air pollutant

concentrations from near the project area. The ARB and SJVAPCD operate six air monitoring stations in Fresno County. The closest monitoring station to the project site that measures all pollutants of concern is located in Fresno near First Street and Shields Avenue, approximately 17 miles northeast of the project site. The monitoring station is operated by the ARB. Table 9 summarizes 2006 through 2008 published monitoring data from ARB's Aerometric Data Analysis and Management System for the Fresno-First Street Station. As shown in Table 9, ambient air pollution concentrations in the project area regularly exceeded the state 1-hour ozone standard and the federal 8-hour standard in the last 3 years. In the same timeframe, the project area exceeded the state daily PM_{10} standard and the federal $PM_{2.5}$ standard. However, the project area did not exceed the federal or state CO standards, nor did the project area exceed the federal PM_{10} standard.

Table 9: Air Quality Monitoring Summary

Pollutant	Averaging Time (Units)	2006	2007	2008
Ozone	Maximum 1 Hour (ppm) Days > State Standard (0.09 ppm)	**0.138** 45	**0.119** 14	**0.157** 44
	Maximum 8 Hour (ppm) Days > 2008 Federal Standard (0.075 ppm) Days > State Standard (0.07 ppm)	**0.113** 69 85	**0.101** 37 62	**0.132** 62 86
Nitrogen dioxide (NO_2)	Annual Average (ppm)	0.017	0.017	0.016
	Max 1 Hour (ppm) Days > State Standard	0.076 0	0.086 0	0.070 0
Carbon monoxide (CO)	Maximum 1 Hour (ppm)[1]	4.57	3.71	3.34
	Maximum 8 Hour (ppm) Days > State Standard (9.0 ppm) Days > Federal Standard (9 ppm)	3.20 0 0	2.60 0 0	2.34 0 0
Fine particulate matter (PM_{10})	State Annual Average (20 $\mu g/m^3$)	**38.10**	**32.40**	**35.10**
	Maximum 24 Hour ($\mu g/m^3$)[2] Days > State Standard (50 $\mu g/m^3$) Days > Federal Standard (150 $\mu g/m^3$)	**122.0** 13 0	**102.0** 9 0	**78.30** 15 0
Ultra fine particulate matter ($PM_{2.5}$)	Annual Average ($\mu g/m^3$)	**16.7**	**18.8**	**17.3**
	Maximum 24 Hour ($\mu g/m^3$) Est. Days > Federal Standard (35 $\mu g/m^3$)	**71.0** 35.7	**103.8** 65.6	**79.5** 50.9

Notes:
> = exceed ppm = parts per million
Exceedances are listed in **bold.**
[1] The ARB does not report 1-hour average CO concentrations in its database, only 8-hour CO concentrations. Therefore, the 1-hour CO concentration was derived by dividing the 8-hour concentration by 0.7.
[2] From the California measurement.
Source: California Air Resources Board, 2010.

Local Sources of Air Pollution

Nearby sources of air pollution include Golden State Boulevard (an expressway) and State Route 99, which are 1 and 1.4 miles to the west, respectively. Other nearby sources include the Selma Disposal and Recycling Transfer Station, which is located just over 1 mile southwest of the project site.

Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SJVAPCD considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools.

Areas surrounding the project to the west contain residential dwelling units and are considered sensitive receptors. In addition, the project would contain sensitive receptors.

Alternate forms of Transportation

The City of Selma offers fixed route and on-call transit services. Selma Transit operates under the Fresno County Rural Transit Agency (FCRTA). The FCRTA contracts with the Fresno County Economic Opportunities Commission (FCEOC) to operate Selma Transit. The fixed route starts at the Senior Center and moves through the Centralized Downtown Business District and near the large shopping centers throughout Selma.

Greenhouse Gas Emissions and Climate Change

Constituent gases of the earth's atmosphere called greenhouse gases (GHGs) play a critical role in the earth's radiation budget by trapping infrared radiation emitted from the earth's surface, which would otherwise have escaped into space. This phenomenon, known as the "Greenhouse Effect," is responsible for maintaining a habitable climate. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations, leading to a trend of unnatural changes to the earth's natural climate, known as global warming or climate change.

GHGs are global pollutants, unlike ozone, carbon monoxide, particulate matter, and TACs, which are pollutants of regional and local concern.

Potential Environmental Effects

The International Panel on Climate Change (IPCC) has declared that worldwide, average temperatures are likely to increase by approximately 3 °F to 7 °F by the end of the 21st century. However, a global temperature increase does not translate to a uniform increase in temperature in all locations on the earth. Regional climate changes are dependent on multiple variables, such as topography. One region of the earth may experience increased temperature, increased incidents of drought and similar warming effects, whereas another region may experience a relative cooling.

According to the IPCC's Working Group II Report website, climate change impacts to North America may include diminishing snowpack, increasing evaporation, exacerbated shoreline erosion, exacerbated inundation from sea level rising, increased risk and frequency of wildfire, increased risk of insect outbreaks, increased experiences of heat waves, and rearrangement of ecosystems, as species and ecosystem zones shift northward and to higher elevations.

In California, as discussed in a report prepared by the California Climate Change Center in 2006 and a report by Moser et al (2009), climate change may result in consequences such as the following.:

- A reduction in the quality and supply of water to the State from the Sierra snow pack. If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- Increased risk of large wildfires. If precipitation increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are expected to increase by approximately 30 percent toward the end of the century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Reductions in the quality and quantity of certain agricultural products. Crops that are likely to be hard hit include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if temperature rises are kept in the lower warming range.
- A rise in sea levels resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If heat-trapping emissions continue unabated and temperatures rise into the higher warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- Damage to marine ecosystems and the natural environment.
- An increase in infections, disease, asthma, heat stroke/exhaustion, heart attack, stroke, and other health-related problems.
- A decrease in the health and productivity of California's forests.

Although certain environmental effects are widely accepted to be a potential hazard to certain locations, such as rising sea level for low-laying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

GHG Inventory and Trends

In 2004, total worldwide GHG emissions were estimated to be 20,135 $MMTCO_2e$, excluding emissions/removals from land use, land use change, and forestry; GHG emissions in the U.S. were 7,074.4 $MMTCO_2e$.

California is the second largest contributor in the U.S. of GHGs and the sixteenth largest in the world (CEC 2006). In 2004, California produced 500 $MMTCO_2e$ (CEC 2007), including imported electricity and excluding combustion of international fuels and carbon sinks or storage, which is approximately 7 percent of U.S. emissions. The major source of GHGs in California is transportation, contributing 41 percent of the State's total GHG emissions (CEC 2006). Electricity generation is the second largest source, contributing 22 percent of the State's GHG emissions (CEC 2006). The inventory for California's GHG emissions between 2000 and 2006 is presented in Table 10.

Table 10: California GHG Inventory 2000-2006

Main Sector*	Emissions $MMTCO_2e$						
	2000	2001	2002	2003	2004	2005	2006
Agriculture & Forestry	20.91	21.12	24.34	24.48	24.78	25.2	26.25
Commercial	12.98	12.58	14.46	13.07	13.15	12.97	13.25
Electricity Generation (Imports)	42.97	52.38	50.61	56.29	58.59	54.92	49.92
Electricity Generation (In State)	60.76	64.66	51.56	49.77	58.08	52.45	56.99
Industrial	107.93	105.47	107.44	106.41	100.99	100.51	103
Not Specified	8.75	9.6	10.47	11.33	12.2	12.9	13.52
Residential	32.2	30.45	30.22	29.88	31.54	30.94	31.12
Transportation	171.94	174.62	181.32	178.9	183.03	185.82	185.77
Total	458.45	470.89	470.42	470.12	482.35	475.7	479.8

Notes:
* Excludes Military Sector.
Source: ARB 2009.

2.3 - Pollutants of Concern

The criteria pollutants of greatest concern for the SJVAB are ozone, PM_{10} $PM_{2.5}$. In addition, CO is a criteria pollutant of concern in the SJVAB, due to the potential for CO hotspots on congested

roadways and at congested intersections. Other pollutants of concern are toxic air contaminants, and greenhouse gases.

2.3.1 - Ozone

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include ROG and NO_X, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Often, the effects of emitted ROG and NO_X are felt a distance downwind of the emission sources. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials.

Ozone can irritate lung airways and cause inflammation much like a sunburn. Other symptoms include wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people who are active outdoors can be affected when ozone levels are high. Chronic ozone exposure can induce morphological (tissue) changes throughout the respiratory tract, particularly at the junction of the conducting airways and the gas exchange zone in the deep lung. Anyone who spends time outdoors in the summer is at risk, particularly children and other people who are more active outdoors. Even at very low levels, ground-level ozone triggers a variety of health problems, including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. (SJVAPCD 2004)

Ozone also damages vegetation and ecosystems. It leads to reduced agricultural crop and commercial forest yields; reduced growth and survivability of tree seedlings; and increased susceptibility to diseases, pests, and other stresses such as harsh weather. In the United States alone, ozone is responsible for an estimated $500 million in reduced crop production each year. Ozone also damages the foliage of trees and other plants, affecting the landscape of cities, national parks and forests, and recreation areas. In addition, ozone causes damage to buildings, rubber, and some plastics.

Ozone is a regional pollutant, as the reactions forming it take place over time, and it materializes downwind from the sources of the emissions. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but it is destroyed throughout the day and night. Thus, ozone concentrations vary, depending upon both the time of day and the location. Even in pristine areas, some ambient ozone forms from natural emissions that are not controllable. This is termed background ozone. The average background ozone concentrations near sea level are in the range of 0.015 to 0.035 parts per million (ppm), with a maximum of about 0.04 ppm.

Reactive Organic Gases (ROG)

ROG, also known as volatile organic compounds (VOCs), are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participate in atmospheric photochemical reactions. ROG consist of nonmethane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Nonmethane hydrocarbons are hydrocarbons that do not contain the unreactive hydrocarbon methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.

It should be noted that there are no state or national ambient air quality standards for ROG because they are not classified as criteria pollutants. They are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROG is also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} levels and lower visibility.

Nitrogen Oxides (NO_X)

During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides or NO_X. This occurs primarily in motor vehicle internal combustion engines and fossil fuel-fired electric utility facilities and industrial boilers. The pollutant NO_X is a concern because it is an ozone precursor, which means that it helps form ozone. When NO_X and ROG are released in the atmosphere, they can chemically react with one another in the presence of sunlight and heat to form ozone. NO_X can also be a precursor to PM_{10} and $PM_{2.5}$.

Because NO_X and ROG are ozone precursors, the health effects associated with ozone (as discussed above) are also indirect health effects associated with significant levels of NO_X and ROG emissions.

One of the most important health effects associated with NO_X emissions is related to its role in ozone formation as discussed above. Its role in the secondary formation of ammonium nitrate results in particulate health effects described in the next section. Nitrogen dioxide (NO_2) is the largest and most important component of NO_X. NO_2 acts mainly as an irritant affecting the mucosa of the eyes, nose, throat, and respiratory tract. Extremely high-dose exposure (as in a building fire) to NO_2 may result in pulmonary edema and diffuse lung injury. Continued exposure to high NO_2 levels can contribute to the development of acute or chronic bronchitis. Low level NO_2 exposure may cause increased bronchial reactivity in some asthmatics, decreased lung function in patients with chronic obstructive pulmonary disease and increased risk of respiratory infections, especially in young children. (EPA 2010)

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

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope.

Particle pollution includes "inhalable coarse particles," with diameters larger than 2.5 micrometers and smaller than 10 micrometers and "fine particles," with diameters that are 2.5 micrometers and smaller. For reference, $PM_{2.5}$ is approximately one-thirtieth the size of the average human hair.

These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Others form in complicated reactions in the atmosphere from chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industrial activity, and automobiles. These particles, known as secondary particles, make up most of the fine particle pollution in the United States.

Particle exposure can lead to a variety of health effects. For example, numerous studies link particle levels to increased hospital admissions and emergency room visits—and even to death from heart or lung diseases. Both long- and short-term particle exposures have been linked to health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function, the development of chronic bronchitis, and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and acute bronchitis, and may increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short-term exposures, although they may experience temporary minor irritation when particle levels are elevated. (SJVAPCD 2006.)

2.3.3 - Carbon Monoxide

CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all CO emissions nationwide. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are sources of CO indoors.

CO is a public health concern because it combines readily with hemoglobin, reducing the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from such heart-related diseases as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity,

and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death. (EPA 2008.)

Motor vehicles are the dominant source of CO emissions in most areas. CO is described as having only a local influence because it dissipates quickly. High CO levels develop primarily during winter, when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Because CO is a product of incomplete combustion, motor vehicles exhibit increased CO emission rates at low air temperatures. High CO concentrations occur in areas of limited geographic size, sometimes referred to as hot spots. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

2.3.4 - Toxic Air Contaminants

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (DPM). DPM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, the ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM. In addition to DPM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California.

DPM poses the greatest health risk among the 10 TACs listed above. The State of California, after a 10-year research program, determined in 1998 that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well,

and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Activities associated with the project operations that require the use of diesel-fueled vehicles for extended periods, such as delivery vehicles to and from the proposed shopping center, would generate DPM emissions that could expose sensitive receptors to DPM.

2.3.5 - Climate Change/Greenhouse Gases

Gases that trap heat in the atmosphere are greenhouse gases. The effect is analogous to the way a greenhouse retains heat. Common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere affects the earth's temperature. Without the natural heat trapping effect of greenhouse gases, the earth's surface would be about 34°C cooler. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

An individual project cannot generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the proposed project may participate in this potential impact by its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on global climate change. Because these changes may have serious environmental consequences, this section will evaluate the potential for the proposed project to have a significant effect upon California's environment as a result of its potential contribution to the enhanced greenhouse effect.

The global warming potential is one type of simplified index based upon radiative properties that can be used to estimate the potential future impacts of emissions of different gases upon the climate system in a relative sense. The global warming potential of a gas is essentially a measurement of the greenhouse gas compared with the reference gas, carbon dioxide; carbon dioxide has a global warming potential of one. The greenhouse gases of concern from the project are summarized in Table 11.

Individual greenhouse gas compounds have varying global warming potential and atmospheric lifetimes. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various emissions to a consistent metric. Methane's warming potential of 21 indicates that methane has a 21 times greater warming effect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential.

Table 11: Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Water vapor	Water vapor is the most abundant, important, and variable greenhouse gas. In the atmosphere, it maintains the climate necessary for life.	Sources include evaporation from the ocean and other water bodies, sublimation of ice and snow, and transpiration from plants.
Ozone (O_3)	Ozone is a short-lived local greenhouse gas and photochemical pollutant. Tropospheric ozone changes contribute to radiative forcing on a global scale. Global warming potential for short-lived greenhouse gases, such as ozone and aerosols, are not defined by the IPCC.	Ozone is formed from reactions of ozone precursors (nitrogen oxides [NO_X] and volatile organic compounds [VOC]) and sunlight in the atmosphere. VOC and NO_X are emitted from automobiles, solvents, and fuel combustion.
Aerosols	Aerosols are particulate matter suspended in the air. They are short-lived and remain in the atmosphere for about a week. Aerosols warm the atmosphere by absorbing heat and cool the atmosphere by reflecting light, with radiative forcing cooling effects of -1.2 Wm^{-2}. There is a low scientific understanding of the radiative forcing of individual aerosols, such as black carbon. Black carbon can cause warming from deposition on snow (+0.1 Wm^{-2}) and from suspensions in air (+0.2 Wm^{-2}). A global warming potential of 761 for black carbon has been identified in a journal article. Global cooling potentials for other aerosols in a metric similar to the global warming potential are not available.	Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning and incomplete combustion of fossil fuels (such as diesel fuel).
Methane (CH_4)	Methane is a flammable gas and is the main component of natural gas. global warming potential = 21.	A natural source of methane is from the anaerobic decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from landfills, fermentation of manure, and cattle.
Nitrous oxide (N_2O)	Nitrous oxide is also known as laughing gas and is a colorless greenhouse gas. global warming potential = 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.

Table 11 (cont.): Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Carbon dioxide (CO_2)	Carbon dioxide is an odorless, colorless, natural greenhouse gas. Global warming potential = 1.	Carbon dioxide is emitted from natural and anthropogenic sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The concentration in 2005 was 379 ppm, which is an increase of about 1.4 ppm per year since 1960.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potenitals range from 3,800 to 8,100.	CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, the Montreal Protocol on Substances that Deplete the Ozone Layer stopped their production in 1987.
Hydrofluorocarbons (HFCs)	The HFCs with the largest measured atmospheric concentrations are HFC-23 and HFC-134a (10 ppt) and HFC-152a (1 ppt). Global warming potentials: HFC-23 = 11,700, HFC-134a = 1,300, HFC-152a = 140.	HFCs are synthetic chemicals that are used as a substitute for CFCs in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of PFCs are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. Concentrations in the 1990s were about 4 ppt. It has the highest global warming potential of any gas evaluated, 23,900.	It is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.

Notes:
ppm = parts per million; ppt = parts per trillion (measure of concentration in the atmosphere).
Source: Intergovernmental Panel on Climate Change, 2007.

Water Vapor

Water vapor (H_2O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up). There are no health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide

Carbon dioxide (CO_2) is an odorless and colorless greenhouse gas. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases greenhouse gas emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO concentrations were fairly stable at 280 ppm. Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic emission sources.

Methane

Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10 to 12 years), compared to other greenhouse gases. No health effects are known to occur from exposure to methane. Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low

oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil fuel combustion and biomass burning.

Nitrous Oxide

Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage). Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition, to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction.

Chlorofluorocarbons

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation. CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of the three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per

trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt. No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down though chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur approximately 60 kilometers (37.5 miles) above Earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt. No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride

Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

SECTION 3: THRESHOLDS

While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to Section 15064(b) of the CEQA Guidelines, the SJVAPCD has recommended air pollution thresholds to be used by the lead agencies in determining whether the proposed project could result in a significant impact. Appendix G of the CEQA Guidelines presents recommended impact questions to assist lead agencies in evaluating environmental impacts. Appendix G is only a suggested form, and lead agencies are free to use different formats. The SJVAPCD thresholds will be used to assess potential air quality impacts from the proposed project. The following questions are analyzed and evaluated in this report:

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 toxic air contaminants; or
e.) Create objectionable odors affecting a substantial number of people.

The CEQA Guideline amendments for greenhouse gas emissions state that a lead agency may take into account the following three considerations in assessing the significance of impacts from greenhouse gas emissions.

Consideration No. 1: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting. This discussion could involve a quantification of greenhouse gas emissions to the extent feasible.

Consideration No. 2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

Consideration No. 3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guideline Amendments included two new checklist questions pertaining to greenhouse gas emissions, listed below:

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

This analysis will take into account the three considerations listed above to address these two questions.

While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to CEQA Guidelines Section 15064(b), the SJVAPCD recommends that its quantitative and qualitative air pollution thresholds be used to determine the significance of project emissions. These thresholds are discussed below.

3.1 - Regional Air Pollutants

Ozone is a regional pollutant that is not emitted directly, but forms from a chemical reaction between the ozone precursors NO_X and ROG in the presence of sunlight. Therefore, the SJVAPCD has set operational significance thresholds on the precursors of ozone.

According to its GAMAQI, the SJVAPCD based the ozone precursor thresholds' "significant contribution" definition on the California Clean Air Act's offset requirements for NO_X and ROG. The ROG and NO_X offset thresholds are described in SJVAPCD Rule 2201 (New and Modified Stationary Source Review). In addition, this analysis will use a PM_{10} threshold based on the SJVAPCD's offset thresholds for PM_{10} in Rule 2201. The SJVAPCD does not have a threshold of significance for $PM_{2.5}$; therefore, the PM_{10} offset threshold will also be applied to $PM_{2.5}$. EPA guidance for the Implementation of New Source Review Requirements in $PM_{2.5}$ Nonattainment Areas indicates that the PM_{10} offset threshold should also be used for $PM_{2.5}$.

The regional operational thresholds will also be applied to construction emissions. Projects within the SJVAB with operational or construction-related emissions in excess of any of the thresholds presented in Table 12 will be considered significant.

Table 12: SJVAPCD Regional Thresholds

Pollutant	Tons Per Year
NO_X	10
ROG	10
PM_{10}	15
$PM_{2.5}$	15
Source: SJVAPCD, 2002.	

3.2 - Local Air Pollutants

The SJVAPCD has established thresholds for local air pollutants. The following sections describe these thresholds.

3.2.1 - Health Risk

Any project that emits toxic air contaminants (TACs) has the potential to result in a health risk. The SJVAPCD has adopted the following significance thresholds for TACs. Project impacts exceeding these thresholds would be considered to have a significant health risk impact.

- 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.

3.2.2 - CO Hotspot

Project emissions may be considered significant if a CO hotspot intersection analysis determines that project-generated emissions cause a localized violation of the state CO 1-hour standard of 20 ppm, the state CO 8-hour standard of 9.0 ppm, the federal CO 1-hour standard of 35 ppm, or the federal CO 8 hour standard of 9 ppm.

Because increased CO concentrations usually are associated with roadways that are congested and with heavy traffic volume, the SJVAPCD has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. Therefore, the SJVAPCD has established that if all project-affected intersections are negative for both of the following criteria, then the project can be said to have no potential to create a violation of the CO standard.

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

- A traffic study indicates that 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.

If either criterion can be associated with any intersection affected by the project, a CO Protocol Analysis would need to be prepared to determine significance.

3.2.3 - Nuisance

Any project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact. The SJVAPCD has a regulation that governs the discharge from any source such quantities of air contaminants, which cause a nuisance or annoyance to any considerable number of persons or to the public. Creating the potential for a violation of the SJVAPCD's Nuisance Rule (Rule 4102) would create a potentially significant impact.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Odor impacts on residential areas and other sensitive receptors such as hospitals, day-care centers, and schools warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. The SJVAPCD has determined the common land use types that are known to produce odors in the SJVAB. Included in the types of land uses that are known to create odors are wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations.

The SJVAPCD's GAMAQI establishes a two-step odor impact screening process. First, it should be determined if the project would result in a sensitive receptor and odor source being located within the screening distances provided by the GAMAQI. Land uses listed as sources of odor include but are not exclusive to wastewater treatment plants, asphalt batch plants, rendering plants, and coffee roasters. If a project would result in an odor source and sensitive receptors being located closer than the screening level distances, further analysis is required.

For a project locating near an existing odor source, the odor impacts are significant if the project will be located closer to the odor source than any location where there has been:

- More than one confirmed complaint per year averaged over a three-year period; or
- Three unconfirmed complaints per year averaged over a three-year period.

3.3 - Greenhouse Gas/Climate Change

Generally, the evaluation of an impact under CEQA requires measuring data from a project against a "threshold of significance." The Office of Planning and Research's proposed amendments to the CEQA Guidelines state that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

The Office of Planning and Research transmitted proposed SB 97 CEQA Guidelines Amendments to the Natural Resources Agency on April 13, 2009. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. On December 31, 2009, the Natural Resources Agency delivered its rulemaking package to the Office of Administrative Law for their review pursuant to the Administrative Procedure Act. On February 16, 2010, the Office of Administrative Law filed the Amendments with the Secretary of State for inclusion in the California Code of Regulations. The Amendments will become effective on March 18, 2010.

CEQA Guideline 15064.4(a) states, "…A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use…; or (2) Rely on a qualitative analysis or performance based standards."

The CEQA Guideline amendments do not identify a threshold of significance for greenhouse gas emissions nor does it prescribe assessment methodologies or specific mitigation measures. Instead, it calls for a "good faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

On January 8, 2008, the California Air Pollution Control Officers Association released a paper that provides a common platform of information and tools for public agencies in addressing the climate change issue. The disclaimer states that it is not a guidance document but a resource to enable local decision makers to make the best decisions they can in the face of incomplete information during a period of change. The paper indicates that it is an interim resource and does not endorse any particular approach. It discusses three groups of potential thresholds, including a no significance threshold, a threshold of zero, and non-zero thresholds. Non-zero quantitative thresholds identified in the paper range from 900 to 50,000 metric tons per year. The paper also identified non-zero qualitative thresholds.

On October 24, 2008, ARB released a Preliminary Draft Staff Proposal entitled, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under California Environmental Quality Act (Draft Staff Proposal). The staff proposal is a rough framework for

determining significance thresholds. The guidance provides that if certain projects meet performance standards and remain below numeric thresholds, they will be considered less than significant. In its proposal, Staff noted that non-zero thresholds can be supported by substantial evidence, but thresholds should nonetheless be sufficiently stringent to meet the State's interim (2020) and long-term (2050) emissions reduction targets. The proposal takes different approaches for different sectors: (1) industrial projects and (2) residential and commercial projects. Although ARB Staff proposed a numerical threshold for the GHG emissions of industrial projects, none were proposed for commercial (and residential) projects. The draft proposal was very controversial and ARB Staff no longer has any plans to move forward with any final thresholds. A key preliminary conclusion from the draft thresholds, however, was that ARB Staff, in setting a numerical threshold for industrial projects and suggesting performance standards, does not believe a "zero threshold" is mandated by CEQA." It is unknown at this time whether ARB will finalize its draft proposal.

As stated previously, the SJVAPCD adopted the guidance document, "Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act." The guidance document does not propose a specific numeric threshold, but requires all new projects with increased greenhouse gas emissions to implement performance based standards, or otherwise demonstrate the project-specific greenhouse gas emissions have been mitigated by at least 29 percent, as compared to business as usual. For development projects (residential, commercial or industrial), business-as-usual is the total baseline emissions for all emissions sources within the development type, projected for the year 2020, assuming no change in greenhouse gas emissions per unit of activity as established for the baseline period. The 29 percent emission reductions in greenhouse gases would be a combination of the emission reduction achieved through implementation of Best Performance Standards and greenhouse gas emission reductions achieved since the 2002-2004 baseline period through efficiencies such as improved energy standards, increased vehicle fuel standards, etc.

The California State Legislature adopted AB 32 in 2006. AB 32 states that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." AB 32 focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, a Scoping Plan was adopted. The Scoping Plan outlines actions recommended to obtain that goal.

The Scoping Plan states, "The 2020 goal was established to be an aggressive, but achievable, mid-term target, and the 2050 greenhouse gas emissions reduction goal represents the level scientists believe is necessary to reach levels that will stabilize climate." The 2050 goal is in Executive Order S-3-05. The year 2020 greenhouse gas emission reduction goal of AB 32 corresponds with the mid-term target established by S-3-05, which aims to reduce California's fair-share contribution of greenhouse gases in 2050 to levels that will stabilize the climate.

In summary, two criteria are used in this analysis to determine significance: the significance thresholds recommended by the SJVAPCD requiring best performance standards and a determination of whether the project would conflict with any applicable plan, policy, or regulation of an agency adopted to reduce emissions of greenhouse gases. Neither the City of Selma nor the SJVAPCD have adopted Greenhouse Gas Reduction Plans. The SJVAPCD greenhouse gas guidance document recommends approaches to determining potential significance under CEQA, and is not a plan, policy or regulation adopted for the purpose of reducing emissions of greenhouses gases. Therefore, the ARB's approved Scoping Plan will be used to determine significance for this criterion. Note that the threshold and the analysis contained in this report may not be relevant or apply to other projects in the City. Therefore, this analysis does not establish thresholds in the City.

3.4 - Conformance with AQPs

The CEQA Guidelines indicate that a significant impact would occur if the proposed project would conflict with or obstruct implementation of the applicable air quality plan. The GAMAQI does not provide specific guidance on analyzing conformity with the AQP. Therefore, this document proposes the following criteria for determining project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified above.
2. Will the project conform to the assumptions in the AQPs?
3. Will the project comply with applicable control measures in the AQPs?

3.5 - Cumulative Impacts

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are used to provide an adequate discussion of significant cumulative impacts: either: (A) 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, or (B) 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.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following approach (consistent with approach B) will be used:

1. Consistency with existing AQP.
2. Assessment of cumulative health effect of project air pollutants.

3.5.1 - Consistency with Existing Air Quality Plans

The AQPs are plans for reaching attainment of the air quality standards (see Section 3.3, Conformance with AQPs, above). The assumptions, inputs, and control measures are analyzed to determine if the SJVAB can reach attainment for the ambient air quality standards. In order to show attainment of the standards, the SJVAPCD analyzes the growth projections in the valley, contributing factors in air pollutant emissions and formation, and existing and future emissions controls. The SJVAPCD then formulates a control strategy to reach attainment. Therefore, if a project is consistent with the AQP, the project's cumulative contribution to air emissions does not interfere with SJVAPCD's attainment strategy and is considered less than significant.

3.5.2 - Cumulative Health Effects

For some pollutants, such as ozone, the background concentrations in the air are already high. Therefore, relatively small increases in emissions of pollutants from various sources around the SJVAB when combined can cause cumulative impacts. Cumulative health effects can be inferred from the analyses for the following criteria:

- Violates any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation, and
- Results in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the SJVAB is Non-Attainment.

The SJVAB is nonattainment for ozone, PM_{10}, and $PM_{2.5}$, and the project may substantially contribute to the existing violation through ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions. The following analyses will be used for this criterion:

- CO Hotspot as discussed in Section 3.2.2, CO Hotspot.
- Regional Operational Thresholds as discussed in Section 3.1, Regional Air Pollutants.

SECTION 4: IMPACT ANALYSIS

This section calculates the expected emissions from the construction and operation of the Project as a necessary pre-requisite for assessing the regulatory significance of Project emissions on a regional level.

4.1 - Regional Impacts Analysis

4.1.1 - Construction Emissions

The unmitigated analyses include compliance with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions), as well as SJVAPCD accepted changes to URBEMIS defaults, as provided in SJVAPCD guidance dated January 29, 2009. Compliance with Regulation VIII is required. Additional modifications are detailed in Section 1.4, Modeling Parameters and Assumptions.

Table 13 summarizes these construction-related emissions (without mitigation) in tons per year (tpy) for each construction year. The emission estimates were derived from the project description using the URBEMIS Version 9.2.4 emission model. The URBEMIS data files are provided in Appendix A.

Table 13: Construction Emissions (tons per year)

Calendar Year (Phase)	Emissions (tpy)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
2014 (Phase 1)	6.47	3.51	2.23	0.60
2019 (Phase 2)	8.39	2.13	0.85	0.26
2024 (Phase 3)	7.59	1.75	0.79	0.24
2029 (Phase 4)	7.79	1.69	0.85	0.25
2034 (Phase 5)	7.13	1.62	0.76	0.23
Regional Threshold	**10**	**10**	**15**	**15**
Any Year Exceed Threshold?	No	No	No	No
Source: MBA 2010, URBEMIS Output.				

Even though the information in Table 13 indicates that no SJVAPCD threshold will be exceeded the project is still subject to SJVAPCD Rule 9510, Indirect Source Review, which requires emission reductions from construction equipment. Rule 9510 requires a 20 percent reduction in construction NO_X emissions and a 45 percent reduction in construction exhaust PM_{10} emissions. Therefore, actual emissions after Rule 9510 compliance will be less than estimated above.

Level of Significance before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

4.1.2 - Operational Emissions

Operational, or long-term, emissions occur over the life of the project. Operational emissions include mobile and area source emissions. Area source emissions are from consumer products, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile emissions from motor vehicles are the largest single long-term source of air pollutants from the project.

The emissions analysis included measures to account for the project's design features that reduce air pollutant emissions. Consistent with the project's design features discussed in the project description, the following measures were selected in the URBEMIS program:

- Local-Serving Retail was selected
- Percent of Streets with Sidewalks on Both Sides = 95 percent
- Percent of Arterials/Collectors with Bike Lanes = 100 percent
- Secure Bike Parking was selected
- Preferential Carpool/Vanpool Parking was selected

Unmitigated operational emissions in tons per year (tpy) from all emission sources as derived from the URBEMIS model are shown in Table 14.

Table 14: Operational Emissions (tons per year)

Year	Phases	ROG	NO_X	PM_{10}	$PM_{2.5}$
2015	**Phase 1**	**10.57**	**7.27**	**8.29**	**5.19**
2020	Phase 1	9.51	4.82	8.24	5.15
	Phase 2	14.33	10.86	12.69	5.27
	Total	**23.84**	**15.68**	**20.93**	**10.42**
2025	Phase 1	9.05	3.73	8.22	5.13
	Phase 2	13.04	8.04	12.65	5.23
	Phase 3	9.77	4.48	8.11	4.24
	Total	**31.86**	**16.25**	**28.98**	**14.60**
2030	Phase 1	8.76	3.21	8.22	5.13
	Phase 2	12.28	6.68	12.63	5.22
	Phase 3	9.41	3.81	8.10	4.23
	Phase 4	10.05	4.14	8.54	4.32
	Total	**40.50**	**17,84**	**37.49**	**18.90**

Table 14 (cont.): Operational Emissions (tons per year)

Year	Phases	ROG	NO_X	PM_{10}	$PM_{2.5}$
2035	Phase 1	8.59	2.92	8.21	5.12
	Phase 2	11.78	5.94	12.61	5.20
	Phase 3	9.19	3.45	8.09	4.22
	Phase 4	9.74	3.74	8.53	4.30
	Phase 5	9.05	3.33	7.86	4.16
	Total	**48.35**	**19.38**	**45.30**	**23.00**
Regional Threshold		10	10	15	**15**
Years Threshold Exceeded		All Years	All Years	All Years	2030 and 2035
Source: Michael Brandman Associates, 2010.					

As shown in Table 14, the project's operational emissions exceed the SJVAPCD's regional ROG, NO_X and PM_{10} thresholds in all years analyzed. $PM_{2.5}$ thresholds will be exceeded in years 2030 and 2035. Therefore, project operational emissions are considered to have a significant impact prior to applying mitigation measures to reduce project emissions.

Compliance with SJVAPCD Rule 9510

Please note that the exact amount of reductions is dependant on specific project details that are not known at this time. Therefore, this section provides a general discussion based on the known information. Rule 9510 requires operational emission reductions of 33.3 percent in the project's operational baseline NO_X emission and a 50 percent reduction in the project's operational baseline PM_{10} emissions over a period of ten years. For NO_X emissions, as calculated from the project's Phase 1 unmitigated baseline of 7.27 tons per year, ISR rule compliance would reduce operational NO_X by approximately 2.40 tons per year for the first 10 years of project operations. Operational PM_{10} emissions would also be reduced by 4.15 tons per year for the first 10 years of project operations.

ISR compliance would also reduce operational-related ROG emissions. The emissions sources for ROG and NO_X are nearly identical. Therefore, if the project achieves the ISR required emission reductions through on-site measures, then measures implemented to reduce NO_X would also reduce ROG. If the project achieves the required ISR reductions through paying the off-site fee, then off-site projects funded by ISR would reduce ROG emissions incidental to reducing NO_X emissions. The exact amount of ROG reductions that would accompany ISR compliance is unknown.

The project's operational emissions after compliance with Rule 9510 requirements is provided in Table 15.

Table 15: Operational Emissions after Rule 9510 Compliance (tons per year)

Year	Phases	ROG	NO_X	PM_{10}	$PM_{2.5}$
2015	**Phase 1**	**10.57**	**4.87**	**4.15**	**5.19**
2020	Phase 1	9.51	2.42	4.09	5.15
	Phase 2	14.33	7.28	6.35	5.27
	Total	**23.84**	**9.70**	**10.44**	**10.42**
2025	Phase 1	9.05	1.33	4.07	5.13
	Phase 2	13.04	4.46	6.30	5.23
	Phase 3	9.77	3.00	4.06	4.24
	Total	**31.86**	**8.79**	**14.43**	**14.60**
2030	Phase 1	8.76	3.21	8.22	5.13
	Phase 2	12.28	3.10	6.28	5.22
	Phase 3	9.41	2.33	4.04	4.23
	Phase 4	10.05	2.77	4.27	4.32
	Total	**40.50**	**11.41**	**22.81**	**18.90**
2035	Phase 1	8.59	2.92	8.21	5.12
	Phase 2	11.78	5.94	12.61	5.20
	Phase 3	9.19	1.97	4.03	4.22
	Phase 4	9.74	2.37	4.26	4.30
	Phase 5	9.05	2.23	3.93	4.16
	Total	**48.35**	**15.43**	**33.04**	**23.00**
Regional Threshold		10	10	15	15
Years Threshold Exceeded		All Years	2030 and 2035	2030 and 2035	2030 and 2035
Source: Michael Brandman Associates, 2010.					

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Prior to occupancy, the project applicant shall demonstrate to the satisfaction of the City of Selma Director of Community Development and Planning that the following mitigation measures, or measure equivalent or equal to the following measures, have been accomplished,

AQ-1 Prior to receiving an occupancy permit, each non-residential facility shall install bicycle parking facilities near destination points (within 50 feet of main entrances). Class III bicycle racks are prohibited. At least one bicycle parking space for every 20 vehicle parking spaces shall be installed. Bicycle parking facilities should be easily accessible and easy to find. Appropriate signage should be installed for bicycle parking facilities that are not prominently located near destination entrances.

AQ-2 Prior to occupancy, shower and locker facilities shall be installed in commercial, office and industrial buildings to encourage employees to bike and/or walk to work. Typically, one shower and three lockers for every 25 employees is considered adequate.

AQ-3 The project shall install display cases or kiosks displaying transportation information (ex. ridesharing information, transit schedules, bicycle route and path information) in a prominent area accessible to employees, residents and visitors in the following locations:

a. Parking Garages
b. Tram Stations
c. Major destinations

AQ-4 Automated lighting and thermal controls shall be installed in all non-residential facilities.

AQ-5 Daylighting (natural lighting) systems shall be installed in non-residential buildings, including systems such as skylights, light shelves, interior transom windows etc shall be installed to the maximum extent feasible in a way that does not compromise the thermal integrity of the building.

AQ-6 The applicant shall install the following roofing technologies to the extent practicable to reduce energy consumption:

a. High albedo and low-emissive roofs (See http://eetd.lbl.gov/coolroof/ for more information.)
b. EPA "Energy Star" approved roofing materials
c. "Green Roof" Technology

AQ-7 Parking lots shall be design to include clearly marked and shaded pedestrian pathways between transit facilities, adjacent sidewalks and building entrances.

AQ-8 Cool Paving shall be installed to the maximum extent feasible. There are multiple types of cool paving, with varying load capacity and installation requirements. . Examples of cool paving materials include asphalt or concrete with high solar reflectivity (i.e., through the use of light-colored aggregate), porous or permeable asphalt or concrete in areas where heavy-duty paving materials are not necessary, roller compacted concrete, and asphalt chip seals that employ light-colored aggregate.

Level of Significance After Mitigation

Significant unavoidable impact.

4.2 - Local Impacts Analysis

4.2.1 - Health Risk Impacts

Two scenarios have the potential for exposing sensitive receptors to TACs. The first is when a project includes a new or modified source of TACs and would be located near an existing or proposed sensitive receptor. The second scenario involves a residential or other sensitive receptor development locating near an existing or planned source of TACs. This report uses the recommended siting criteria and recommendations in the ARB's Land Use Handbook to determine if there is a potential health risk associated with development of the project.

The Land Use Handbook includes recommendations for siting sensitive receptors near sources of TACs that account for reduced risk with increased separation distance. The siting recommendations are based on available data and scientific studies on exposure and adverse health effects, and aims to avoid toxic air impacts through distance between the sensitive receptors and the potential source of TACs.

The project will construct both sensitive receptors and, potentially, sources of TACs. The commercial portion of the project may attract or generate diesel truck trips, a source of diesel particulate matter (DPM). However, there is not enough information on the commercial land uses to analyze potential health risks.

In addition, construction equipment generate DPM, identified as a carcinogen by the ARB. The State of California determined that DPM from diesel-fueled engines poses a chronic health risk with chronic (long-term) inhalation exposure. The California Office of Environmental Health Hazard Assessment (OEHHA) recommends using a 70-year exposure duration for determining residential cancer risks. Although the project will be constructed over the course of several years, it is highly unlikely that the construction would pose a toxic risk to residents of the project.

Finally, the project would involve some demolition and renovation activity. Therefore, the project is required to comply with SJVAPCD Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). If there were asbestos-containing materials (ACM) to be disturbed during renovation, the activities would be subject to SJVAPCD Rule 4002. If the activities were to disturb 260 linear feet, 160 square feet, or 35 cubic feet or more of regulated ACM, the project would also be subject to SJVAPCD Rule 3050 (Asbestos Removal Fees).

The contractor is required to determine if the structures are considered "regulated facilities" under National Emissions Standards for Hazardous Air Pollutants (NESHAP) by contacting the SJVAPCD. If there are regulated facilities to be disturbed or demolished, the facilities must be inspected to determine if any ACM are present. If ACM are present, the project must follow the SJVAPC requirements and, potentially, Cal OSHA and Cal-EPA regulations. Compliance with these regulations reduces the already small potential of ACM exposure to less than significant.

Level of Significance before Mitigation

Potentially significant impact.

Mitigation Measures

AQ-9 Proposed commercial land uses (e.g., loading docks) that have the potential to emit toxic air emissions shall be located as far away as feasibly possible from existing and proposed sensitive receptors in accordance with the ARB's Air Quality and Land Use Handbook. The commercial management facilitator shall consult with the SJVAPCD for guidance prior to siting land uses that have the potential to emit toxic emissions. Specifically:

a. The commercial management facilitator will allow for an adequate buffer (to be determined in coordination with the SJVAPCD) between any dry cleaning operation and any sensitive receptors (e.g., schools, households).

b. The commercial management facilitator will allow for an adequate buffer (to be determined in coordination with the SJVAPCD) between any gasoline dispensing facility and any sensitive receptors (e.g., schools, households).

Level of Significance After Mitigation

Less than significant impact.

4.2.2 - CO Hotspot

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour CO ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project-impacted intersections, where the concentrations would be the greatest. Intersections with the highest potential for CO hotspots were selected based on their average delay, traffic volumes (obtained from the Traffic Report prepared for this project), and proximity to sensitive receptors. This analysis follows guidelines recommended by the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Caltrans 1997) and the SJVAPCD.

The SJVAPCD has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. Therefore, the SJVAPCD has established that if neither of the following criteria are met at all intersections affected by the developmental project, the project can be said to have no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity. If either of the above criteria can be associated with any intersection affected by the project, the applicant/consultant would need to conduct a CO Protocol Analysis to determine significance.

According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis.

The Traffic Impact Analysis (Traffic Study) for the project show that there are fourteen project-impacted intersections that would be a LOS F under the Existing + Approved + Project Scenario. Of those intersections, eleven would meet the signal warrant criteria, and ten would be significantly impacted by the project. The intersections at a LOS of F or worse that would be significantly impacted by the project are (intersection study number in parenthesis):

- (2) SR 99 NB Off/Manning
- (5) Del Ray/Manning
- (6) Bethel/Manning
- (7) Golden State/Dinuba
- (10) McCall/Dinuba
- (12) Del Ray/Dinuba
- (22) Orange/Floral
- (23) Dockery/Floral
- (32) SR 99 SB/2nd Street
- (38) SR99 SB Off/Mountain View

The following three intersections were chosen for CO Hotspot modeling (intersection study number in parenthesis):

- (6) Bethel/Manning, AM Peak
- (7) Golden State/Dinuba, PM Peak
- (32) SR 99 SB/2nd Street, PM Peak

Using the CALINE4 model, potential CO hotspots were analyzed at the intersections listed in Table 16. There were several inputs to the CALINE4 model. One input is the traffic volumes, which is from the traffic study prepared by Dowling Associates (Dowling 2009). For the purposes of a conservative analysis, the current lane configuration/widths were utilized, and the Project Peak Hour Trips were added to the Traffic Study's turning movements calculated for the 2035 Peak Hour Volumes (cumulative volumes). The analysis utilized the buildout year for the first phase, 2015. Therefore, the analysis is conservative because it utilizes: year 2035 cumulative volume, the project's

full-buildout intersection impacts, current lane configurations, and it estimates emissions at the buildout of the first phase (earlier analysis years have a higher emission factor than later years).

As shown in Table 16, the estimated 1-hour and 8-hour average CO concentrations at buildout in combination with background concentrations are below the state and national ambient air quality standards. No CO hotspots are anticipated as a result of traffic-generated emissions by the proposed project in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO.

Table 16: CO Concentrations

Intersection	ID#	1 Hour Estimated CO Concentration (ppm)*	8 Hour Estimated CO Concentration (ppm)**	Significant Impact?***
		2015	2015	
Bethel/Manning, AM Peak	6	6.1	4.3	No
Golden State/Dinuba, PM Peak	7	6.4	4.5	No
SR-99 SB/2nd Street, PM Peak	32	5.9	4.1	No

* Caline4 output (see Appendix C for model output) plus the 1-hour background concentration of 4.57 ppm (ARB 2010).
** The 8-hour project increment was calculated by multiplying the 1-hour Caline4 output by 0.7 (persistence factor), then adding the 8 hour background concentration of 3.2 ppm (ARB 2010).
*** Comparison of the 1-hour concentration to the state standard of 20 ppm and the 8-hour concentration to the state/national standard of 9 ppm.
Source: Michael Brandman Associates, 2010.

As shown in Table 16, the estimated 1-hour and 8-hour average CO concentrations with cumulative (2035) traffic impacts in 2015 in combination with background concentrations are below the state and national ambient air quality standards. No CO hotspots are anticipated because of traffic-generated emissions by the proposed project in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO.

Level of Significance before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

4.2.3 - Odor/Nuisance

According to the GAMAQI, analysis of potential odor impacts should be conducted for the following two situations:

- **Generators** - projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, *and*
- **Receivers** - residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

Diesel exhaust and ROGs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not be at a level to induce a negative response.

The proposed project would include on-site wastewater treatment facilities, which will accept all wastewater from the homes, commercial uses, and other uses, which will be located within the project area. The project proposes to utilize on-site wastewater treatment facilities, using an activated sludge package plant concept. The wastewater will be treated and disinfected to tertiary treatment standards, thereby providing for a very high quality of treated wastewater. The on-site wastewater treatment facilities are a potential source of odors, however, mitigation is proposed to ensure the facilities are appropriately sized and comply with all regulatory measures to minimize odor impacts.

The project site is located less than a mile from an existing wastewater treatment plant, which places it within the Project Screening Levels distances from a common odor producing facility, as presented in Table 4-2 of the GAMAQI. Therefore, the project has the potential to generate an odor impact. It should be noted that the prevailing winds in Fresno County generally flow from north to south, therefore the existing wastewater treatment facility would be downwind from the project site.

MBA requested information on odor complaints from the wastewater treatment facility other similar facilities known in Fresno County for the 3-year period between February 2007 and February 2010. This time period was chosen it represents the most recent 3-year period relative to the date of this document.

A review of the SJVAPCD's odor complaints include no complaints associated with the nearby wastewater treatment plant. Therefore, the project does not exceed the threshold of three unconfirmed complaints per year averaged over 3-year period.

Level of Significance before Mitigation

Potentially significant impact.

Mitigation Measures

AQ-10 Prior to development of the wastewater treatment facilities, the applicant shall consult with the SJVAPCD Small Business Assistance Office to determine air permit requirements and develop an odor mitigation plan. Specifically:

a. On-site treatment facilities are appropriately sized and engineered to serve the proposed capacity of wastewater.
b. On-site treatment facilities incorporate odor control measures to minimize impacts to residents.
c. On-site treatment facilities provide an adequate buffer (to be determined in coordination with the SJVAPCD) between odor generators and sensitive receptors.

Level of Significance After Mitigation

Less than significant impact.

4.3 - Greenhouse Gas Impacts

4.3.1 - Greenhouse Gas Emissions

The following analysis is provided to answer the CEQA Guidelines Amendment criteria:

> Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

While net greenhouse gas emissions cannot be accurately quantified because of several completely unpredictable variables, methodologies for calculating gross emissions do exist and are set forth below. This analysis is restricted to greenhouse gases identified by AB 32, which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of greenhouse gases during construction and operation, including several defined by AB 32 such as carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

The project may emit greenhouse gases that are not defined by AB 32. For example, the project may generate aerosols. Aerosols are suspensions of fine solid particles or liquid droplets in a gas that act similarly to greenhouse gases. They are short-lived and remain in the atmosphere for about one week. Black carbon is a component of aerosol. A few studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change (2007) states that it has a low level of scientific certainty. Water vapor, another greenhouse gas, could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks such as evaporation and condensation effects rather than emissions from project-related activities. The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors.

Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis.

Certain greenhouse gases defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

For this analysis, business as usual refers to emissions before reductions from project design features and future regulations.

Project Inventory - Business as Usual

Construction Emission Inventory

The project would emit greenhouse gases from upstream emission sources and direct sources (combustion of fuels from worker vehicles and construction equipment).

An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the project. Upstream emission sources for the project include but are not limited to the following: emissions from the manufacture of cement; emissions from the manufacture of steel; and/or emissions from the transportation of building materials. The upstream emissions were not estimated because they are not within the control of the project and to do so would be speculative at this time. Additionally, the California Air Pollution Control Officer's Association White Paper on CEQA & Climate Change supports this conclusion by stating, "The full life-cycle of GHG [greenhouse gas] emissions from construction activities is not accounted for … and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level." Therefore, pursuant to CEQA Guidelines Section 15144 and 15145, upstream /life cycle, emissions are speculative and no further discussion is necessary.

Construction equipment such as cranes, bulldozers, forklifts, backhoes, and water trucks are expected to be used on the project site and would result in exhaust emissions consisting of carbon dioxide, methane, and nitrous oxide. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Exhaust emissions during construction for the project were estimated using URBEMIS2007 Version 9.2.4 and are presented in Table 17.

Table 17: Construction Greenhouse Gas Estimates

Phase	Carbon Dioxide Emissions (tons)	Emissions ($MTCO_2e$)
Phase 1 (2014)	1,185	1,075
Phase 2 (2019)	1,376	1,248
Phase 3 (2024)	1,302	1,181
Phase 4 (2029)	1,320	1,197
Phase 5 (2034)	1,274	1,155
Total	**6,456**	**5,857**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent, converted from tons by multiplying by 0.9072 and the global warming potential of 1.
Source: Michael Brandman Associates, 2010.

Operational Emissions Inventory

Operational or long-term emissions occur over the life of the project. Sources include:

Motor Vehicles and Trucks. Motor vehicle sources are exhaust emissions from the employee and customer vehicles and heavy-duty trucks that would access the project site. Motor vehicle and truck emissions were calculated using URBEMIS and information contained in the project's traffic impact study (Dowling 2009).

Natural Gas. Natural gas refers to exhaust from natural gas usage. Carbon dioxide emissions were estimated using URBEMIS. Methane and nitrous oxide emissions were estimated based on emission factors as described in Appendix C.

Offsite Electricity Generation refers to the emissions generated from offsite power plants for the electricity required for the project.

Water Transport refers to the electricity required to transport and treat the water that would be used for the project. Emissions from water transport were not included in the analysis, as the annual water consumption of the project is currently unknown.

Refrigerants refer to fugitive hydrofluorocarbons emissions from normal operation of refrigeration systems and the heating and ventilation and cooling systems. It was assumed that each residential unit would have one AC unit and one refrigerator. In addition, it was assumed that the commercial facilities would have up to 12 commercial-sized AC units.

The unmitigated emissions estimations from operating the proposed project in 2020 are presented Table 18. This list is not exhaustive and does not contain all greenhouse gas emissions associated

with the project, such as emissions from solid waste transfer and landfills; however, it does attempt to present the major sources of greenhouse gas emissions.

Table 18: Operational Greenhouse Gas Estimates (2020)

Source	Emissions (tons per year)				Total Emissions ($MTCO_2e$ per year)
	Carbon Dioxide	Nitrous Oxide	Methane	Other	
Vehicles	15,955	2.68	1.57	—	15,259
Natural gas	1,979	0.01	0.43	—	1,806
Electricity	2,611	0.03	0.11	—	2,379
Hearth	1,323	0.00	0.00	—	1,200
Refrigerants	—	—	—	5.44	6,412
Total	**21,869**	**2.72**	**2.11**	**5.44**	**27,057**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent, converted to tons per year by multiplying by the global warming potential of the gas and by 0.9072.
The carbon dioxide emissions for motor vehicles were estimated using URBEMIS2007; the other emissions were estimated by methodology shown in the spreadsheets attached as Appendix B.
Source: Michael Brandman Associates, 2010.

As shown in the table, emissions would be approximately 27,057 $MTCO_2e$ per year at year 2020. The main source of new emissions is from the motor vehicles, which would be an additional 15,259 $MTCO_2e$ per year. The next largest source of new emissions is from refrigerant leakage from the refrigeration system, which would be an additional 6,412 $MTCO_2e$ per year. Although additional operational emissions would occur from continued buildout, the GHG emission reductions goals in SJVAPCD's CEQA guidance is based on year 2020 reduction goals in Executive Order S-3-05, and AB 32. In addition, the year 2020 analysis contains the major components of the project (residential, parks, and the commercial facility). Therefore, emissions, and associated emission reductions are representative of the entire project.

As discussed in the regulatory section, the SJVAPCD will establish a list of greenhouse gas emission reduction measures with pre-quantified greenhouse gas emission reduction effectiveness. The SJVAPCD has released an interim GHG emission reduction measures tool, and GHG emission reduction measures that under development. However, these best performance standards (BPS) and reduction have not yet been finalized. As the SJVAPCD notes in its Final Staff Report "Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act," emissions from development projects primarily occur indirectly through energy consumption and VMT. The SJVAPCD notes that projects can reduce greenhouse gas emissions from energy consumption through building designs that increase energy efficiency, water conservation, and the use of energy efficient appliances. Projects can further reduce greenhouse gas emissions through project designs

that reduce VMT through features that promote pedestrian access and use of public transportation. Land use planning decisions, such as creating mixed-use development, discouraging leap-frog development, increasing density and creating favorable jobs to housing ratios can significantly reduce VMT and the associated greenhouse gas emissions.

Under the SJVAPCD proposed approach, projects implementing best performance standards and reducing greenhouse gas emissions by 29 percent through any combination of greenhouse gas emission reduction measures, including greenhouse gas emission reductions achieved as a result of changes in building and appliance standards occurring since the 2002-2004 baseline period, would be considered to have a less than significant individual and cumulative impact on global climate change.

Project Design Features that Reduce Greenhouse Gas Emissions

Future development projects are expected to result in increased greenhouse gas emissions if they substantially increase electricity and natural gas consumption, vehicle miles traveled, and solid waste generation and subsequent disposal into landfills.

The proposed project would incorporate a variety of features that would reduce its energy and water demand, promote waste reduction, and create opportunities for reductions in vehicle miles traveled, which will have the effect of helping reduce greenhouse gases either directly onsite, indirectly by reducing the need for electricity generation, or offsite in materials production and materials disposal. These design features are described in the project description Section 1.3.4, Design Features, as well as Section 4.1.2, Operational Emissions.

As shown in the URBEMIS output, the project's parameters reduced project-generated carbon dioxide generation of Phase 1 and Phase 2 operations by 1,541 tons, or 1,398 $MTCO_2e$. Without those design parameters, the total operational GHG emissions in 2020 would be 28,455 $MTCO_2e$ instead of 27,057 $MTCO_2e$. Therefore, the design features reduce total greenhouse gas emissions by approximately 4.9 percent.

Regulation Measures that Reduce Greenhouse Gas Emissions

It is appropriate to include standards and regulations that reduce emissions by the Scoping Plan's 2020 target year because the energy used by the project purchased from the grid will result in much lower emissions as the renewable energy portfolio standard is implemented over time. Motor vehicle greenhouse gas emissions associated with the project will also decline over time as state and federal fuel efficiency standards are implemented. Finally, the project's emissions related to electricity consumption are expected to be substantially lower than the forecasted amounts due to meeting 2008 Title 24 Building Energy Efficiency Standards.

The following table describes the emission reductions that ARB predicts for state regulations that implement AB 32 along with the reductions that will apply to emission sources from the proposed project.

Table 19: Project Greenhouse Gas Emission Reductions from State Regulations and AB32 Measures

Sector	Affected Emission Sources	California Legislation/ Regulation	Reduction from 2020 GHG Sector Inventory (%)	Total Regulation Reductions for the Applicable Sector (%)
Mobile	On-road passenger vehicles	AB 1493 Pavley	17.2	25.3
		LCFS	7.2%	
		Passenger Vehicle Efficiency	0.9%	
	Heavy/Medium Duty Vehicles	LCFS	7.2%	9.1
		Heavy Duty Vehicle Efficiency	1.9%	
Area	Natural Gas Combustion	Energy Efficiency Measures	9.2%	9.2
Indirect	Electricity	RPS	15.3%	26.2
		Energy Efficiency Measures	10.9%	
Stationary	Refrigerants	Refrigerant Management Program	50.0	50.0

Notes:
AB = Assembly Bill; LCFS = Low Carbon Fuel Standard; RPS = Renewable Portfolio Standard
ARB adopted the Refrigerant Management Regulation in December 2009 and estimates approximately 53 percent of CO_2e emissions could be reduced from stationary refrigeration or air-conditioning equipment (subject to the regulation) as a result of reduced leak rates from improved inspection and maintenance practices required by the regulation.
Sources: ARB Scoping Plan, Bay Area Air Quality Management District. California Environmental Quality Act Guidelines Update, Proposed Thresholds of Significance. December 7, 2009. Data compiled by ICF Jones & Stokes; ARB Scoping Plan, Refrigerant Management Program Rulemaking Documents, Appendix B.

The operational emissions after incorporation of future regulations are shown in Table 20. As shown in the table, future regulations reduce project emissions by 7,020 $MTCO_2e$.

Table 20: 2020 Greenhouse Gas Emissions with Future Regulations

Source (Sector)	Business as Usual - Emission Inventory ($MTCO_2e$ / year)	% of Sector subject to Regulations	Emissions Subject to Regulation $MTCO_2e$	Regulation Reduction (%)	Emission Reductions $MTCO_2e$
Mobile					
On-road passenger vehicles	15,259	76.9	11,734	25.3	2,969
Heavy/Medium Duty vehicles		3.9	595	9.1	54

Table 20 (cont.): 2020 Greenhouse Gas Emissions with Future Regulations

Source (Sector)	Business as Usual - Emission Inventory ($MTCO_2e$ / year)	% of Sector subject to Regulations	Emissions Subject to Regulation $MTCO_2e$	Regulation Reduction (%)	Emission Reductions $MTCO_2e$
Area					
Natural gas	1,806	100	1,806	9.2	166
Indirect					
Electricity	2,379	100	2,379	26.2	623
Stationary					
Refrigerants Refrigerators, Freezers	3	100	3	52.0	2
Refrigerants HVAC	6,412	100	6,412	50.0	3,206
Total	**25,859**		**22,929**		**7,020**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
Source of business as usual emissions: Table 18.
Regulation reduction percentage from Table 19.
Business as Usual inventory for Mobile Sources includes all vehicle classes.
Source: Michael Brandman Associates, 2010.

Regulation Reduction Assumptions

Motor Vehicles, Regulations: The EPA recently granted the waiver for California for its greenhouse gas emission standards for motor vehicles. AB 1493 (Pavley) requires greenhouse gas emission reductions from vehicles equivalent to approximately 30 percent by 2016. Although new vehicle emissions factors will be reduced by 30 percent in 2016, the fleet average emissions reduction in 2020 will be less than that, due to vehicle phase in. The Pavley standards are expected to reduce total emissions for automobiles and light trucks by 19.7 percent relative to the scenario without Pavley or corporate average fuel economy by the year 2020.

Vehicle Efficiency Regulations: ARB is proposing vehicle fuel efficiencies that will reduce greenhouse gas emissions from heavy/medium duty vehicles and passenger/light truck vehicles. The estimated reductions are 2.9 percent for heavy/medium duty vehicles and 2.8 percent for passenger/light truck vehicles.

Low-Carbon Fuel Standard, Regulations: According to the adopted Low-Carbon Fuel Standard (LCFS) Rule adopted by ARB in April 2009, the LCFS rule is expected to result in approximately 10 percent reduction in the carbon intensity of transportation fuels. However, a portion of the emission reductions required from the LCFS would be achieved over the life cycle of transportation fuel production rather than from mobiles source emission factors. Based on ARB's estimate of nearly 16 MMT reductions in on-road emissions from implementation of the LCFS and comparison to the

statewide on-road emissions sector, the LCFS is assumed to result in a 7.2 percent reduction compared to 2020 BAU conditions.

Natural Gas, Regulations: A 9.5 percent reduction from the 2020 greenhouse gas emissions inventory is estimated from ARB Scoping Plan measure 3, Energy Efficiency.

Electricity Generation, Regulations: ARB Scoping Plan measure 3, Energy Efficiency, and measure 4 estimates a 15.7 percent reduction from the 2020 greenhouse gas emissions inventory and ARB Scoping Plan Measure 4 Renewables Portfolio Standard estimates a 15.3 percent reduction from the 2020 greenhouse gas emissions inventory.

Refrigerants, Regulations: On December 9, 2009, the ARB adopted the Management of High Global Warming potential Refrigerants for Stationary Sources in the California Code of Regulations. Beginning in 2011, the rule will require leak inspection, repairs, required service practices and record keeping for large commercial and industrial systems that use more than 50 pounds of refrigerant for a single unit, about the equivalent of the refrigerant found in 100 household refrigerators. Therefore, the rule would apply to the project. Leak inspections will vary from continuous leak monitoring to quarterly or annual leak inspections, depending on the type and size of refrigeration systems. It is estimated that this rule would reduce refrigerant emissions by approximately 53 percent. The reduction is calculated from data presented in the ARB Statement of Reasons (2009c). The document states that business as usual fugitive emissions in 2020 would total 15.8 $MMTCO_2e$ from refrigeration systems and 1.4 $MMTCO_2e$ from air conditioning systems, totaling 17.2 $MMTCO_2e$. Reductions from this regulation would be approximately 8.1 $MMTCO_2e$; the percent reduction is 52.9 percent. This percentage is also realized when assuming the leak rate for business as usual is 21 percent and the leak rate for the regulation scenario is 10 percent, pursuant to the ARB (2009d).

Emissions with Regulations and Project Design Features

Without inclusion of the project's design parameters or regulation reductions, total operational GHG emissions in 2020 would be 28,455 $MTCO_2e$. Implementation of the project design measures would reduce those emissions by 1,398 $MTCO_2e$. As shown above, implementation of regulation would reduce the project's baseline emissions by an additional 7,020 $MTCO_2e$. Total emission reductions would be 8,418 $MTCO_2e$, or 29.6 percent below the baseline emissions.

Conclusion

The proposed project would develop a new commercial, residential and recreational uses on a currently vacant site and, therefore, would result in a net increase in greenhouse gas emissions above existing levels.

The proposed project incorporates a number of features and mitigation measures that would minimize greenhouse gas emissions. Additionally, the project provides local retail and grocery shopping opportunities to the workers and residents in the project vicinity. With implementation of project design features and regulations, greenhouse gas emissions are reduced by 29.6 percent. These

reductions comply with the SJVAPCD threshold of a 29 percent reduction in emissions. Impacts would be less than significant based on this criterion and no mitigation measures are required. Although, the project achieves the percentage reductions of the SJVAPCD threshold, the mitigation measures AQ-1 through AQ-9, required to reduce criteria pollutant emissions also reduce greenhouse gas emissions.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

4.3.2 - Consistency with Climate Action Plan or Policies

The following analysis is provided to answer the CEQA Guidelines Amendment criteria:

> Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Neither Fresno County nor the City of Selma have adopted Greenhouse Gas Reduction Plans. As discussed in the regulatory setting, the SJVAPCD adopted the Climate Change Action Plan (CCAP) in August 2008. However, the CCAP's purpose is to begin a public process to bring together stakeholders, land use agencies, environmental groups, and business groups, and conduct public workshops to develop comprehensive policies for CEQA guidelines and a carbon exchange bank, and voluntary greenhouse gas emissions mitigation agreements for the Governing Board's consideration.

Therefore, the project's significance is based on whether the project would hinder or delay the SJVAPCD's ability to meet the goals of their adopted guidance document and ARB's adopted Scoping Plan.

The Scoping Plan states that "The 2020 goal was established to be an aggressive, but achievable, mid-term target, and the 2050 greenhouse gas emissions reduction goal represents the level scientists believe is necessary to reach levels that will stabilize the climate" (ARB 2008, page 4). The 2050 goal is in Executive Order S-3-05.

The year 2020 GHG emission reduction goal of AB 32 corresponds with the mid-term target established by S-3-05, which aims to reduce California's fair-share contribution of greenhouse gases in 2050 to levels that will stabilize the climate.

As noted in the Scoping Plan, the projected total business-as-usual emissions for year 2020 (estimated as 596 $MMTCO_2e$) must be reduced approximately 30 percent to achieve the ARB's approved 2020 emission target of 427 $MMTCO_2e$. The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The Scoping Plan's recommended measures mainly target reductions in the transportation and electricity sectors. Implementation of certain Scoping Plan measures may obliquely affect the project, such as the low-carbon fuel standard and enactment of the Pavley standards, as part of California Assembly Bill 1493 (Pavley), enacted on July 22, 2002, which required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. The ARB estimates that the regulation would reduce climate change emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (ARB 2004). Consistent with the Scoping Plan, voluntary efficiency and green building measures are incorporated into the project, as discussed in Section 1.3.4, Design Features. Included as design features are the following energy efficiency, water system and water use efficiency and conservation components:

- Bicycle and pedestrian infrastructure.
- Transportation system management and transportation demand management program.
- Public transportation infrastructure/coordination with the City of Selma to provide service to the project.

- Water efficiency and reuse through use of collected runoff for landscape watering.
- Drought tolerant landscaping to reduce water consumption.
- Capacity for utilizing reclaimed water should 'purple-pipe' water become available in the project area.
- Low-flow appliances in all buildings.
- Energy efficient building design.
- Co-location of jobs, housing, retail, recreational and educational facilities along with bicycle, pedestrian and alternative transportation infrastructure.

The proposed project incorporates energy efficiency through water efficiency and recycling. In addition, the project is being designed to minimize energy use, further minimizing direct and indirect GHG emissions from project operations.

The proposed project would not significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32, or conflict with implementation of the Scoping Plan because the proposed project would generate less than significant levels of GHGs at (see impact above), and the project would be consistent with the goals of the Scoping Plan through implementation of the design measures that reduce energy consumption, water consumption, and encourage alternative transit.

Although, is consistent with the Scoping Plan, the following mitigation measures have been included to provide additional assurance that the project would be consistent with the goals of the ARB Scoping Plan.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

AQ-11 The project shall reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

AQ-12 The project shall provide interior and exterior storage areas for recyclables and adequate recycling containers located in public areas.

Level of Significance After Mitigation

Less than significant impact.

4.4 - Consistency with Existing AQPs

The CEQA Guidelines indicate that a significant impact would occur if the proposed project would conflict with or obstruct implementation of the applicable air quality plan. This assessment will use the criteria established in Section 3.4 Conformance with AQPs.

4.4.1 - Project's Contribution to Air Quality Violations

A measure of determining if the project is consistent with the AQP is if the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs. As shown above the project would not cause a CO violation. The project would not exceed the SJVAPCD's regional thresholds for construction emissions. However, the project would exceed SJVAPCD thresholds of significance for the operational phases.

4.4.2 - Consistency with assumptions in the AQPs

The primary way of determining consistency with the AQP's assumptions is determining consistency with the applicable General Plan to ensure that the project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and designates locations for land uses to regulate growth. Growth estimates used in a General Plan often come from the State of California's Department of Finance. The Council of Fresno County Governments (Fresno COG) uses the growth projections and land use information in adopted general plans to estimate future average daily trips (ADT) and then vehicle miles traveled (VMT), which is then provided to the SJVAPCD to estimate future emissions in the AQPs. The existing and future pollutant emissions computed in the AQP were based on land uses from area general plans. As discussed in Section 3.5 Cumulative Impacts, AQPs detail the plan and calculations for reaching attainment of the air standards.

The project site is currently in the County's jurisdiction, but within the Sphere of Influence (SOI) for the City of Selma. An SOI is defined as a plan for the probable physical boundary and service area of a local agency or municipality as determined by the Local Agency Formation Commission. Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH) outlines the purpose and intent of a SOI as an important tool for "planning and shaping the logical and orderly development and coordination of local governmental agencies so as to advantageously provide for the present and future needs of the county and its communities." Local government agencies, special service districts, and municipalities (such as the City of Selma) must have an adopted SOI boundary and territory that defines the probable boundary and service area of the agency.

Because the land use has not been designated for the proposed land uses by the City of Selma or County of Fresno General Plan, and a land use change is proposed as part of the project, the growth of the project area, and the resulting VMT and ADT were not included in the AQP. Therefore, this is a potentially significant impact.

4.4.3 - Control Measures

The control measures in the AQPs are enforceable requirements. The project will comply with all of the SJVAPCD's applicable rules and regulations. Therefore, the project complies with this criterion. This is a less than significant impact.

4.4.4 - Summary

Level of Significance Before Mitigation

Potentially significant impact. The project would comply with the SJVAPCD's control measures, would not contribute to a CO hotspot, but would exceed SJVAPCD's thresholds of significance for project operations before mitigation and would not be consistent with the AQP's planning assumptions.

Mitigation Measures

Mitigation AQ-1 through AQ-9 are required.

Level of Significance After Mitigation

Significant unavoidable impact.

4.5 - Cumulative Impacts

The CEQA Guidelines indicate that a significant air impact would occur if the proposed project results 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. This assessment uses the criteria established in Section 3.5, Cumulative Impacts.

4.5.1 - Consistency with Existing AQPs.

As shown above in Consistency with Existing AQPs, the project is not consistent with the existing AQP.

4.5.2 - Cumulative Health Impacts

The SJVAB is in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population experience health effects. However, the health effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose),

the length of time exposed, and the response of the individual are factors involved in severity and nature of health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience health effects.

The project would not cause or significantly contribute to a CO hotspot, and therefore would not cause or significantly contribute to detrimental health effects from CO. However, the operation of the project would exceed the SJVAPCD's regional significance threshold for ROG, NO_X, PM_{10} and $PM_{2.5}$. Therefore the project would significantly contribute to the cumulative health effects resulting from high levels of ozone PM_{10} and $PM_{2.5}$ in the SJVAPCD.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation AQ-1 through AQ-9 are required.

Level of Significance After Mitigation

Significant unavoidable impact.

SECTION 5: REFERENCES

5.1 - References Cited

The following references were used in the preparation of this analysis and are referenced in the text and/or were used to provide the author with background information necessary for the preparation of thresholds and content.

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5.2 - Document Preparation Staff

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Appendix A:
URBEMIS Output

3/10/2010 10:04:38 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 1 - Const + Op 2015.urb924

Project Name: Amberwood Phase 1 - 2015

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (tons/year unmitigated)	6.47	3.51	7.46	0.01	28.69	0.19	28.88	6.00	0.17	6.17	1,185.31
2014 TOTALS (tons/year mitigated)	6.47	3.51	7.46	0.01	2.04	0.19	2.23	0.43	0.17	0.60	1,185.31
Percent Reduction	0.00	0.00	0.00	0.00	92.90	0.00	92.29	92.81	0.00	90.22	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11
Percent Reduction	0.00	0.00	0.17	0.00	0.22	0.23	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	4.09	6.73	43.95	0.05	4.20	0.97	5,042.53
TOTALS (tons/year, mitigated)	3.76	6.10	39.84	0.04	3.81	0.88	4,571.62
Percent Reduction	8.07	9.36	9.35	20.00	9.29	9.28	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	10.90	7.90	73.54	0.14	8.69	5.29	6,582.64
TOTALS (tons/year, mitigated)	10.57	7.27	69.38	0.13	8.29	5.19	6,111.73
Percent Reduction	3.03	7.97	5.66	7.14	4.60	1.89	7.15

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014	6.47	3.51	7.46	0.01	28.69	0.19	28.88	6.00	0.17	6.17	1,185.31
Fine Grading 01/01/2014-02/12/2014	0.15	1.25	0.67	0.00	28.65	0.06	28.71	5.98	0.05	6.04	165.39
Fine Grading Dust	0.00	0.00	0.00	0.00	28.65	0.00	28.65	5.98	0.00	5.98	0.00
Fine Grading Off Road Diesel	0.14	1.13	0.60	0.00	0.00	0.05	0.05	0.00	0.05	0.05	137.06
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	24.36
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.97
Asphalt 01/29/2014-02/12/2014	0.04	0.12	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.00
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2014-09/24/2014	0.43	2.14	6.61	0.01	0.04	0.13	0.16	0.01	0.11	0.13	988.82
Building Off Road Diesel	0.24	1.42	1.05	0.00	0.00	0.09	0.09	0.00	0.08	0.08	181.87
Building Vendor Trips	0.04	0.45	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	128.82
Building Worker Trips	0.16	0.26	5.14	0.01	0.03	0.02	0.05	0.01	0.02	0.03	678.13
Coating 09/10/2014-10/08/2014	5.85	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Architectural Coating	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44

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Phase Assumptions

Phase: Fine Grading 1/1/2014 - 2/12/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 195.52

Maximum Daily Acreage Disturbed: 48.88

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 11524 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 390.32

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/29/2014 - 2/12/2014 - Default Paving Description

Acres to be Paved: 16.68

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/12/2014 - 9/24/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/10/2014 - 10/8/2014 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2014	6.47	3.51	7.46	0.01	2.04	0.19	2.23	0.43	0.17	0.60	1,185.31
Fine Grading 01/01/2014-02/12/2014	0.15	1.25	0.67	0.00	2.00	0.06	2.05	0.42	0.05	0.47	165.39
Fine Grading Dust	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.42	0.00	0.42	0.00
Fine Grading Off Road Diesel	0.14	1.13	0.60	0.00	0.00	0.05	0.05	0.00	0.05	0.05	137.06
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	24.36
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.97
Asphalt 01/29/2014-02/12/2014	0.04	0.12	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.00
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2014-09/24/2014	0.43	2.14	6.61	0.01	0.04	0.13	0.16	0.01	0.11	0.13	988.82
Building Off Road Diesel	0.24	1.42	1.05	0.00	0.00	0.09	0.09	0.00	0.08	0.08	181.87
Building Vendor Trips	0.04	0.45	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	128.82
Building Worker Trips	0.16	0.26	5.14	0.01	0.03	0.02	0.05	0.01	0.02	0.03	678.13
Coating 09/10/2014-10/08/2014	5.85	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Architectural Coating	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2014 - 2/12/2014 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/10/2014 - 10/8/2014 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.87	0.00	0.01	0.01	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.82	0.00	0.00	0.00	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	3.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	3.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 57%

Percentage of residences with natural gas fireplaces changed from 0% to 43%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	4.01	6.60	43.13	0.05	4.12	0.95	4,948.33
City park	0.08	0.13	0.82	0.00	0.08	0.02	94.20
TOTALS (tons/year, unmitigated)	4.09	6.73	43.95	0.05	4.20	0.97	5,042.53

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.68	5.98	39.09	0.04	3.74	0.86	4,484.82
City park	0.08	0.12	0.75	0.00	0.07	0.02	86.80
TOTALS (tons/year, mitigated)	3.76	6.10	39.84	0.04	3.81	0.88	4,571.62

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

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Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85%

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Nonresidential Mitigation Measures

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Non-Residential Other Transportation Demand Measures Mitigation

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Percent Reduction in Trips is 0%

Note that the above percent is applied ONLY to worker trips.

Inputs Selected:

The 'Secure Bike Parking' measure was selected

The 'Preferential Carpool/Vanpool Parking' measure was selected

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	122.90	8.02	dwelling units	432.00	3,464.64	25,933.74

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
					3,552.05	26,431.11

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.1	0.8	94.2	5.0
Light Truck 3751-5750 lbs	21.2	0.5	99.5	0.0
Med Truck 5751-8500 lbs	11.9	0.8	99.2	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	2.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	48.7	51.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 1 - Op 2020.urb924

Project Name: Amberwood Phase 1 - 2020

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11
Percent Reduction	0.00	0.00	0.17	0.00	0.22	0.23	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.94	4.03	29.79	0.05	4.15	0.92	5,030.92
TOTALS (tons/year, mitigated)	2.70	3.65	27.01	0.04	3.76	0.84	4,561.10
Percent Reduction	8.16	9.43	9.33	20.00	9.40	8.70	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.75	5.20	59.38	0.14	8.64	5.24	6,571.03
TOTALS (tons/year, mitigated)	9.51	4.82	56.55	0.13	8.24	5.15	6,101.21
Percent Reduction	2.46	7.31	4.77	7.14	4.63	1.72	7.15

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.87	0.00	0.01	0.01	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.82	0.00	0.00	0.00	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 57%

Percentage of residences with natural gas fireplaces changed from 0% to 43%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.88	3.95	29.24	0.05	4.07	0.90	4,936.95
City park	0.06	0.08	0.55	0.00	0.08	0.02	93.97
TOTALS (tons/year, unmitigated)	2.94	4.03	29.79	0.05	4.15	0.92	5,030.92

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.64	3.58	26.50	0.04	3.69	0.82	4,474.50
City park	0.06	0.07	0.51	0.00	0.07	0.02	86.60
TOTALS (tons/year, mitigated)	2.70	3.65	27.01	0.04	3.76	0.84	4,561.10

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	122.90	8.02	dwelling units	432.00	3,464.64	25,933.74
City park		7.99	acres	10.94	87.41	497.37
					3,552.05	26,431.11

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	97.5	2.5
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	41.0	59.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

3/10/2010 10:06:29 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

3/10/2010 10:07:20 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 1 - Op 2025.urb924

Project Name: Amberwood Phase 1 - 2025

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:07:20 AM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11
Percent Reduction	0.00	0.00	0.17	0.00	0.22	0.23	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.43	2.82	23.52	0.05	4.13	0.91	5,018.64
TOTALS (tons/year, mitigated)	2.24	2.56	21.31	0.04	3.74	0.82	4,549.95
Percent Reduction	7.82	9.22	9.40	20.00	9.44	9.89	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.24	3.99	53.11	0.14	8.62	5.23	6,558.75
TOTALS (tons/year, mitigated)	9.05	3.73	50.85	0.13	8.22	5.13	6,090.06
Percent Reduction	2.06	6.52	4.26	7.14	4.64	1.91	7.15

3/10/2010 10:07:20 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.87	0.00	0.01	0.01	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.82	0.00	0.00	0.00	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 57%

Percentage of residences with natural gas fireplaces changed from 0% to 43%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.38	2.77	23.08	0.05	4.05	0.89	4,924.90
City park	0.05	0.05	0.44	0.00	0.08	0.02	93.74
TOTALS (tons/year, unmitigated)	2.43	2.82	23.52	0.05	4.13	0.91	5,018.64

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.19	2.51	20.91	0.04	3.67	0.80	4,463.57
City park	0.05	0.05	0.40	0.00	0.07	0.02	86.38
TOTALS (tons/year, mitigated)	2.24	2.56	21.31	0.04	3.74	0.82	4,549.95

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	122.90	8.02	dwelling units	432.00	3,464.64	25,933.74
City park		7.99	acres	10.94	87.41	497.37
					3,552.05	26,431.11

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	98.3	1.7
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	35.9	64.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

3/10/2010 10:23:31 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 1 - Op 2030.urb924

Project Name: Amberwood Phase 1 - 2030

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:23:31 AM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11
Percent Reduction	0.00	0.00	0.17	0.00	0.22	0.23	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.13	2.25	20.30	0.05	4.12	0.90	5,006.46
TOTALS (tons/year, mitigated)	1.95	2.04	18.40	0.04	3.74	0.82	4,538.92
Percent Reduction	8.45	9.33	9.36	20.00	9.22	8.89	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	8.94	3.42	49.89	0.14	8.61	5.22	6,546.57
TOTALS (tons/year, mitigated)	8.76	3.21	47.94	0.13	8.22	5.13	6,079.03
Percent Reduction	2.01	6.14	3.91	7.14	4.53	1.72	7.14

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.87	0.00	0.01	0.01	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.82	0.00	0.00	0.00	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 57%

Percentage of residences with natural gas fireplaces changed from 0% to 43%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.09	2.21	19.92	0.05	4.04	0.88	4,912.95
City park	0.04	0.04	0.38	0.00	0.08	0.02	93.51
TOTALS (tons/year, unmitigated)	2.13	2.25	20.30	0.05	4.12	0.90	5,006.46

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1.91	2.00	18.05	0.04	3.67	0.80	4,452.75
City park	0.04	0.04	0.35	0.00	0.07	0.02	86.17
TOTALS (tons/year, mitigated)	1.95	2.04	18.40	0.04	3.74	0.82	4,538.92

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	122.90	8.02	dwelling units	432.00	3,464.64	25,933.74
City park		7.99	acres	10.94	87.41	497.37
					3,552.05	26,431.11

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	99.2	0.8
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 1 - Op 2035.urb924

Project Name: Amberwood Phase 1 - 2035

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11
Percent Reduction	0.00	0.00	0.17	0.00	0.22	0.23	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.94	1.94	18.64	0.05	4.12	0.89	4,994.96
TOTALS (tons/year, mitigated)	1.78	1.75	16.90	0.04	3.73	0.81	4,528.49
Percent Reduction	8.25	9.79	9.33	20.00	9.47	8.99	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	8.75	3.11	48.23	0.14	8.61	5.21	6,535.07
TOTALS (tons/year, mitigated)	8.59	2.92	46.44	0.13	8.21	5.12	6,068.60
Percent Reduction	1.83	6.11	3.71	7.14	4.65	1.73	7.14

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.87	0.00	0.01	0.01	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, unmitigated)	6.81	1.17	29.59	0.09	4.49	4.32	1,540.11

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.05	0.61	0.26	0.00	0.00	0.00	774.67
Hearth	3.02	0.54	27.46	0.09	4.48	4.31	762.40
Landscape	0.32	0.02	1.82	0.00	0.00	0.00	3.04
Consumer Products	2.84						
Architectural Coatings	0.58						
TOTALS (tons/year, mitigated)	6.81	1.17	29.54	0.09	4.48	4.31	1,540.11

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 57%

Percentage of residences with natural gas fireplaces changed from 0% to 43%

3/10/2010 10:24:32 AM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1.90	1.90	18.29	0.05	4.04	0.87	4,901.67
City park	0.04	0.04	0.35	0.00	0.08	0.02	93.29
TOTALS (tons/year, unmitigated)	1.94	1.94	18.64	0.05	4.12	0.89	4,994.96

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1.74	1.72	16.58	0.04	3.66	0.79	4,442.52
City park	0.04	0.03	0.32	0.00	0.07	0.02	85.97
TOTALS (tons/year, mitigated)	1.78	1.75	16.90	0.04	3.73	0.81	4,528.49

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	122.90	8.02	dwelling units	432.00	3,464.64	25,933.74
City park		7.99	acres	10.94	87.41	497.37
					3,552.05	26,431.11

3/10/2010 10:24:32 AM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

3/10/2010 10:33:35 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 2 - Const + Op 2020.urb924

Project Name: Amberwood Phase 2 - 2020

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:33:35 AM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2019 TOTALS (tons/year unmitigated)	9.03	2.13	6.18	0.01	9.87	0.11	9.98	2.07	0.10	2.17	1,375.79
2019 TOTALS (tons/year mitigated)	8.39	2.13	6.18	0.01	0.73	0.11	0.85	0.16	0.10	0.26	1,375.79
Percent Reduction	7.10	0.00	0.00	0.00	92.56	0.00	91.51	92.23	0.00	87.92	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.90	10.34	76.16	0.12	10.28	2.28	12,464.92
TOTALS (tons/year, mitigated)	7.28	9.45	69.64	0.11	9.39	2.09	11,394.19
Percent Reduction	7.85	8.61	8.56	8.33	8.66	8.33	8.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	14.96	11.75	99.26	0.19	13.58	5.46	14,261.78
TOTALS (tons/year, mitigated)	14.33	10.86	92.66	0.18	12.69	5.27	13,191.05
Percent Reduction	4.21	7.57	6.65	5.26	6.55	3.48	7.51

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2019	9.03	2.13	6.18	0.01	9.87	0.11	9.98	2.07	0.10	2.17	1,375.79
Fine Grading 01/01/2019-02/12/2019	0.09	0.59	0.45	0.00	9.82	0.03	9.85	2.05	0.02	2.07	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9.82	0.00	9.82	2.05	0.00	2.05	0.00
Fine Grading Off Road Diesel	0.08	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2019-02/12/2019	0.03	0.08	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2019-09/24/2019	0.30	1.45	5.58	0.01	0.05	0.08	0.13	0.02	0.07	0.09	1,224.46
Building Off Road Diesel	0.15	0.92	0.98	0.00	0.00	0.05	0.05	0.00	0.04	0.04	181.87
Building Vendor Trips	0.03	0.33	0.40	0.00	0.01	0.01	0.02	0.00	0.01	0.01	175.78
Building Worker Trips	0.12	0.20	4.20	0.01	0.04	0.02	0.07	0.02	0.02	0.03	866.80
Coating 09/10/2019-10/08/2019	8.61	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.25
Architectural Coating	8.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.25

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Phase Assumptions

Phase: Fine Grading 1/1/2019 - 2/12/2019 - Default Fine Site Grading Description

Total Acres Disturbed: 126.72

Maximum Daily Acreage Disturbed: 31.68

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/29/2019 - 2/12/2019 - Default Paving Description

Acres to be Paved: 16.68

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/12/2019 - 9/24/2019 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/10/2019 - 10/8/2019 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2019	8.39	2.13	6.18	0.01	0.73	0.11	0.85	0.16	0.10	0.26	1,375.79
Fine Grading 01/01/2019-02/12/2019	0.09	0.59	0.45	0.00	0.68	0.03	0.71	0.14	0.02	0.17	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	0.68	0.00	0.68	0.14	0.00	0.14	0.00
Fine Grading Off Road Diesel	0.08	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2019-02/12/2019	0.03	0.08	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2019-09/24/2019	0.30	1.45	5.58	0.01	0.05	0.08	0.13	0.02	0.07	0.09	1,224.46
Building Off Road Diesel	0.15	0.92	0.98	0.00	0.00	0.05	0.05	0.00	0.04	0.04	181.87
Building Vendor Trips	0.03	0.33	0.40	0.00	0.01	0.01	0.02	0.00	0.01	0.01	175.78
Building Worker Trips	0.12	0.20	4.20	0.01	0.04	0.02	0.07	0.02	0.02	0.03	866.80
Coating 09/10/2019-10/08/2019	7.97	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.25
Architectural Coating	7.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.25

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2019 - 2/12/2019 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/10/2019 - 10/8/2019 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	3.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	3.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.55	4.86	36.01	0.06	5.01	1.11	6,079.76
City park	0.06	0.08	0.55	0.00	0.08	0.02	93.97
Strip mall	4.29	5.40	39.60	0.06	5.19	1.15	6,291.19
TOTALS (tons/year, unmitigated)	7.90	10.34	76.16	0.12	10.28	2.28	12,464.92

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3.26	4.41	32.64	0.05	4.54	1.01	5,510.26
City park	0.06	0.07	0.51	0.00	0.07	0.02	86.60
Strip mall	3.96	4.97	36.49	0.06	4.78	1.06	5,797.33
TOTALS (tons/year, mitigated)	7.28	9.45	69.64	0.11	9.39	2.09	11,394.19

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

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Operational Mitigation Options Selected

Residential Mitigation Measures

The Presence of Local-Serving Retail checkbox was selected.

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

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Nonresidential Mitigation Measures

Percent Reduction in Trips is 5.85%

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Non-Residential Other Transportation Demand Measures Mitigation

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Percent Reduction in Trips is 0%

Note that the above percent is applied ONLY to worker trips.

Inputs Selected:

The 'Secure Bike Parking' measure was selected

The 'Preferential Carpool/Vanpool Parking' measure was selected

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92
City park		7.99	acres	10.94	87.41	497.37
Strip mall		61.75	1000 sq ft	131.20	8,101.60	33,032.16
					12,455.65	65,466.45

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	97.5	2.5
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	41.0	59.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 2 - Op 2025.urb924

Project Name: Amberwood Phase 2 - 2025

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:34:31 AM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.51	7.25	59.95	0.12	10.24	2.24	12,434.36
TOTALS (tons/year, mitigated)	5.99	6.63	54.80	0.11	9.35	2.05	11,366.25
Percent Reduction	7.99	8.55	8.59	8.33	8.69	8.48	8.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	13.57	8.66	83.05	0.19	13.54	5.42	14,231.22
TOTALS (tons/year, mitigated)	13.04	8.04	77.82	0.18	12.65	5.23	13,163.11
Percent Reduction	3.91	7.16	6.30	5.26	6.57	3.51	7.51

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.94	3.41	28.42	0.06	4.99	1.09	6,064.92
City park	0.05	0.05	0.44	0.00	0.08	0.02	93.74
Strip mall	3.52	3.79	31.09	0.06	5.17	1.13	6,275.70
TOTALS (tons/year, unmitigated)	6.51	7.25	59.95	0.12	10.24	2.24	12,434.36

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.69	3.09	25.75	0.05	4.52	0.99	5,496.81
City park	0.05	0.05	0.40	0.00	0.07	0.02	86.38
Strip mall	3.25	3.49	28.65	0.06	4.76	1.04	5,783.06
TOTALS (tons/year, mitigated)	5.99	6.63	54.80	0.11	9.35	2.05	11,366.25

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
Strip mall		61.75	1000 sq ft	131.20	8,101.60	33,032.16
					12,455.65	65,466.45

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	98.3	1.7
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	35.9	64.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 2 - Op 2030.urb924

Project Name: Amberwood Phase 2 - 2030

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	5.68	5.77	51.61	0.12	10.21	2.22	12,404.14
TOTALS (tons/year, mitigated)	5.23	5.27	47.19	0.11	9.33	2.04	11,338.63
Percent Reduction	7.92	8.67	8.56	8.33	8.62	8.11	8.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.74	7.18	74.71	0.19	13.51	5.40	14,201.00
TOTALS (tons/year, mitigated)	12.28	6.68	70.21	0.18	12.63	5.22	13,135.49
Percent Reduction	3.61	6.96	6.02	5.26	6.51	3.33	7.50

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.57	2.72	24.53	0.06	4.98	1.08	6,050.21
City park	0.04	0.04	0.38	0.00	0.08	0.02	93.51
Strip mall	3.07	3.01	26.70	0.06	5.15	1.12	6,260.42
TOTALS (tons/year, unmitigated)	5.68	5.77	51.61	0.12	10.21	2.22	12,404.14

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.36	2.46	22.23	0.05	4.51	0.98	5,483.48
City park	0.04	0.04	0.35	0.00	0.07	0.02	86.17
Strip mall	2.83	2.77	24.61	0.06	4.75	1.04	5,768.98
TOTALS (tons/year, mitigated)	5.23	5.27	47.19	0.11	9.33	2.04	11,338.63

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
Strip mall		61.75	1000 sq ft	131.20	8,101.60	33,032.16
					12,455.65	65,466.45

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	99.2	0.8
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 2 - Op 2035.urb924

Project Name: Amberwood Phase 2 - 2035

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	5.15	4.97	47.29	0.12	10.19	2.21	12,375.65
TOTALS (tons/year, mitigated)	4.73	4.53	43.24	0.11	9.31	2.02	11,312.58
Percent Reduction	8.16	8.85	8.56	8.33	8.64	8.60	8.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.21	6.38	70.39	0.19	13.49	5.39	14,172.51
TOTALS (tons/year, mitigated)	11.78	5.94	66.26	0.18	12.61	5.20	13,109.44
Percent Reduction	3.52	6.90	5.87	5.26	6.52	3.53	7.50

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, unmitigated)	7.06	1.41	23.10	0.07	3.30	3.18	1,796.86

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.07	0.98	0.51	0.00	0.00	0.00	1,231.75
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.86						
TOTALS (tons/year, mitigated)	7.05	1.41	23.02	0.07	3.30	3.18	1,796.86

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.34	2.34	22.52	0.06	4.97	1.08	6,036.31
City park	0.04	0.04	0.35	0.00	0.08	0.02	93.29
Strip mall	2.77	2.59	24.42	0.06	5.14	1.11	6,246.05
TOTALS (tons/year, unmitigated)	5.15	4.97	47.29	0.12	10.19	2.21	12,375.65

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.14	2.12	20.41	0.05	4.50	0.97	5,470.88
City park	0.04	0.03	0.32	0.00	0.07	0.02	85.97
Strip mall	2.55	2.38	22.51	0.06	4.74	1.03	5,755.73
TOTALS (tons/year, mitigated)	4.73	4.53	43.24	0.11	9.31	2.02	11,312.58

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
Strip mall		61.75	1000 sq ft	131.20	8,101.60	33,032.16
					12,455.65	65,466.45

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 3 - Const + Op 2025.urb924

Project Name: Amberwood Phase 3 - 2025

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2024 TOTALS (tons/year unmitigated)	7.64	1.75	4.26	0.01	9.29	0.10	9.39	1.95	0.09	2.03	1,301.67
2024 TOTALS (tons/year mitigated)	7.59	1.75	4.26	0.01	0.69	0.10	0.79	0.15	0.09	0.24	1,301.67
Percent Reduction	0.64	0.00	0.00	0.00	92.57	0.00	91.60	92.24	0.00	88.25	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.12	3.63	30.17	0.06	5.31	1.16	6,449.83
TOTALS (tons/year, mitigated)	2.86	3.29	27.36	0.05	4.81	1.06	5,851.50
Percent Reduction	8.33	9.37	9.31	16.67	9.42	8.62	9.28

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	10.04	4.82	53.09	0.13	8.61	4.34	7,983.54
TOTALS (tons/year, mitigated)	9.77	4.48	50.20	0.12	8.11	4.24	7,385.21
Percent Reduction	2.69	7.05	5.44	7.69	5.81	2.30	7.49

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2024	7.64	1.75	4.26	0.01	9.29	0.10	9.39	1.95	0.09	2.03	1,301.67
Fine Grading 01/01/2024-02/12/2024	0.08	0.54	0.44	0.00	9.24	0.02	9.26	1.93	0.02	1.95	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9.24	0.00	9.24	1.93	0.00	1.93	0.00
Fine Grading Off Road Diesel	0.08	0.54	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2024-02/12/2024	0.03	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2024-09/24/2024	0.22	1.14	3.71	0.01	0.05	0.07	0.12	0.02	0.06	0.08	1,151.88
Building Off Road Diesel	0.14	0.85	0.97	0.00	0.00	0.04	0.04	0.00	0.04	0.04	183.00
Building Vendor Trips	0.02	0.18	0.26	0.00	0.01	0.01	0.01	0.00	0.01	0.01	161.06
Building Worker Trips	0.06	0.11	2.48	0.01	0.04	0.02	0.06	0.01	0.02	0.03	807.82
Coating 09/10/2024-10/08/2024	7.31	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70
Architectural Coating	7.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70

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Phase Assumptions

Phase: Fine Grading 1/1/2024 - 2/12/2024 - Default Fine Site Grading Description

Total Acres Disturbed: 119.22

Maximum Daily Acreage Disturbed: 29.81

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/29/2024 - 2/12/2024 - Default Paving Description

Acres to be Paved: 16.68

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/12/2024 - 9/24/2024 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/10/2024 - 10/8/2024 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2024	7.59	1.75	4.26	0.01	0.69	0.10	0.79	0.15	0.09	0.24	1,301.67
Fine Grading 01/01/2024-02/12/2024	0.08	0.54	0.44	0.00	0.64	0.02	0.67	0.13	0.02	0.16	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	0.64	0.00	0.64	0.13	0.00	0.13	0.00
Fine Grading Off Road Diesel	0.08	0.54	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2024-02/12/2024	0.03	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Building 02/12/2024-09/24/2024	0.22	1.14	3.71	0.01	0.05	0.07	0.12	0.02	0.06	0.08	1,151.88
Building Off Road Diesel	0.14	0.85	0.97	0.00	0.00	0.04	0.04	0.00	0.04	0.04	183.00
Building Vendor Trips	0.02	0.18	0.26	0.00	0.01	0.01	0.01	0.00	0.01	0.01	161.06
Building Worker Trips	0.06	0.11	2.48	0.01	0.04	0.02	0.06	0.01	0.02	0.03	807.82
Coating 09/10/2024-10/08/2024	7.26	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70
Architectural Coating	7.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2024 - 2/12/2024 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/10/2024 - 10/8/2024 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71

3/10/2010 10:42:05 AM

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	3.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	3.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

3/10/2010 10:42:05 AM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.94	3.41	28.42	0.06	4.99	1.09	6,064.92
City park	0.05	0.05	0.44	0.00	0.08	0.02	93.74
Public Safety Facility	0.13	0.17	1.31	0.00	0.24	0.05	291.17
TOTALS (tons/year, unmitigated)	3.12	3.63	30.17	0.06	5.31	1.16	6,449.83

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.69	3.09	25.75	0.05	4.52	0.99	5,496.81
City park	0.05	0.05	0.40	0.00	0.07	0.02	86.38
Public Safety Facility	0.12	0.15	1.21	0.00	0.22	0.05	268.31
TOTALS (tons/year, mitigated)	2.86	3.29	27.36	0.05	4.81	1.06	5,851.50

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

3/10/2010 10:42:05 AM

Operational Mitigation Options Selected

Residential Mitigation Measures

The Presence of Local-Serving Retail checkbox was selected.

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

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Nonresidential Mitigation Measures

Percent Reduction in Trips is 5.85%

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Non-Residential Other Transportation Demand Measures Mitigation

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Percent Reduction in Trips is 0%

Note that the above percent is applied ONLY to worker trips.

Inputs Selected:

The 'Secure Bike Parking' measure was selected

The 'Preferential Carpool/Vanpool Parking' measure was selected

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

3/10/2010 10:42:05 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92
City park		7.99	acres	10.94	87.41	497.37
Public Safety Facility		22.70	1000 sq ft	10.00	227.00	1,552.35
					4,581.05	33,986.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	98.3	1.7
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	35.9	64.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Public Safety Facility				2.0	1.0	97.0

Operational Changes to Defaults

3/10/2010 10:43:35 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 3 - Op 2030.urb924

Project Name: Amberwood Phase 3 - 2030

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:43:35 AM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.72	2.89	26.05	0.06	5.30	1.15	6,434.17
TOTALS (tons/year, mitigated)	2.50	2.62	23.63	0.05	4.80	1.05	5,837.30
Percent Reduction	8.09	9.34	9.29	16.67	9.43	8.70	9.28

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.64	4.08	48.97	0.13	8.60	4.33	7,967.88
TOTALS (tons/year, mitigated)	9.41	3.81	46.47	0.12	8.10	4.23	7,371.01
Percent Reduction	2.39	6.62	5.11	7.69	5.81	2.31	7.49

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

3/10/2010 10:43:35 AM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.57	2.72	24.53	0.06	4.98	1.08	6,050.21
City park	0.04	0.04	0.38	0.00	0.08	0.02	93.51
Public Safety Facility	0.11	0.13	1.14	0.00	0.24	0.05	290.45
TOTALS (tons/year, unmitigated)	2.72	2.89	26.05	0.06	5.30	1.15	6,434.17

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.36	2.46	22.23	0.05	4.51	0.98	5,483.48
City park	0.04	0.04	0.35	0.00	0.07	0.02	86.17
Public Safety Facility	0.10	0.12	1.05	0.00	0.22	0.05	267.65
TOTALS (tons/year, mitigated)	2.50	2.62	23.63	0.05	4.80	1.05	5,837.30

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
Public Safety Facility		22.70	1000 sq ft	10.00	227.00	1,552.35
					4,581.05	33,986.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	99.2	0.8
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Public Safety Facility				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 3 - Op 2035.urb924

Project Name: Amberwood Phase 3 - 2035

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/10/2010 10:44:34 AM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71
Percent Reduction	0.14	0.00	0.35	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.48	2.49	23.92	0.06	5.29	1.15	6,419.37
TOTALS (tons/year, mitigated)	2.28	2.26	21.69	0.05	4.79	1.04	5,823.87
Percent Reduction	8.06	9.24	9.32	16.67	9.45	9.57	9.28

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.40	3.68	46.84	0.13	8.59	4.33	7,953.08
TOTALS (tons/year, mitigated)	9.19	3.45	44.53	0.12	8.09	4.22	7,357.58
Percent Reduction	2.23	6.25	4.93	7.69	5.82	2.54	7.49

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.41	0.03	2.42	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, unmitigated)	6.92	1.19	22.92	0.07	3.30	3.18	1,533.71

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.76	0.33	0.00	0.00	0.00	968.60
Hearth	2.22	0.40	20.17	0.07	3.29	3.17	561.17
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.94
Consumer Products	3.50						
Architectural Coatings	0.73						
TOTALS (tons/year, mitigated)	6.91	1.19	22.84	0.07	3.30	3.18	1,533.71

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.34	2.34	22.52	0.06	4.97	1.08	6,036.31
City park	0.04	0.04	0.35	0.00	0.08	0.02	93.29
Public Safety Facility	0.10	0.11	1.05	0.00	0.24	0.05	289.77
TOTALS (tons/year, unmitigated)	2.48	2.49	23.92	0.06	5.29	1.15	6,419.37

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.14	2.12	20.41	0.05	4.50	0.97	5,470.88
City park	0.04	0.03	0.32	0.00	0.07	0.02	85.97
Public Safety Facility	0.10	0.11	0.96	0.00	0.22	0.05	267.02
TOTALS (tons/year, mitigated)	2.28	2.26	21.69	0.05	4.79	1.04	5,823.87

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	532.00	4,266.64	31,936.92

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
Public Safety Facility		22.70	1000 sq ft	10.00	227.00	1,552.35
					4,581.05	33,986.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5
Public Safety Facility				2.0	1.0	97.0

3/9/2010 5:32:00 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 4 - Const + Op 2030.urb924

Project Name: Amberwood Phase 4 - 2030

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

3/9/2010 5:32:00 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2029 TOTALS (tons/year unmitigated)	8.03	1.69	3.67	0.01	10.13	0.10	10.22	2.12	0.09	2.21	1,319.90
2029 TOTALS (tons/year mitigated)	7.79	1.69	3.67	0.01	0.75	0.10	0.85	0.16	0.09	0.25	1,319.90
Percent Reduction	3.02	0.00	0.00	0.00	92.60	0.00	91.71	92.29	0.00	88.65	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.95	1.26	22.93	0.07	3.29	3.17	1,621.46
TOTALS (tons/year, mitigated)	6.94	1.26	22.86	0.07	3.29	3.17	1,621.46
Percent Reduction	0.14	0.00	0.31	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.36	3.16	28.54	0.07	5.78	1.26	7,016.08
TOTALS (tons/year, mitigated)	3.11	2.88	25.93	0.06	5.25	1.15	6,373.70
Percent Reduction	7.44	8.86	9.15	14.29	9.17	8.73	9.16

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	10.31	4.42	51.47	0.14	9.07	4.43	8,637.54
TOTALS (tons/year, mitigated)	10.05	4.14	48.79	0.13	8.54	4.32	7,995.16
Percent Reduction	2.52	6.33	5.21	7.14	5.84	2.48	7.44

3/9/2010 5:32:00 PM

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2029	8.03	1.69	3.67	0.01	10.13	0.10	10.22	2.12	0.09	2.21	1,319.90
Fine Grading 01/01/2029-02/12/2029	0.08	0.54	0.44	0.00	10.08	0.02	10.10	2.10	0.02	2.13	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	10.08	0.00	10.08	2.10	0.00	2.10	0.00
Fine Grading Off Road Diesel	0.08	0.54	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2029-02/12/2029	0.03	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
Building 02/12/2029-09/24/2029	0.20	1.08	3.14	0.01	0.05	0.07	0.12	0.02	0.06	0.08	1,169.63
Building Off Road Diesel	0.14	0.85	0.97	0.00	0.00	0.04	0.04	0.00	0.04	0.04	181.87
Building Vendor Trips	0.02	0.15	0.22	0.00	0.01	0.01	0.01	0.00	0.01	0.01	164.96
Building Worker Trips	0.04	0.08	1.95	0.01	0.04	0.02	0.06	0.01	0.02	0.03	822.79
Coating 09/10/2029-10/08/2029	7.72	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18
Architectural Coating	7.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18

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Phase Assumptions

Phase: Fine Grading 1/1/2029 - 2/12/2029 - Default Fine Site Grading Description

Total Acres Disturbed: 130.02

Maximum Daily Acreage Disturbed: 32.51

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/29/2029 - 2/12/2029 - Default Paving Description

Acres to be Paved: 16.68

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/12/2029 - 9/24/2029 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/10/2029 - 10/8/2029 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2029	7.79	1.69	3.67	0.01	0.75	0.10	0.85	0.16	0.09	0.25	1,319.90
Fine Grading 01/01/2029-02/12/2029	0.08	0.54	0.44	0.00	0.70	0.02	0.72	0.15	0.02	0.17	115.43
Fine Grading Dust	0.00	0.00	0.00	0.00	0.70	0.00	0.70	0.15	0.00	0.15	0.00
Fine Grading Off Road Diesel	0.08	0.54	0.43	0.00	0.00	0.02	0.02	0.00	0.02	0.02	111.86
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58
Asphalt 01/29/2029-02/12/2029	0.03	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.66
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
Building 02/12/2029-09/24/2029	0.20	1.08	3.14	0.01	0.05	0.07	0.12	0.02	0.06	0.08	1,169.63
Building Off Road Diesel	0.14	0.85	0.97	0.00	0.00	0.04	0.04	0.00	0.04	0.04	181.87
Building Vendor Trips	0.02	0.15	0.22	0.00	0.01	0.01	0.01	0.00	0.01	0.01	164.96
Building Worker Trips	0.04	0.08	1.95	0.01	0.04	0.02	0.06	0.01	0.02	0.03	822.79
Coating 09/10/2029-10/08/2029	7.48	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18
Architectural Coating	7.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2029 - 2/12/2029 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/10/2029 - 10/8/2029 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.83	0.39	0.00	0.00	0.00	1,057.42
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.41	0.03	2.41	0.00	0.01	0.01	3.93
Consumer Products	3.49						
Architectural Coatings	0.77						
TOTALS (tons/year, unmitigated)	6.95	1.26	22.93	0.07	3.29	3.17	1,621.46

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.83	0.39	0.00	0.00	0.00	1,057.42
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.93
Consumer Products	3.49						
Architectural Coatings	0.77						
TOTALS (tons/year, mitigated)	6.94	1.26	22.86	0.07	3.29	3.17	1,621.46

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	3.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	3.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.57	2.71	24.48	0.06	4.97	1.08	6,038.84
Elementary school	0.75	0.41	3.68	0.01	0.73	0.16	883.73
City park	0.04	0.04	0.38	0.00	0.08	0.02	93.51
TOTALS (tons/year, unmitigated)	3.36	3.16	28.54	0.07	5.78	1.26	7,016.08

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.35	2.46	22.19	0.05	4.51	0.98	5,473.17
Elementary school	0.72	0.38	3.39	0.01	0.67	0.15	814.36
City park	0.04	0.04	0.35	0.00	0.07	0.02	86.17
TOTALS (tons/year, mitigated)	3.11	2.88	25.93	0.06	5.25	1.15	6,373.70

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

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Operational Mitigation Options Selected

Residential Mitigation Measures

The Presence of Local-Serving Retail checkbox was selected.

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

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Nonresidential Mitigation Measures

Percent Reduction in Trips is 5.85%

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Non-Residential Other Transportation Demand Measures Mitigation

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Percent Reduction in Trips is 0%

Note that the above percent is applied ONLY to worker trips.

Inputs Selected:

The 'Secure Bike Parking' measure was selected

The 'Preferential Carpool/Vanpool Parking' measure was selected

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	531.00	4,258.62	31,876.89
Elementary school		1.29	students	700.00	903.00	4,664.83
City park		7.99	acres	10.94	87.41	497.37
					5,249.03	37,039.09

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	99.2	0.8
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 4 - Op 2035.urb924

Project Name: Amberwood Phase 4 - 2035

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.95	1.26	22.93	0.07	3.29	3.17	1,621.46
TOTALS (tons/year, mitigated)	6.94	1.26	22.86	0.07	3.29	3.17	1,621.46
Percent Reduction	0.14	0.00	0.31	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.02	2.73	26.20	0.07	5.77	1.25	6,999.95
TOTALS (tons/year, mitigated)	2.80	2.48	23.80	0.06	5.24	1.13	6,359.06
Percent Reduction	7.28	9.16	9.16	14.29	9.19	9.60	9.16

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.97	3.99	49.13	0.14	9.06	4.42	8,621.41
TOTALS (tons/year, mitigated)	9.74	3.74	46.66	0.13	8.53	4.30	7,980.52
Percent Reduction	2.31	6.27	5.03	7.14	5.85	2.71	7.43

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.83	0.39	0.00	0.00	0.00	1,057.42
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.41	0.03	2.41	0.00	0.01	0.01	3.93
Consumer Products	3.49						
Architectural Coatings	0.77						
TOTALS (tons/year, unmitigated)	6.95	1.26	22.93	0.07	3.29	3.17	1,621.46

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.83	0.39	0.00	0.00	0.00	1,057.42
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.40	0.03	2.34	0.00	0.01	0.01	3.93
Consumer Products	3.49						
Architectural Coatings	0.77						
TOTALS (tons/year, mitigated)	6.94	1.26	22.86	0.07	3.29	3.17	1,621.46

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.33	2.34	22.48	0.06	4.96	1.07	6,024.96
Elementary school	0.65	0.35	3.37	0.01	0.73	0.16	881.70
City park	0.04	0.04	0.35	0.00	0.08	0.02	93.29
TOTALS (tons/year, unmitigated)	3.02	2.73	26.20	0.07	5.77	1.25	6,999.95

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.14	2.12	20.37	0.05	4.50	0.97	5,460.60
Elementary school	0.62	0.33	3.11	0.01	0.67	0.14	812.49
City park	0.04	0.03	0.32	0.00	0.07	0.02	85.97
TOTALS (tons/year, mitigated)	2.80	2.48	23.80	0.06	5.24	1.13	6,359.06

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	531.00	4,258.62	31,876.89

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Elementary school		1.29	students	700.00	903.00	4,664.83
City park		7.99	acres	10.94	87.41	497.37
					5,249.03	37,039.09

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\36150001 Amberwood AQ Report\URB\Phase 5 - Const + Op 2035.urb924

Project Name: Amberwood Phase 4 - 2030

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2034 TOTALS (tons/year unmitigated)	7.13	1.62	3.22	0.01	8.99	0.09	9.08	1.88	0.08	1.97	1,273.58
2034 TOTALS (tons/year mitigated)	7.13	1.62	3.22	0.01	0.67	0.09	0.76	0.15	0.08	0.23	1,273.58
Percent Reduction	0.00	0.00	0.00	0.00	92.56	0.00	91.61	92.23	0.00	88.31	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	6.89	1.18	22.72	0.07	3.29	3.17	1,515.99
TOTALS (tons/year, mitigated)	6.87	1.18	22.65	0.07	3.29	3.17	1,515.99
Percent Reduction	0.29	0.00	0.31	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	2.37	2.38	22.83	0.06	5.04	1.09	6,118.25
TOTALS (tons/year, mitigated)	2.18	2.15	20.69	0.05	4.57	0.99	5,546.57
Percent Reduction	8.02	9.66	9.37	16.67	9.33	9.17	9.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.26	3.56	45.55	0.13	8.33	4.26	7,634.24
TOTALS (tons/year, mitigated)	9.05	3.33	43.34	0.12	7.86	4.16	7,062.56
Percent Reduction	2.27	6.46	4.85	7.69	5.64	2.35	7.49

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2034	7.13	1.62	3.22	0.01	8.99	0.09	9.08	1.88	0.08	1.97	1,273.58
Fine Grading 01/01/2034-02/12/2034	0.08	0.52	0.42	0.00	8.94	0.02	8.96	1.87	0.02	1.89	111.71
Fine Grading Dust	0.00	0.00	0.00	0.00	8.94	0.00	8.94	1.87	0.00	1.87	0.00
Fine Grading Off Road Diesel	0.08	0.52	0.41	0.00	0.00	0.02	0.02	0.00	0.02	0.02	108.25
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46
Asphalt 01/29/2034-02/12/2034	0.03	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.36
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
Building 02/12/2034-09/24/2034	0.18	1.04	2.72	0.01	0.04	0.07	0.11	0.02	0.06	0.08	1,130.06
Building Off Road Diesel	0.14	0.84	0.96	0.00	0.00	0.04	0.04	0.00	0.04	0.04	180.74
Building Vendor Trips	0.02	0.13	0.19	0.00	0.01	0.01	0.01	0.00	0.01	0.01	157.53
Building Worker Trips	0.03	0.06	1.56	0.01	0.04	0.02	0.06	0.01	0.02	0.03	791.79
Coating 09/10/2034-10/08/2034	6.84	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76
Architectural Coating	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76

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Phase Assumptions

Phase: Fine Grading 1/1/2034 - 2/12/2034 - Default Fine Site Grading Description

Total Acres Disturbed: 119.22

Maximum Daily Acreage Disturbed: 29.81

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/29/2034 - 2/12/2034 - Default Paving Description

Acres to be Paved: 16.68

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 2/12/2034 - 9/24/2034 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 9/10/2034 - 10/8/2034 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2034	7.13	1.62	3.22	0.01	0.67	0.09	0.76	0.15	0.08	0.23	1,273.58
Fine Grading 01/01/2034-02/12/2034	0.08	0.52	0.42	0.00	0.62	0.02	0.64	0.13	0.02	0.15	111.71
Fine Grading Dust	0.00	0.00	0.00	0.00	0.62	0.00	0.62	0.13	0.00	0.13	0.00
Fine Grading Off Road Diesel	0.08	0.52	0.41	0.00	0.00	0.02	0.02	0.00	0.02	0.02	108.25
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46
Asphalt 01/29/2034-02/12/2034	0.03	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.36
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
Building 02/12/2034-09/24/2034	0.18	1.04	2.72	0.01	0.04	0.07	0.11	0.02	0.06	0.08	1,130.06
Building Off Road Diesel	0.14	0.84	0.96	0.00	0.00	0.04	0.04	0.00	0.04	0.04	180.74
Building Vendor Trips	0.02	0.13	0.19	0.00	0.01	0.01	0.01	0.00	0.01	0.01	157.53
Building Worker Trips	0.03	0.06	1.56	0.01	0.04	0.02	0.06	0.01	0.02	0.03	791.79
Coating 09/10/2034-10/08/2034	6.84	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76
Architectural Coating	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2034 - 2/12/2034 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 9/10/2034 - 10/8/2034 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 45.6%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.75	0.32	0.00	0.00	0.00	952.20
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.40	0.03	2.27	0.00	0.01	0.01	3.68
Consumer Products	3.49						
Architectural Coatings	0.72						
TOTALS (tons/year, unmitigated)	6.89	1.18	22.72	0.07	3.29	3.17	1,515.99

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.06	0.75	0.32	0.00	0.00	0.00	952.20
Hearth	2.22	0.40	20.13	0.07	3.28	3.16	560.11
Landscape	0.38	0.03	2.20	0.00	0.01	0.01	3.68
Consumer Products	3.49						
Architectural Coatings	0.72						
TOTALS (tons/year, mitigated)	6.87	1.18	22.65	0.07	3.29	3.17	1,515.99

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	3.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	3.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 34%

Percentage of residences with natural gas fireplaces changed from 0% to 66%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.33	2.34	22.48	0.06	4.96	1.07	6,024.96
City park	0.04	0.04	0.35	0.00	0.08	0.02	93.29
TOTALS (tons/year, unmitigated)	2.37	2.38	22.83	0.06	5.04	1.09	6,118.25

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	2.14	2.12	20.37	0.05	4.50	0.97	5,460.60
City park	0.04	0.03	0.32	0.00	0.07	0.02	85.97
TOTALS (tons/year, mitigated)	2.18	2.15	20.69	0.05	4.57	0.99	5,546.57

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

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Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 5.85%

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Nonresidential Mitigation Measures

Inputs Selected:

The Number of Intersections per Square Mile is 0

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 95%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Non-Residential Other Transportation Demand Measures Mitigation

---

Percent Reduction in Trips is 0%

Note that the above percent is applied ONLY to worker trips.

Inputs Selected:

The 'Secure Bike Parking' measure was selected

The 'Preferential Carpool/Vanpool Parking' measure was selected

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	91.60	8.02	dwelling units	531.00	4,258.62	31,876.89

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		7.99	acres	10.94	87.41	497.37
					4,346.03	32,374.26

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	21.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	79.2	20.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	2.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

Operational Changes to Defaults

Appendix B:
CO Hotspot

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 6 Bethel at Manning
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	100. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	8.3 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	*	4	0	4	600	* AG	60	3.3	.0	10.0
B. NB Approach	*	4	600	4	755	* AG	56	6.0	.0	10.0
C. NB Depart	*	4	755	4	910	* AG	50	6.0	.0	10.0
D. NB External	*	4	910	4	1510	* AG	50	3.3	.0	10.0
E. NB Left	*	4	600	2	755	* AG	4	6.0	.0	10.0
F. SB Left	*	0	910	2	755	* AG	2	6.0	.0	10.0
G. SB External	*	0	1510	0	910	* AG	165	3.3	.0	10.0
H. SB Approach	*	0	910	0	755	* AG	163	6.0	.0	10.0
I. SB Depart	*	0	755	0	600	* AG	76	6.0	.0	10.0
J. SB External	*	0	600	0	0	* AG	76	3.3	.0	10.0
K. EB External	*	-750	750	-150	750	* AG	1432	3.3	.0	13.4
L. EB Approach	*	-150	750	2	750	* AG	1420	6.0	.0	13.4
M. EB Depart	*	2	750	154	750	* AG	1430	6.0	.0	13.4
N. EB External	*	154	750	754	750	* AG	1430	3.3	.0	13.4
O. WB External	*	754	760	154	760	* AG	2364	3.3	.0	13.4
P. WB Approach	*	154	760	2	760	* AG	2342	6.0	.0	13.4
Q. WB Depart	*	2	760	-150	760	* AG	2465	6.0	.0	13.4
R. WB External	*	-150	760	-750	760	* AG	2465	3.3	.0	13.4
S. EB Left	*	-150	750	2	755	* AG	12	6.0	.0	13.4
T. WB Left	*	154	760	2	755	* AG	22	6.0	.0	13.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: 6 Bethel at Manning
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-5	742	2.0
2. Receptor	8	742	2.0
3. Receptor	8	769	2.0
4. Receptor	-5	769	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	82.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	278.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	262.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	98.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.8	.0	.0	.4	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.8	.0	.0	.0	.0	.4	.1	.0	.0
3. Receptor	.0	.0	.0	.2	.0	.0	.0	.0	1.1	.0	.0	.0
4. Receptor	.0	.0	.0	.0	.2	.0	.0	1.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 7 Golden State at Dinuba
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 95. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 8.3 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	*	8	0	8	600	* AG	1549	3.3	.0	11.1
B. NB Approach	*	8	600	8	753	* AG	1354	6.0	.0	11.1
C. NB Depart	*	8	753	8	905	* AG	1677	6.0	.0	11.1
D. NB External	*	8	905	8	1505	* AG	1677	3.3	.0	11.1
E. NB Left	*	8	600	4	753	* AG	195	6.0	.0	11.1
F. SB Left	*	0	905	4	753	* AG	670	6.0	.0	11.1
G. SB External	*	0	1505	0	905	* AG	2073	3.3	.0	11.1
H. SB Approach	*	0	905	0	753	* AG	1403	6.0	.0	11.1
I. SB Depart	*	0	753	0	600	* AG	1527	6.0	.0	11.1
J. SB External	*	0	600	0	0	* AG	1527	3.3	.0	11.1
K. EB External	*	-750	750	-150	750	* AG	454	3.3	.0	10.0
L. EB Approach	*	-150	750	4	750	* AG	304	6.0	.0	10.0
M. EB Depart	*	4	750	158	750	* AG	975	6.0	.0	10.0
N. EB External	*	158	750	758	750	* AG	975	3.3	.0	10.0
O. WB External	*	758	755	158	755	* AG	411	3.3	.0	10.0
P. WB Approach	*	158	755	4	755	* AG	362	6.0	.0	10.0
Q. WB Depart	*	4	755	-150	755	* AG	308	6.0	.0	10.0
R. WB External	*	-150	755	-750	755	* AG	308	3.3	.0	10.0
S. EB Left	*	-150	750	4	753	* AG	150	6.0	.0	10.0
T. WB Left	*	158	755	4	753	* AG	49	6.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

C4$.OUT
JOB: 7 Golden State at Dinuba
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-7	744	2.0
2. Receptor	15	744	2.0
3. Receptor	15	761	2.0
4. Receptor	-7	761	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	1.6	.0	.0	.3	.0	.0	.3	.0	.7
2. Receptor	352.	1.8	.0	.0	.9	.0	.0	.2	.0	.3
3. Receptor	187.	1.5	.0	.7	.0	.0	.0	.0	.0	.0
4. Receptor	173.	1.4	.0	.3	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.3	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
4. Receptor	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: 32 SR 99 at 2nd Street
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 93. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 8.3 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	*	4	0	4	600	* AG	0	3.3	.0	10.0
B. NB Approach	*	4	600	4	756	* AG	0	6.0	.0	10.0
C. NB Depart	*	4	756	4	912	* AG	0	6.0	.0	10.0
D. NB External	*	4	912	4	1512	* AG	0	3.3	.0	10.0
E. NB Left	*	4	600	2	756	* AG	0	6.0	.0	10.0
F. SB Left	*	0	912	2	756	* AG	409	6.0	.0	10.0
G. SB External	*	0	1512	0	912	* AG	693	3.3	.0	10.0
H. SB Approach	*	0	912	0	756	* AG	284	6.0	.0	10.0
I. SB Depart	*	0	756	0	600	* AG	534	6.0	.0	10.0
J. SB External	*	0	600	0	0	* AG	534	3.3	.0	10.0
K. EB External	*	-750	750	-150	750	* AG	1348	3.3	.0	15.2
L. EB Approach	*	-150	750	2	750	* AG	1348	6.0	.0	15.2
M. EB Depart	*	2	750	154	750	* AG	1578	6.0	.0	15.2
N. EB External	*	154	750	754	750	* AG	1578	3.3	.0	15.2
O. WB External	*	754	762	154	762	* AG	1466	3.3	.0	15.2
P. WB Approach	*	154	762	2	762	* AG	1111	6.0	.0	15.2
Q. WB Depart	*	2	762	-150	762	* AG	1395	6.0	.0	15.2
R. WB External	*	-150	762	-750	762	* AG	1395	3.3	.0	15.2
S. EB Left	*	-150	750	2	756	* AG	0	6.0	.0	15.2
T. WB Left	*	154	762	2	756	* AG	355	6.0	.0	15.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

C4$.OUT
JOB: 32 SR 99 at 2nd Street
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-5	741	2.0
2. Receptor	9	741	2.0
3. Receptor	9	771	2.0
4. Receptor	-5	771	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	82.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	81.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	263.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	98.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.1	.0	.0	.0	.8	.0	.0	.2	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.8	.0	.0	.2	.0	.0	.0	.0
3. Receptor	.0	.0	.1	.2	.0	.0	.0	.0	.7	.0	.0	.0
4. Receptor	.0	.0	.0	.0	.2	.0	.0	.6	.0	.0	.0	.1

Appendix C:
GHG Calculations

Summary of Operational Greenhouse Gases

Project:	Amberwood Specific Plan
Prepared by:	Michael Brandman Associates
Prepared on:	11-Mar-10
Year of analysis:	2020

	Emissions (tons per year)				
Source	**Carbon Dioxide**	**Nitrous Oxide**	**Methane**	**Other**	**Metric Tons CO2e**
Motor vehicles	15,955	2.68	1.57		15,259
Natural gas (Commercial)		0.00	0.02		0
Natural gas	1,979	0.01	0.41		1,806
Indirect electricity	2,611	0.03	0.11		2,379
Hearth	1,323	0.00	0.00		1,200
Refrigerants				5.44	6,412
Total	21,869	2.72	2.11	5.44	27,057

Total	19,840	2.47	1.92	4.93	metric tons per year
GWP	1	310	21	varies	
Total	19,840	765	40	6,412	MTCO2E per year
Total	0.0198	0.0008	0.0000	0.0064	MMTCO2E per year

Total - all gases	27,057	MTCO2e per year
	0.0271	MMTCO2e per year
California emissions in 2004	500	MMTCO2e per year
Project percent of emissions	0.005411%	
U.S. emissions in 2005	7,260.4	
Project percent of emissions	0.000373%	
Global emissions in 2004	20135	
Project percent of emissions	0.000134%	

Last updated 12/8/09

Notes:

Emissions converted from tons per year to metric tons of carbon dioxide equivalents (MTCO2e) per year by using the formula: (tons of gas) x (global warming potential) x (0.9072 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2e = (metric tons of gas) / (1,000,000).

Motor vehicle carbon dioxide and natural gas carbon dioxide values are from the URBEMIS2007 output. Waste emissions are from the EPA WARM model output.

Mobile Emissions - Methane Page 1
Amberwood Specific Plan 11-Mar-10
Prepared by Michael Brandman Associates

Vehicle Miles Traveled	91,898
Vehicle Trips	16,008

Starting Emissions	1.47	lbs/day	0.0007	tons/day	0.27	tons/year
Running Emissions	7.16	lbs/day	0.0036	tons/day	1.31	tons/year
Total	8.63	lbs/day	0.0043	tons/day	1.57	tons/year

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3,750 lbs	12.0	0.0	97.5	2.5
Light Truck 3,751- 5,750	21.2	0.0	100.0	0.0
Med Truck 5,751- 8,500	12.0	0.0	100.0	0.0
Lite-Heavy 8,501-10,000	2.4	0.0	75.0	25.0
Lite-Heavy 10,001-14,000	0.9	0.0	44.4	55.6
Med-Heavy 14,001-33,000	1.3	0.0	15.4	84.6
Heavy-Heavy 33,001-60,000	2.6	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	41.0	59.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.3250	0.0250	0.0080
Light Truck < 3,750 lbs	LDT1	0.3310	0.0330	0.0040
Light Truck 3,751- 5,750	LDT2	0.3300	0.0300	0.0060
Med Truck 5,751- 8,500	MDV	0.3910	0.0370	0.0030
Lite-Heavy 8,501-10,000	LHDT1	0.2500	0.0280	0.0070
Lite-Heavy 10,001-14,000	LHDT2	0.2500	0.0330	0.0100
Med-Heavy 14,001-33,000	MHDT	0.3210	0.0720	0.0100
Heavy-Heavy 33,001-60,000	HHDT	0.7950	0.2250	0.0480
Line Haul > 60,000 lbs	LHV	0.7950	0.2250	0.0480
Urban Bus	UB	0.3680	0.0920	0.0280
Motorcycle	MCY	0.2230	0.1620	0.0000
School Bus	SBUS	0.3210	0.1260	0.0130
Motor Home	MH	0.3210	0.0560	0.0050

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.00	2.15	0.00
Light Truck < 3,750 lbs	0.00	0.78	0.00
Light Truck 3,751- 5,750	0.00	1.29	0.00
Med Truck 5,751- 8,500	0.00	0.90	0.00
Lite-Heavy 8,501-10,000	0.00	0.10	0.01
Lite-Heavy 10,001-14,000	0.00	0.03	0.01
Med-Heavy 14,001-33,000	0.00	0.03	0.02
Heavy-Heavy 33,001-60,000	0.00	0.00	0.25
Line Haul > 60,000 lbs	0.00	0.00	0.01
Urban Bus	0.00	0.00	0.00
Motorcycle	0.72	0.75	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.10	0.00
Total	0.72	6.13	0.31

Mobile Emissions - Methane
Amberwood Specific Plan
Prepared by Michael Brandman Associates

Total Trips 16008

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.384	0.032	0
Light Truck < 3,750 lbs	LDT1	0.381	0.038	0.000
Light Truck 3,751- 5,750	LDT2	0.377	0.034	0.000
Med Truck 5,751- 8,500	MDV	0.463	0.044	0.000
Lite-Heavy 8,501-10,000	LHDT1	0.615	0.106	0.000
Lite-Heavy 10,001-14,000	LHDT2	0.615	0.123	0.000
Med-Heavy 14,001-33,000	MHDT	0.923	0.277	0.000
Heavy-Heavy 33,001-60,000	HHDT	1.756	0.829	0.000
Line Haul > 60,000 lbs	LHV	1.756	0.829	0.000
Urban Bus	UB	1.127	0.314	0.000
Motorcycle	MCY	0.183	0.155	0.000
School Bus	SBUS	0.923	0.313	0.000
Motor Home	MH	0.923	0.200	0.000

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0	6803.3	0.0
Light Truck < 3,750 lbs	LDT1	0.0	1872.9	48.0
Light Truck 3,751- 5,750	LDT2	0.0	3393.6	0.0
Med Truck 5,751- 8,500	MDV	0.0	1920.9	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	288.1	96.0
Lite-Heavy 10,001-14,000	LHDT2	0.0	64.0	80.1
Med-Heavy 14,001-33,000	MHDT	0.0	32.0	176.1
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	416.2
Line Haul > 60,000 lbs	LHV	0.0	0.0	16.0
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	256.0	368.3	0.0
School Bus	SBUS	0.0	0.0	16.0
Motor Home	MH	0.0	144.1	16.0
Total		256.0	14887.3	864.4

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0000	0.4790	0.0000
Light Truck < 3,750 lbs	LDT1	0.0000	0.1566	0.0000
Light Truck 3,751- 5,750	LDT2	0.0000	0.2538	0.0000
Med Truck 5,751- 8,500	MDV	0.0000	0.1859	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0672	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0173	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0195	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.1031	0.1256	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0000	0.0634	0.0000
Total		0.1031	1.3683	0.0000

- Source of vehicle percentages: URBEMIS.
- Source of emission factors: EMFAC2007, Statewide average, year 2010, temperature 60F, relative humidity 50%

Title : Methane Greenhouse Gas Spreadsheet
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/07/22 11:15:04
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : Statewide totals
****
Year: 2010 -- Model Yea 1966 to 2010 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

State Average State Average State Average

Table 1: Running Exhaust Emissions (grams/mile)
Pollutant Name: Methane Temperature Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	MHD	MHD	MHD	HHD	HHD	HHD	OBUS	OBUS	OBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	SBUS	SBUS	SBUS	MH	MH	MH	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	DSL	ALL
30	0.33	0.03	0.01	0.03	0.33	0.03	0	0.04	0.33	0.03	0.01	0.031	0.391	0.037	0	0.039	0.25	0.028	0.024	0.25	0.033	0.023	0.321	0.072	0.021	0.795	0.225	0.053	0.321	0.08	0.04	0.368	0.092	0.045	0.223	0.162	0.2	0.321	0.126	0.033	0.321	0.056	0.06	0.283	0.03	0.03	0.033

Table 2: Starting Emissions (grams/trip)
Pollutant Name: Methane Temperature Relative Humidity: ALL

Time	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	MHD	MHD	MHD	HHD	HHD	HHD	OBUS	OBUS	OBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	SBUS	SBUS	SBUS	MH	MH	MH	ALL	ALL	ALL	ALL
min	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	ALL	NCAT	CAT	DSL	ALL
5	0.31	0.00	0.00	0.01	0.31	0.01	0.00	0.01	0.30	0.00	0.00	0.01	0.37	0.01	0.00	0.01	0.50	0.01	0.02	0.50	0.02	0.02	0.74	0.04	0.04	1.41	0.11	0.09	0.74	0.03	0.04	0.91	0.04	0.02	0.15	0.02	0.11	0.74	0.04	0.02	0.74	0.03	0.06	0.34	0.01	0.00	0.01
10	0.31	0.01	0.00	0.01	0.30	0.01	0.00	0.01	0.30	0.01	0.00	0.01	0.37	0.01	0.00	0.01	0.49	0.03	0.03	0.49	0.03	0.03	0.74	0.07	0.05	1.40	0.21	0.12	0.74	0.06	0.05	0.90	0.08	0.03	0.15	0.04	0.11	0.74	0.08	0.02	0.74	0.05	0.08	0.33	0.01	0.00	0.02
20	0.31	0.02	0.00	0.02	0.31	0.02	0.00	0.02	0.30	0.02	0.00	0.02	0.37	0.02	0.00	0.02	0.50	0.05	0.05	0.50	0.06	0.05	0.74	0.13	0.07	1.42	0.40	0.17	0.74	0.11	0.08	0.91	0.15	0.04	0.15	0.07	0.12	0.74	0.15	0.03	0.74	0.10	0.12	0.34	0.02	0.00	0.03
30	0.32	0.02	0.00	0.02	0.32	0.03	0.00	0.03	0.32	0.02	0.00	0.02	0.39	0.03	0.00	0.03	0.52	0.07	0.07	0.52	0.08	0.07	0.78	0.19	0.09	1.48	0.56	0.21	0.78	0.16	0.11	0.95	0.21	0.06	0.15	0.11	0.14	0.78	0.21	0.04	0.78	0.14	0.15	0.35	0.03	0.00	0.04
40	0.35	0.03	0.00	0.03	0.35	0.03	0.00	0.04	0.34	0.03	0.00	0.03	0.42	0.04	0.00	0.04	0.56	0.09	0.08	0.56	0.11	0.08	0.84	0.24	0.10	1.59	0.71	0.26	0.84	0.20	0.14	1.02	0.27	0.07	0.17	0.13	0.16	0.84	0.27	0.05	0.84	0.17	0.18	0.38	0.04	0.00	0.04
50	0.38	0.03	0.00	0.04	0.38	0.04	0.00	0.04	0.38	0.03	0.00	0.04	0.46	0.04	0.00	0.05	0.62	0.11	0.10	0.62	0.12	0.10	0.92	0.28	0.12	1.76	0.83	0.30	0.92	0.23	0.16	1.13	0.31	0.08	0.18	0.16	0.17	0.92	0.31	0.06	0.92	0.20	0.21	0.42	0.05	0.00	0.05
60	0.40	0.04	0.00	0.04	0.40	0.04	0.00	0.05	0.39	0.04	0.00	0.04	0.48	0.05	0.00	0.05	0.64	0.12	0.11	0.64	0.14	0.11	0.96	0.31	0.13	1.83	0.93	0.32	0.96	0.26	0.18	1.17	0.35	0.09	0.19	0.17	0.19	0.96	0.35	0.06	0.96	0.22	0.23	0.44	0.05	0.00	0.06
120	0.32	0.05	0.00	0.05	0.32	0.05	0.00	0.05	0.32	0.05	0.00	0.05	0.39	0.07	0.00	0.07	0.51	0.13	0.12	0.51	0.14	0.11	0.77	0.27	0.11	1.47	0.82	0.28	0.77	0.24	0.16	0.94	0.32	0.08	0.15	0.16	0.16	0.77	0.30	0.05	0.77	0.17	0.18	0.35	0.06	0.00	0.06
180	0.35	0.04	0.00	0.04	0.35	0.04	0.00	0.05	0.34	0.04	0.00	0.04	0.42	0.05	0.00	0.05	0.56	0.13	0.12	0.56	0.14	0.11	0.84	0.29	0.12	1.60	0.87	0.30	0.84	0.25	0.17	1.03	0.34	0.08	0.17	0.14	0.16	0.84	0.32	0.06	0.84	0.18	0.19	0.38	0.05	0.00	0.06
240	0.38	0.04	0.00	0.04	0.38	0.05	0.00	0.05	0.37	0.04	0.00	0.04	0.46	0.06	0.00	0.06	0.61	0.13	0.12	0.61	0.15	0.12	0.91	0.30	0.12	1.73	0.92	0.32	0.91	0.27	0.18	1.11	0.36	0.09	0.18	0.15	0.17	0.91	0.34	0.06	0.91	0.19	0.20	0.41	0.06	0.00	0.06
300	0.41	0.04	0.00	0.04	0.40	0.05	0.00	0.05	0.40	0.04	0.00	0.05	0.49	0.06	0.00	0.06	0.65	0.14	0.13	0.65	0.16	0.12	0.98	0.32	0.13	1.86	0.97	0.34	0.98	0.28	0.19	1.19	0.38	0.09	0.19	0.16	0.18	0.98	0.36	0.06	0.98	0.20	0.21	0.44	0.06	0.00	0.06
360	0.44	0.04	0.00	0.05	0.43	0.05	0.00	0.05	0.43	0.05	0.00	0.05	0.52	0.06	0.00	0.06	0.70	0.15	0.14	0.70	0.17	0.13	1.04	0.33	0.14	1.99	1.01	0.35	1.04	0.30	0.20	1.28	0.39	0.10	0.21	0.17	0.19	1.04	0.37	0.07	1.04	0.21	0.22	0.47	0.06	0.00	0.07
420	0.46	0.04	0.00	0.05	0.46	0.05	0.00	0.06	0.45	0.05	0.00	0.05	0.56	0.06	0.00	0.07	0.74	0.15	0.14	0.74	0.17	0.13	1.11	0.35	0.15	2.12	1.06	0.37	1.11	0.31	0.21	1.36	0.41	0.10	0.22	0.17	0.21	1.11	0.39	0.07	1.11	0.22	0.23	0.50	0.07	0.00	0.07
480	0.49	0.05	0.00	0.05	0.49	0.05	0.00	0.06	0.48	0.05	0.00	0.05	0.59	0.07	0.00	0.07	0.79	0.16	0.15	0.79	0.18	0.14	1.18	0.36	0.15	2.25	1.10	0.39	1.18	0.32	0.22	1.44	0.43	0.11	0.23	0.18	0.22	1.18	0.41	0.07	1.18	0.23	0.24	0.54	0.07	0.00	0.07
540	0.52	0.05	0.00	0.05	0.52	0.06	0.00	0.06	0.51	0.05	0.00	0.06	0.63	0.07	0.00	0.07	0.83	0.17	0.15	0.83	0.19	0.15	1.25	0.38	0.16	2.38	1.14	0.40	1.25	0.33	0.23	1.53	0.44	0.11	0.25	0.19	0.23	1.25	0.42	0.08	1.25	0.23	0.25	0.57	0.07	0.00	0.08
600	0.55	0.05	0.00	0.05	0.54	0.06	0.00	0.06	0.54	0.06	0.00	0.06	0.66	0.07	0.00	0.08	0.88	0.17	0.16	0.88	0.19	0.15	1.32	0.39	0.17	2.51	1.18	0.42	1.32	0.34	0.23	1.61	0.46	0.12	0.26	0.19	0.24	1.32	0.44	0.08	1.32	0.24	0.26	0.60	0.07	0.00	0.08
660	0.58	0.05	0.00	0.06	0.57	0.06	0.00	0.07	0.57	0.06	0.00	0.06	0.70	0.08	0.00	0.08	0.92	0.18	0.17	0.92	0.20	0.16	1.39	0.40	0.17	2.64	1.22	0.44	1.39	0.35	0.24	1.69	0.47	0.12	0.28	0.20	0.25	1.39	0.45	0.08	1.39	0.25	0.27	0.63	0.08	0.00	0.08
720	0.61	0.05	0.00	0.06	0.60	0.06	0.00	0.07	0.59	0.06	0.00	0.06	0.73	0.08	0.00	0.08	0.97	0.18	0.17	0.97	0.21	0.16	1.45	0.41	0.18	2.77	1.25	0.45	1.45	0.37	0.25	1.78	0.49	0.12	0.29	0.21	0.26	1.45	0.46	0.08	1.45	0.26	0.28	0.66	0.08	0.00	0.08

Mobile Emissions - Nitrous Oxide Page 1
Amberwood Specific Plan 11-Mar-10
Prepared by Michael Brandman Associates

Vehicle Miles Traveled 91,898

Starting Emissions	2.79	lbs/day	0.0014	tons/day	0.51	tons/year
Running Emissions	11.92	lbs/day	0.0060	tons/day	2.17	tons/year
Total	14.70	lbs/day	0.0074	tons/day	2.68	tons/year

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3,750 lbs	12.0	0.0	97.5	2.5
Light Truck 3,751- 5,750	21.2	0.0	100.0	0.0
Med Truck 5,751- 8,500	12.0	0.0	100.0	0.0
Lite-Heavy 8,501-10,000	2.4	0.0	75.0	25.0
Lite-Heavy 10,001-14,000	0.9	0.0	44.4	55.6
Med-Heavy 14,001-33,000	1.3	0.0	15.4	84.6
Heavy-Heavy 33,001-60,000	2.6	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.9	41.0	59.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0166	0.0518	0.0161
Light Truck < 3,750 lbs	LDT1	0.0208	0.0649	0.0322
Light Truck 3,751- 5,750	LDT2	0.0208	0.0649	0.0322
Med Truck 5,751- 8,500	MDV	0.0208	0.0649	0.0322
Lite-Heavy 8,501-10,000	LHDT1	0.0480	0.1499	0.0483
Lite-Heavy 10,001-14,000	LHDT2	0.0480	0.1499	0.0483
Med-Heavy 14,001-33,000	MHDT	0.0480	0.1499	0.0483
Heavy-Heavy 33,001-60,000	HHDT	0.0480	0.1499	0.0483
Line Haul > 60,000 lbs	LHV	0.0480	0.1499	0.0483
Urban Bus	UB	0.0480	0.1499	0.0483
Motorcycle	MCY	0.0073	0.0073	0.0073
School Bus	SBUS	0.0480	0.1499	0.0483
Motor Home	MH	0.0480	0.1499	0.0483

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.00	4.45	0.00
Light Truck < 3,750 lbs	0.00	1.54	0.02
Light Truck 3,751- 5,750	0.00	2.78	0.00
Med Truck 5,751- 8,500	0.00	1.57	0.00
Lite-Heavy 8,501-10,000	0.00	0.55	0.06
Lite-Heavy 10,001-14,000	0.00	0.12	0.05
Med-Heavy 14,001-33,000	0.00	0.06	0.11
Heavy-Heavy 33,001-60,000	0.00	0.00	0.25
Line Haul > 60,000 lbs	0.00	0.00	0.01
Urban Bus	0.00	0.00	0.00
Motorcycle	0.02	0.03	0.00
School Bus	0.00	0.00	0.01
Motor Home	0.00	0.27	0.01
Total	0.02	11.38	0.52

Mobile Emissions - Nitrous Oxide
Amberwood Specific Plan
Prepared by Michael Brandman Associates

Total Trips 16008

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.028	0.072	0.000
Light Truck < 3,750 lbs	LDT1	0.032	0.093	-0.001
Light Truck 3,751- 5,750	LDT2	0.032	0.093	-0.001
Med Truck 5,751- 8,500	MDV	0.032	0.093	-0.001
Lite-Heavy 8,501-10,000	LHDT1	0.070	0.194	-0.002
Lite-Heavy 10,001-14,000	LHDT2	0.070	0.194	-0.002
Med-Heavy 14,001-33,000	MHDT	0.070	0.194	-0.002
Heavy-Heavy 33,001-60,000	HHDT	0.070	0.194	-0.002
Line Haul > 60,000 lbs	LHV	0.070	0.194	-0.002
Urban Bus	UB	0.070	0.194	-0.002
Motorcycle	MCY	0.012	0.012	0.012
School Bus	SBUS	0.070	0.194	-0.002
Motor Home	MH	0.070	0.194	-0.002

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0	6803.3	0.0
Light Truck < 3,750 lbs	LDT1	0.0	1872.9	48.0
Light Truck 3,751- 5,750	LDT2	0.0	3393.6	0.0
Med Truck 5,751- 8,500	MDV	0.0	1920.9	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	288.1	96.0
Lite-Heavy 10,001-14,000	LHDT2	0.0	64.0	80.1
Med-Heavy 14,001-33,000	MHDT	0.0	32.0	176.1
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	416.2
Line Haul > 60,000 lbs	LHV	0.0	0.0	16.0
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	256.0	368.3	0.0
School Bus	SBUS	0.0	0.0	16.0
Motor Home	MH	0.0	144.1	16.0
Total		256.0	14887.3	864.4

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0000	1.0776	0.0000
Light Truck < 3,750 lbs	LDT1	0.0000	0.3832	-0.0001
Light Truck 3,751- 5,750	LDT2	0.0000	0.6943	0.0000
Med Truck 5,751- 8,500	MDV	0.0000	0.3930	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.1230	-0.0004
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0273	-0.0004
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0137	-0.0008
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	-0.0018
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	-0.0001
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0068	0.0097	0.0000
School Bus	SBUS	0.0000	0.0000	-0.0001
Motor Home	MH	0.0000	0.0615	-0.0001
Total		0.0068	2.7834	-0.0037

- Source of running emission factors: U.S. Environmental Protection Agency. Climate Leaders Greenhouse Gas Inventory Protocol, Core Module Guidance. Direct Emissions from Mobile Combustion Sources. October 2004.
- Source of vehicle percentages: URBEMIS default values.
- Source of starting emissions: U.S. Environmental Protection Agency. Prepared by ICF Consulting. EPA420-P-04-016. Update of Methane and Nitrous Oxide Emission Factors for On-Highway Vehicles. November 2004.

Electricity - Indirect Emissions

Project: Amberwood Specific Plan
Prepared by: Michael Brandman Associates
Prepared on: 3/11/2010

Land Use	square feet (sf) or dwelling unit (du)	Electricity Use (kWh/sf-year)*	Electricity Use (kWh/year)	
Single Family Residential	964	5,626.50	5,423,946	
City Park	22	9.84	215	
Community Commercial	131,200	13.63	1,788,256	
			-	
Total			7,212,417	
			7,212	MWh/year

Greenhouse Gas	Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	5,222,656	2,611
Methane	0.0302	218	0.11
Nitrous oxide	0.0081	58	0.03

Emission factor source: California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf, Table C.2.

Residential electricity usage rate: 5626.50 kwh/unit/year, from South Coast Air Quality Management 1993 CEQA Handbook, Table 9-11-A

Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005 www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.PDF

Natural Gas Combustion

Amberwood Specific Plan
Prepared by Michael Brandman Associates
3/11/2010

Gas	Type of Land Use	Square Feet	Annual Natural Gas Usage Factor* (kBTU/sf)	Natural Gas Usage for Project (MMBTU/year)	Emission Factor (g/MMBTU)**	Emissions (g/year)	Emissions (tons/year)	Emissions (pounds/day)
Methane	Community Commercial	131,200	25.99	3410	4.75	16197	0.02	0.10
Nitrous Oxide	Community Commercial	131200	25.99	3410	0.095	324	0.00	0.00

Units	Methane	Nitrous Oxide
pounds per day	0.10	0.00
tons per year	0	0
GWP	21	310
MTCO2 Eq/year	0.34	0.10

* *Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005

** USEPA, 2004: Direct Emissions from Stationary Combustion Sources, Climate Leaders Greenhouse Inventory Protocol, Core Model Guidance, October 2004

Table E-1: Overview of Energy Usage in the Statewide Service Area

Building Type	Floor Stock (kft^2)	Annual Energy Intensities			Total Annual Usage	
		Electricity (kWh/ft^2)	Natural Gas ($therms/ft^2$)	Natural Gas ($kBtu/ft^2$)	Electricity (GWh)	Natural Gas (Mtherms)
All Commercial	4,920,114	13.63	0.26	25.99	67077	1278.60
Small Office (<30k ft^2)	361,584	13.10	0.11	10.54	4738	38.10
Large Office (>=30k ft^2)	660,429	17.70	0.22	21.93	11691	144.80
Restaurant	148,892	40.20	2.10	209.98	5986	312.60
Retail	702,053	14.06	0.05	4.62	9871	32.50
Food Store	144,209	40.99	0.28	27.60	5911	39.80
Refrigerated Warehouse	95,540	20.02	0.06	5.60	1913	5.30
Unrefrigerated Warehouse	554,166	4.45	0.03	3.07	2467	17.00
School	445,106	7.46	0.16	15.97	3322	71.10
College	205,942	12.26	0.34	34.24	2524	70.50
Health	232,606	19.61	0.76	75.53	4561	175.70
Lodging	270,044	12.13	0.42	42.40	3275	114.50
Miscellaneous	1,099,544	9.84	0.23	23.34	10817	256.60
All Offices	1,022,012	16.08	0.18	17.90	16430	182.90
All Warehouses	649,706	6.74	0.03	3.44	4380	22.40

Natural Gas Combustion

Residential Developments

Prepared by Michael Brandman Associates

Gas	Units	Natural Gas Usage Factor* (SCF/unit/month)	Natural Gas Usage for Project (SCF/month)	Natural Gas usage for Project (SCF/year)	Emission Factor (g/MMBTU)**	Heating Value of Natural Gas (BTU/SCF)**	Emissions (tons per year)	Emissions (pounds per day)
Methane	964	6,665	6,425,060	77,100,720	4.75	1020	0.411	2.25
Nitrous Oxide	964	6,665	6,425,060	77,100,720	0.095	1020	0.008	0.05
Total								

Units	Nitrous Oxide	Methane
pounds per day	0.05	2.25
tons per year	0.008	0.411
Global warming potential	310	21
MTCO2e/year	2.548	8.629

* Natural gas usage factor from URBEMIS2007 default: 6665 SCF/unit/month for single family residential units; 4011.5 for multi-family residential units

**USEPA, 2004: Direct Emissions from Stationary Combustion Sources, Climate Leaders Greenhouse Inventory Protocol, Core Model Guidance, October 2004

Air Conditioning and Refrigeration Fugitive Emissions

Project: Amberwood Specific Plan
Prepared by: Michael Brandman Associates
Prepared on: 3/11/2010

Type of Unit	Units	Capacity of Unit (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential	Metric Tons CO2 Equiv./year
Domestic Refrigeration	964	0.5	0.5%	2.41	0.003	1300	3
Commercial Refrigeration		1000	35.0%	0	0.000	1300	0
Residential A/C	964	50	10%	4820	5.302	1300	6,253
Office A/C		100	10%	0	0	1300	0
Commercial A/C	12.0	100	10%	120.0	0.132	1300	156
Industrial A/C		100	10%	0	0	1300	0
Total					**5.437**		**6,412**

Source:
U.S. Environmental Protection Agency, Climate Leaders. May 2008. Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment. EPA430-K-03-004. http://www.epa.gov/stateply/documents/resources/mfgrfg.pdf, Accessed in July 2008.

APPENDIX E

PRELIMINARY ENGINEERING REPORT (SEPARATE DOCUMENT)

Kennedy/Jenks Consultants

Engineers & Scientists

CITY OF SELMA
ADMIN
OCT 11 2010
COMMUNITY DEVELOPMENT
RECEIVED

Kennedy/Jenks Consultants

1840 E. River Road, Suite 200
Tucson, Arizona 85718
520-293-0669
FAX: 520-293-0699

Amberwood
Preliminary Engineering Feasibility Report

6 October 2010

REGISTERED PROFESSIONAL ENGINEER
ROBERT LLOYD OWENS II
No. 22,412
Exp. 9/30/11
CIVIL
STATE OF CALIFORNIA

Oct 6, 2010

Prepared for

The Holt Group, Inc
1601 North Imperial Avenue
El Centro, CA 92243

K/J Project No. 0993006

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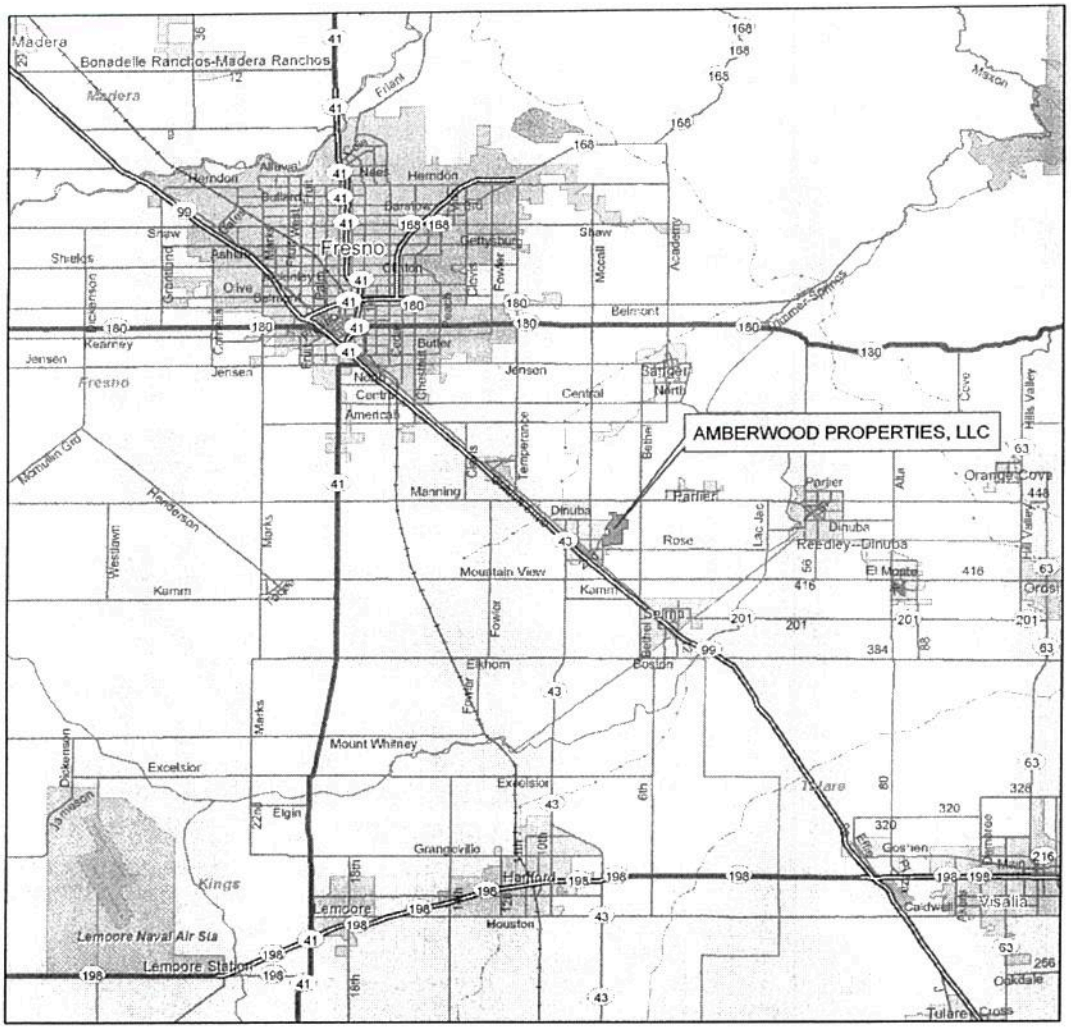
Section 1: Introduction, Background, and Project Description

1.1 Introduction

The Amberwood project is a proposed mixed use development of 2,558 homes located mostly within the existing sphere of influence of the City of Selma, which is located within the southeastern portion of Fresno County. The project site is not currently within the City limits and will need to be annexed before development can proceed. The proposed project also includes 131,200 square feet of commercial uses, and an elementary school with a maximum student population of approximately 700 students. Residential construction is anticipated to begin in 2013 and will develop at a rate of approximately 102 homes per year.

A vicinity map on Figure 1 shows the general area including the Amberwood project site. Selma is one of three closely situated communities of Fowler, Selma, and Kingsburg. All three of these are in Fresno County and within the San Joaquin Valley of inland California.

Figure 1: Vicinity Map



N

Miles

0 2.5 5 10 15 20

Kennedy/Jenks Consultants

Amberwood Properties, LLC

Amberwood
Wastewater Effluent Reuse

Figure 1 - VICINITY MAP

K/J No. 0993006 November 2009

1.2 Objective of Study

The objective of this study is to provide a feasibility of the concept proposed by the Amberwood Project. The Amberwood Project proposes to treat and reuse the wastewater generated from the project to irrigate private parks, public parks and open space areas. The Amberwood Project will reduce the consumptive water duty factor from the current agricultural rate to a lesser rate by a combination of lower demand per unit land area and by returning a percentage of the water consumption to the shallow aquifer. The shallow agricultural aquifer is separated from the lower potable aquifer. By applying this returned water to the shallow aquifer, the project does not constitute a "Groundwater Recharge Reuse Project" because the shallow aquifer DOES NOT represent a domestic water supply. It represents an agricultural water supply. The hydrogeological report (Appendix A) establishes the separation between the shallow agricultural aquifer and deeper potable aquifer. The geotechnical report list of agricultural wells shows a consistent depth of wells within the shallow aquifer and the list of domestic wells shows a consistent depth in the lower aquifer.

1.2.1 Wastewater From Amberwood Development

The amount of wastewater will increase as development proceeds. The projected volume of wastewater is based on the three components of the development; residential, commercial, and school. The estimated number of homes, square footage of commercial development, and number of students is presented in Table 1 on the following page. The unit wastewater rates assumed are:

- 70 gallons per capita per day for residential
- Commercial at 0.10 gallons per day per square foot
- Schools at 25 gallons per student per day

The assumptions for the progression of development are:

- The first 102 houses will begin construction in the year 2013
- The number of houses added annually thereafter will be approximately 102, based on a 25 year buildout period
- The population density will be 3.5 persons per household
- The water demand per house will average 400 gallons per day on an annual basis
- Monthly variations will be higher than average annual usage in the warmer months and lower than average annual usage in the cooler months
- The wastewater generation will be a seasonally-uniform 70 gallons per capita per day
- Commercial development will not result in actual water demand until the year 2016

School demand for water will be estimated as 50 gallons per day per student. Commercial water demand will be based upon 0.150 gallons per day per square foot.

Table 1: Wastewater Volume from Residential, Commercial and School (Gallons per day)

Year	Residential			Commercial			School			
	Homes	Population	Flow, gpd	Square Feet	GPD/SF	Flow, gpd	Students	Unit Flow	Flow	Total Flow, gpd
2013	102	358	25,068	0			0	25	0	25,068
2014	205	716	50,137	0			0	25	0	50,137
2015	307	1,074	75,205	0			0	25	0	75,205
2016	409	1,432	100,274	131,200	0.10	13,120	0	25	0	113,394
2017	512	1,791	125,342	131,200	0.10	13,120	0	25	0	138,462
2018	614	2,149	150,410	131,200	0.10	13,120	0	25	0	163,530
2019	716	2,507	175,479	131,200	0.10	13,120	0	25	0	188,599
2020	819	2,865	200,547	131,200	0.10	13,120	0	25	0	213,667
2021	921	3,223	225,616	131,200	0.10	13,120	500	25	12,500	251,236
2022	1,023	3,581	250,684	131,200	0.10	13,120	600	25	15,000	278,804
2023	1,126	3,939	275,752	131,200	0.10	13,120	700	25	17,500	306,372
2024	1,228	4,297	300,821	131,200	0.10	13,120	700	25	17,500	331,441
2025	1,330	4,656	325,889	131,200	0.10	13,120	700	25	17,500	356,509
2026	1,432	5,014	350,958	131,200	0.10	13,120	700	25	17,500	381,578
2027	1,535	5,372	376,026	131,200	0.10	13,120	700	25	17,500	406,646
2028	1,637	5,730	401,094	131,200	0.10	13,120	700	25	17,500	431,714
2029	1,739	6,088	426,163	131,200	0.10	13,120	700	25	17,500	456,783
2030	1,842	6,446	451,231	131,200	0.10	13,120	700	25	17,500	481,851
2031	1,944	6,804	476,300	131,200	0.10	13,120	700	25	17,500	506,920
2032	2,046	7,162	501,368	131,200	0.10	13,120	700	25	17,500	531,988
2033	2,149	7,521	526,436	131,200	0.10	13,120	700	25	17,500	557,056
2034	2,251	7,879	551,505	131,200	0.10	13,120	700	25	17,500	582,125
2035	2,353	8,237	576,573	131,200	0.10	13,120	700	25	17,500	607,193
2036	2,456	8,595	601,642	131,200	0.10	13,120	700	25	17,500	632,262
2037	2,558	8,953	626,710	131,200	0.10	13,120	700	25	17,500	657,330

* Calculations for Residential Housing Units (Homes), Population and Flow were based on 102.32 Homes/Year based upon the construction of 2,558 residential units over 25 years. The population and flow figures have been rounded on that basis.

Table 1 Notes:

1. Each home is 3.5 population and 70 gallons per capita per day
2. Commercial wastewater generates 0.10 gallons per square foot per day
3. Schools generate 25 gallons per student per day

1.2.2 Wastewater Effluent Reuse

The reuse plan being proposed is to establish a lake system (two lakes) supplied by Title 22 (2.2 coliform) water and to control the lake at a constant water surface level by:

- Supplying the Title 22 effluent for unrestricted reuse, and
- Supplying pumped groundwater from the shallow aquifer
- Extracting lake water for landscape irrigation of public and private parks and open space areas
- Applying the landscape irrigation water in compliance with Title 22 requirements
- Providing a contingency use for recycled water by furrow irrigation of adjacent tree crop orchards
- Evaporation from the lakes' water surfaces
- Part of the concern for any development in California is the balance of water (supply, use, and effluent disposal, and the impact of salt gain through normal water use). There are several components to this balance. The first step is illustrated by the projection of potable water demand as presented in a pro forma for annual use in the Amberwood project.

1.2.3 Water Supply; Potable and Lake Supply

Because the lakes will need to be filled before sufficient effluent is generated, some pumped groundwater will need to be supplied to assist in filling the lakes. The two lakes will be filled in sequence of the smaller (9.9 acre) lake first and the larger (23.7 acre) lake second. The total water supply is projected in two steps – the first step, as presented in Table 2, is an estimate of the annual water supplied to the Amberwood project for potable use. This table illustrates the progressive growth in water demand by year. The second part, or step in the illustration of water demand is to present an example of the seasonal variation in water demand.

Table 2: Potable Water Supply By Annual Demand (Gallons per day)

Year	Residential		Commercial		School		Total
	Population	Water	SF	Water	Students	Water	Water
2013	358	40,928	0	0	0	0	40,928
2014	716	81,856	0	0	0	0	81,856
2015	1,074	122,784	0	0	0	0	122,784
2016	1,432	163,712	131,200	19,680	0	0	183,392
2017	1,791	204,640	131,200	19,680	0	0	224,320
2018	2,149	245,568	131,200	19,680	0	0	265,248
2019	2,507	286,496	131,200	19,680	0	0	306,176
2020	2,865	327,424	131,200	19,680	0	0	347,104
2021	3,223	368,352	131,200	19,680	500	25,000	413,032
2022	3,581	409,280	131,200	19,680	600	30,000	458,960
2023	3,939	450,208	131,200	19,680	700	35,000	504,888
2024	4,297	491,136	131,200	19,680	700	35,000	545,816
2025	4,656	532,064	131,200	19,680	700	35,000	586,744
2026	5,014	572,992	131,200	19,680	700	35,000	627,672
2027	5,372	613,920	131,200	19,680	700	35,000	668,600
2028	5,730	654,848	131,200	19,680	700	35,000	709,528
2029	6,088	695,776	131,200	19,680	700	35,000	750,456
2030	6,446	736,704	131,200	19,680	700	35,000	791,384
2031	6,804	777,632	131,200	19,680	700	35,000	832,312
2032	7,162	818,560	131,200	19,680	700	35,000	873,240
2033	7,521	859,488	131,200	19,680	700	35,000	914,168
2034	7,879	900,416	131,200	19,680	700	35,000	955,096
2035	8,237	941,344	131,200	19,680	700	35,000	996,024
2036	8,595	982,272	131,200	19,680	700	35,000	1,036,952
2037	8,953	1,023,200	131,200	19,680	700	35,000	1,077,880

* Calculations for Residential Housing Units (Homes), Population and Flow were based on 102.32 Homes/Year based upon the construction of 2,558 residential units over 25 years. The population and flow figures have been rounded on that basis.

In Table 3, a seasonal profile of water demand is presented by month at the year of estimated full buildout. This is illustrative of the seasonal variation at buildout. The seasonal variation would be similar but in smaller amounts in the years preceeding buildout.

Table 3: Potable Water Supply by Seasonal Demand (Full Development).

Month	Water (Yr 2037)	
	Gallons/Day	Acre Feet/Month
January	754,516	70
February	808,410	75
March	862,305	80
April	916,198	86
May	970,092	91
June	1,077,880	101
July	1,347,351	126
August	1,401,244	131
September	1,347,351	126
October	1,293,456	121
November	1,131,774	106
December	1,023,987	96

The quality of potable water is important to know because the fate of a portion of the potable water, as wastewater effluent, is to recharge the shallow aquifer. The shallow aquifer, although relied upon for agricultural use, is one of the areas of concern in the San Joaquin Valley because of the potential buildup of inorganic minerals, or TDS as it is often measured. Because of this, a mass calculation of the effluent TDS content is developed in this chapter as presented in Table 4.

Table 4: Mass Calculation of Wastewater Effluent and Effluent TDS

Year	Volume of Effluent Water		TDS	
	MG, year	AF, year	Concen., mg/l	Mass, lb/yr
2013	9	28	250	19,078
2014	18	56	250	38,155
2015	27	84	250	57,233
2016	41	127	250	86,295
2017	51	155	250	105,373
2018	60	183	250	124,450
2019	69	211	250	143,529
2020	78	239	250	162,606
2021	92	281	250	191,197
2022	102	312	250	212,177
2023	112	343	250	233,157
2024	121	371	250	252,235
2025	130	399	250	271,312

2026	139	427	250	290,390
2027	148	456	250	309,468
2028	158	484	250	328,545
2029	167	512	250	347,623
2030	176	540	250	366,701
2031	185	568	250	385,779
2032	194	596	250	404,856
2033	203	624	250	423,934
2034	212	652	250	443,012
2035	222	680	250	462,089
2036	231	708	250	481,167
2037	240	736	250	500,245

The potable water is supplied by the California Water Service Company (CWS Co.) through wells that range in depth between 400 feet and 700 feet and are located in the local Selma area. Table 5 provides representative data on the quality of well water supplied in recent years.

Table 5: Potable Water Supply Quality

		Concentration		
Constituent	**Units**	**Low**	**High**	**Average**
Calcium	mg/l	6	15	10.50
Magnesium	mg/l	<1	1	<1
Sodium	mg/l	15	20	17.83
Carbonate	mg/l	<1	8	5.83
Bicarbonate	mg/l	46	79	62.67
Sulfate	mg/l	3	9	6.17
Chloride	mg/l	2	15	7.50
Nitrate	mg/l	<1	11	6.50
Fluoride	mg/l	<0.1	0.1	0.10
pH		8.3	8.9	8.63
EC	micromhos/cm	100	173	140.50
TDS	mg/l	62	132	89.50
Arsenic	ppb	1.6	5.3	3.15
Iron	mg/l	<0.1	<0.1	<0.1
Manganese	mg/l	<0.1	0.01	<0.01
Alpha Activity	pC/l	2.3	<3.0	2.86
DBCP	ppb	<0.01	0.05	0.02
1,2,3-TCP	ppb	<0.01	<0.01	<0.01

Well numbers 13-02, 16-03, 17-02, 18-01, 19-01, and 20-01

Sampling dates between January 9, 2007 and December 9, 2008

As can be seen from Table 5, the water quality is good and has a low concentration of dissolved inorganics. The overall measure, TDS, is exceptionally low at an average below 100 mg/l. The TDS typically increases in many California communities where water softeners are used, by 250 mg/l after domestic use. However, in the Amberwood project, the supply water is of a quality that water softening is not necessary to provide high quality potable water. Therefore, a TDS addition of 150 mg/l is estimated and this would result in an effluent TDS of 250 mg/l or less. For the projections in this report, an effluent TDS of 250 mg/l will be used.

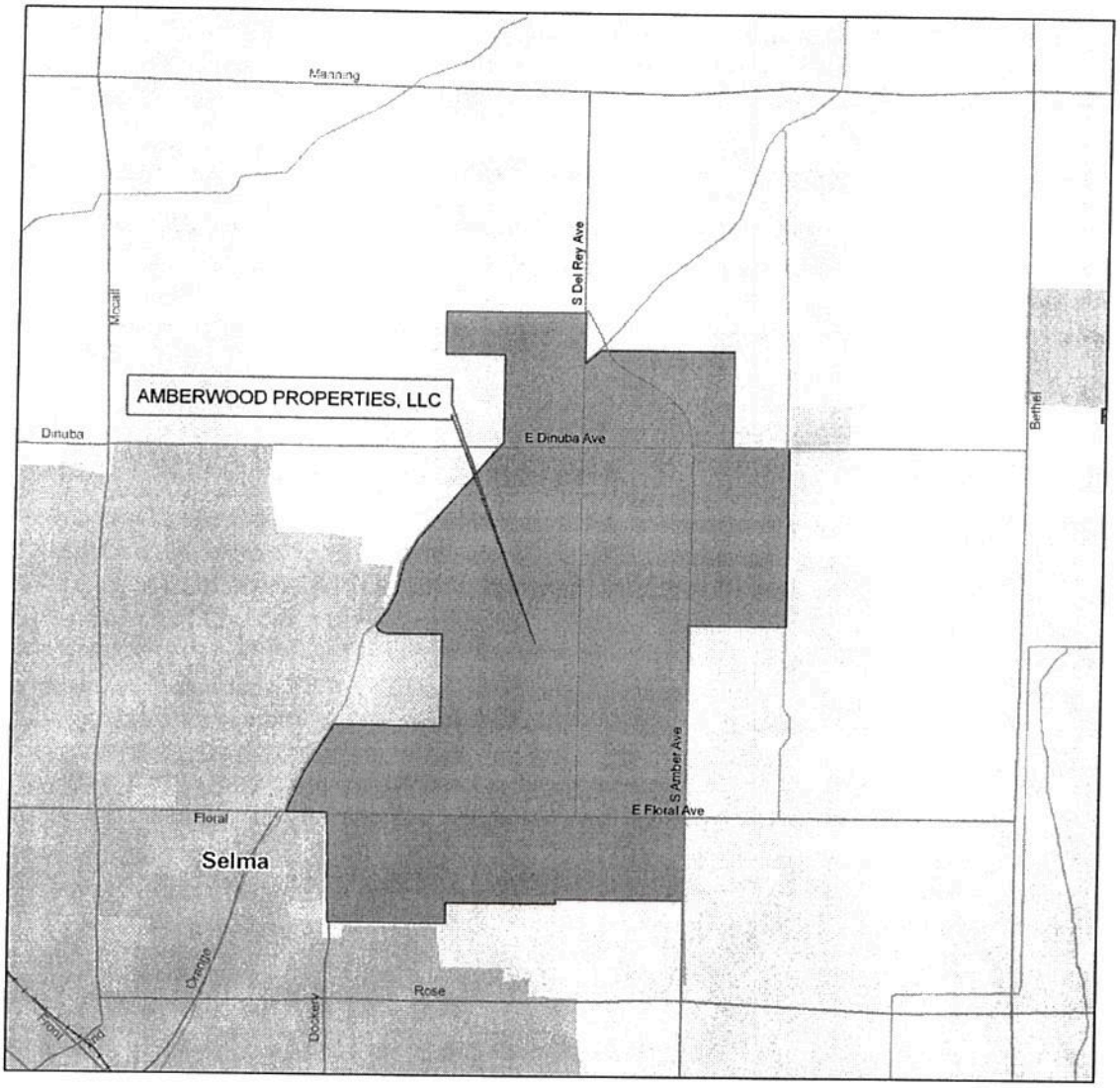
1.3 Background

The Amberwood project site, as shown on the Site Map in Figure 2, is currently used for both agriculturally active and inactive land uses. The agriculturally active land is used for tree and vine crops. In order to develop this site, much of the planted acreage would be removed to allow construction of residential housing and associated rights-of-way and utility infrastructure.

Technical information from previous studies has been used to prepare this document. The studies are referenced in this report. The study results support the feasibility for Title 22 water reuse by the Amberwood Development.

The project site is located over two aquifers, one shallow and one deep. The significance of these two aquifers is important to the State of California, Department of Public Health (DPH) and to the Consolidated Irrigation District (C.I. D.) and to the Regional Water Quality Control Board (RWQCB).

Figure 2: Site Map of Amberwood Project



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Kennedy/Jenks Consultants

Amberwood Properties, LLC

Amberwood
Wastewater Effluent Reuse

Figure 2 - SITE MAP

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1.4 Project Description

One of the primary objectives of the Amberwood Development Project is to treat, disinfect and recycle the on-site wastewater to conserve water for landscaping irrigation uses and shallow aquifer recharge.

The Amberwood project will include 12 (twelve) different residential lot types. The planned residential lots will include alley loaded lots, lake front lots, and conventional lots with garage access from the street. Both single story and two story residences will be constructed. Lot sizes will range from a minimum of 3,480 square feet to a minimum of 8,450 square feet. Various home sizes and configurations will be developed dependent on the lot type. Cul-De-Sac lots, due to their unusual shape and buildable area requirements, will normally exceed the lot size minimums. All dwelling units will be single family detached units. No apartments or attached condominium units will be constructed within Amberwood. Lake front lot owners will be allowed to construct a small private dock designed for a small unpowered fishing type boat. No powered boats will be allowed on the private lakes, and no swimming will be allowed in the lakes. The Amberwood project will be constructed in up to 20 phases, dependent upon future market conditions. Full buildout is expected to take up to 25 years. The schedule for construction of the new elementary school will be totally dependent on the future enrollment needs of the Selma Unified School District, and the availability of school district and State funding.

The first phase of homes will be constructed at the south end of the project site and will include the first of two planned private lakes. This is necessary in order to provide a lake facility for deposition of treated wastewater and a lake facility for deposition of stormwater. The buildout of the project will then procede in a south to north direction.

The Amberwood project will be designed with an on-site sanitary sewer pipeline collection system. It is proposed to treat project wastewater on-site through an activated sludge on-site wastewater treatment plant. The treated wastewater will be high quality and will be directed to two (2) separate private lakes after treatment and disinfection. The treated wastewater will also be piped throughout the project site for use as landscaping irrigation water. The private lakes will be unlined and will provide for recharge of the underground aquifer.

The private lake areas will also accept stormwater runoff from the project site. A minimum of 12 inches of freeboard will be maintained between the minimum and maximum lake levels to allow for acceptance of stormwater from normal stormwater events. A 12-18 inch overflow pipeline will be provided from the private lakes to the off-site master stormwater basin, which is to be located east of Amber Avenue. The master stormwater basin will be constructed and maintained by the City of Selma and will be designed to accept stormwater flows from 100 year storm events. The on-site storm drainage system will be designed to collect stormwater runoff from individual neighborhoods, and direct it to a central water conveyance facility via a traditional inlet and pipe system. The central water conveyance facility will be a small meandering creek running north to south through the central portion of the park to the private lakes located at the southern end of the Amberwood project. The creek will direct the stormwater into the private lakes through an outfall structure and sediment trap. Residential lots with frontage on the lakes will have a portion of their backyards sheet flow directly to the lakes. Depressed drainage swale areas located at various locations along the central conveyance

system will collect and detain water, thereby providing for additional aquifer recharge opportunities.

Potable water for the project will be provided through a series of deep wells to be constructed, operated, and maintained by the California Water Service Company. California Water Service Company is a private, for profit corporation. Fire hydrants will be located throughout the project site at locations to be determined by the Selma Fire Chief. All hydrants will provide a minimum of 1,500 gallons per minute of fire flow. The project will provide an approximate 3 acre site for a new City of Selma public safety facility. The new public safety facility will contain both police and fire public safety services.

The Amberwood project will provide for a minimum 7.5 acre Community Commercial shopping center site. It is anticipated this center will have such uses as a coffee shop, barbershop, book store, real estate office, supermarket, drug store, and other retail and commercial service uses designed to serve the residents of the Amberwood project and the surrounding area.

The Amberwood project site will contain abundant acreage designated for public and private park areas. Approximately 69.5 acres of the project site will be designated as public and private park area. A linear park of approximately 41 acres is to extend through the middle of the entire Amberwood community, running from the north to south Amberwood boundaries. A public recreation center building located within the linear park area will be dedicated to the City by the developer. A lake oriented private recreation center will also be provided for homeowners residing in the lake subdivision areas. This facility will be owned and maintained by a Homeowners Association.

All streets within the Amberwood project site will be designed and constructed to City of Selma standards. Amber Avenue will be a newly constructed four lane major arterial, with a total right of way width of 124 feet with a 16 foot center landscaped median. Amber Avenue will also have an 8 foot meandering Class 1 bicycle and pedestrian path located on both sides of the street. Local streets and alleys (lanes) will be private, and will be owned and maintained by the Amberwood Homeowners Association. Selected neighborhoods within Amberwood will be private gated communities.

The Amberwood Project will not require any permits or approvals from the Consolidated Irrigation District due to the fact that no stormwater from the project will be disposed of in any CID canal or drainage facility. The Amberwood project site will not be de-annexed from the Consolidated Irrigation District and the property comprising Amberwood will retain its surface water rights for beneficial uses such as aquifer recharge.

The project site ***will not*** be annexed into the Selma-Kingsburg-Fowler County Sanitation District due to the fact the Amberwood Project will not dispose of wastewater or treat wastewater through any S-K-F treatment plant or other facility. All wastewater from the project, as previously outlined, will be disposed of and treated on site.

1.4.1 Onsite Wastewater Treatment Process

The onsite wastewater treatment process will include the following:

- Influent pumping (see paragraph 3.1 and 3.1.1)
- Pretreatment screening (see paragraph 3.1.2)
- Pretreatment grit removal (see paragraph 3.1.3)
- Biological treatment (see paragraph 3.2)
- Tertiary treatment (see paragraph 3.3)
- Disinfection (see paragraph 3.4)
- Biosolids stabilization (see paragraph 3.5)

1.4.2 Wastewater Treatment Plant Phasing

The treatment plant will be constructed in three phases:

- Phase I – 0.21 mgd (completed in 2013); in this phase, most of the physical construction will occur. The structure for the basins and enclosed areas will be completed. Mechanical, electrical, and site work will be constructed so that minimal impact to the facility will occur in later phases. Within the basins, some physical partitions will be installed to allow the basins to operate at the Phase I capacity.
- Phase II – 0.40 mgd (completed in 2019); minor mechanical, electrical, process control, and piping changes will occur to increase the operating capacity. The basins will have internal partitions removed to allow the full capacity of the basins to be used.
- Phase III – 0.75 mgd (completed in 2025); final mechanical, electrical, process control, and piping changes will occur to expand the Wastewater Treatment Plant to full operating capacity.

1.4.3 Disinfection

The means of disinfection will be ultraviolet irradiation (see Section 3.4.3). The effluent quality will meet Title 22 – Tertiary 2.2 requirements. The effluent will meet a total coliform of 2.2 MPN/100 ml based on a median of the most recent seven samples.

1.4.4 Title 22 Effluent and Applicable Uses

The effluent quality of disinfected tertiary - 2.2 recycled water allows effluent reuse as follows:

(1) Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop

(2) Parks and playgrounds

(3) School yards

(4) Residential landscaping

(5) Unrestricted access golf courses, and

(6) Any other irrigation use not specified in this section and not prohibited by other sections of the California Code of Regulations.

Other applications that require a lesser standard of treatment are also eligible such as those crops that allow disinfected secondary effluent:

Recycled water used for the surface irrigation of food crops where the edible portion is produced above ground and not contacted by the recycled water shall be disinfected to a minimum secondary-2.2 recycled water requirement.

1.4.5 Recharge in Upper Aquifer

The effluent will be stored in a pair of recreational-use lakes in which both aquifer recharge and reuse for landscape irrigation will draw from these two water bodies. The intent is that the Title 22 effluent provide multiple benefits. The benefit that affects the water balance is the recharge from the lake bottoms.

The lakes will be situated within the Amberwood development. This area also overlies a shallow aquifer from which water is customarily pumped for agricultural irrigation. Thus, the recharge will indirectly benefit the agricultural irrigation by augmenting the supply of agricultural water.

1.4.6 Mitigation of Groundwater Overdraft

Groundwater overdraft by agriculture will be mitigated by the Amberwood project as discussed in the previous paragraphs. Protection will be provided in both quantity and quality. The recharge provides a portion of the water used for the domestic consumption as a replacement into the shallow aquifer and it provides the water of a quality that would typically have a salt (TDS) content that is lower in concentration (approximately 250 mg/l) than the ambient groundwater salt concentration (varies; typically about 350 mg/l).

1.4.7 Irrigation of Public and Private Parks

The Amberwood development will include private and public parks and open spaces within the project. Effluent will be used to irrigate the private and public parks and open spaces within the development. Irrigation of parks outside the boundaries of the development will not occur.

1.5 Treatment

The treatment system will require a continuous operation and maintenance staff, generally on-site during an 8 hour day shift with attendant remote monitoring capabilities through a supervisory control and data acquisition system (SCADA) including the use of remote site laptops. Typically, plants of this size and complexity would require no more than 2 operators and one part time maintenance person.

1.5.1 Effluent Requirement for Reuse and Contingency Plan

The treated effluent would be discharged to the meandering creek by pumping units. The treated effluent would be conveyed by the meandering creek to the Lakes. Under normal

operating conditions the effluent would comply with the Tertiary 2.2 Title 22 effluent standards for a lake discharge but as a contingency plan, a diversion destination is required. Immediately adjacent to the Amberwood project is an agricultural tree orchard that would be designated as a diversion site. The treated effluent would be diverted to the agricultural tree orchard and be applied for furrow irrigation.

Table 6: Wastewater Effluent Quality and Constituent Mass

Year	Volume of Effluent Water		BOD and TSS	
	MG, year	AF, year	Concentration, mg/l	Mass, lb/yr
2013	9	28	10	763
2014	18	56	10	1,526
2015	27	84	10	2,289
2016	41	127	10	3,452
2017	51	155	10	4,215
2018	60	183	10	4,978
2019	69	211	10	5,741
2020	78	239	10	6,504
2021	92	281	10	7,648
2022	102	312	10	8,487
2023	112	343	10	9,326
2024	121	371	10	10,089
2025	130	399	10	10,852
2026	139	427	10	11,616
2027	148	456	10	12,379
2028	158	484	10	13,142
2029	167	512	10	13,905
2030	176	540	10	14,668
2031	185	568	10	15,431
2032	194	596	10	16,194
2033	203	624	10	16,957
2034	212	652	10	17,720
2035	222	680	10	18,484
2036	231	708	10	19,247
2037	240	736	10	20,010

1.5.2 Screenings and Other Debris

The small quantity of screenings, grit and other trash should be removed from the treatment plant site on a weekly basis and hauled to a local landfill where this material is accepted. The current location available for the convenient disposal of the grit and screenings is at the Alasal Landfill, approximately 75 minutes from Selma.

Screening will be accomplished using fine screen openings (3 mm) to avoid the potential for rags and other debris from clogging downstream conduits and from accumulating in basins. The grit removal will be accomplished using a three stage system. This system, which is considered both standard and current technology, includes an instream slurry collection and pumping stage, a preliminary centrifugal liquid-solids separation stage, and a final liquid-solids

separation stage. The resulting grit material collected for disposal will be a small volume that can be hauled in trash barrels on a weekly basis together with the screenings.

1.5.3 Solids

The wasted sludge or biosolids that accumulate continuously should be thickened, and processed to the EPA 503 standards for Class B biosolids in aerated basins, enclosed within the plant structure. The biosolids will be dewatered onsite in a belt press and the dewatered biosolids will be further processed at an offsite location or at the Amberwood Wastewater Treatment Plant for drying. The dried, Class B biosolids will then be land applied at a permitted agricultural location to be determined.

The aerobic digestion process will result in a 38 percent stabilization of the potentially-pathogenic material, thus earning the B classification in accordance with the 503 regulations. The 38 percent stabilization is accomplished by the combination of time and temperature in the aerobic digesters. The product of time (in days) with temperature (in degrees C), with a numerical value of 900 (degree-days), is required for Class B biosolids.

1.5.4 Lakes

The treated effluent would be discharged into two lakes having the following approximate dimensional characteristics:

- Combined surface area of Lake Numbers 1 and 2 - 33 acres
- Combined volume - 330 acre-feet (105 million gallons)
- Maximum depth - 20 feet
- Average depth – 10 feet
- First lake – 9.9 acres
- Second lake - 23.7 acres

The lakes would provide five functions:

- Aesthetic enhancement to the development
- Recreational water for boating and fishing
- Recharge of shallow aquifer
- Storage of water for landscape irrigation
- Acceptance of on-site stormwater

1.5.5 Aquifer Recharge

The Schmidt study (Appendix A) explains the geo-hydrological conditions below the development area. There are several non-connecting aquifers below the site. In general, a shallow aquifer (between 100 feet and 200 feet) would receive the water which percolates through the bottom of the lakes. This aquifer is used to provide irrigation water for agricultural

crops locally. The mass balance of water supplied, wastewater generated, the amounts of water percolated, evaporated, and potable makeup water and water applied for landscape irrigation are presented in Table 7.

The lower aquifer (between 400 feet and 700 feet) is part of the source for potable use locally. This lower aquifer would not be influenced by the percolation.

Table 7: Mass Balance of Water Supply, Wastewater and Effluent Fate

Year	Water Supply		Wastewater Effluent		Percolation		Loss to Atmosphere		Landscape Irrigation		Lake Makeup Water	
	MG	AF/Year	MG	AF/Year	MG	AF/Year	MG	AF/Year	Acres	AF/Yr	MG	AF/Year
2013	15	46	9	28	235	723	15	47	0	0	242	742
2014	30	92	18	56	235	723	15	47	6.95	26	241	740
2015	45	138	27	84	235	723	15	47	13.9	53	240	738
2016	67	205	41	127	799	2,453	52	159	20.85	79	835	2,564
2017	82	251	51	155	799	2,453	52	159	27.8	106	835	2,563
2018	97	297	60	183	799	2,453	52	159	34.75	132	835	2,561
2019	112	343	69	211	799	2,453	52	159	41.7	158	834	2,559
2020	127	389	78	239	799	2,453	52	159	48.65	185	834	2,558
2021	151	463	92	281	799	2,453	52	159	55.6	211	828	2,542
2022	168	514	102	312	799	2,453	52	159	62.55	238	827	2,538
2023	184	566	112	343	799	2,453	52	159	69.5	264	825	2,533
2024	199	611	121	371	799	2,453	52	159	69.5	264	816	2,505
2025	214	657	130	399	799	2,453	52	159	69.5	264	807	2,477
2026	229	703	139	427	799	2,453	52	159	69.5	264	798	2,449
2027	244	749	148	456	799	2,453	52	159	69.5	264	789	2,420
2028	259	795	158	484	799	2,453	52	159	69.5	264	779	2,392
2029	274	841	167	512	799	2,453	52	159	69.5	264	770	2,364
2030	289	886	176	540	799	2,453	52	159	69.5	264	761	2,336
2031	304	932	185	568	799	2,453	52	159	69.5	264	752	2,308
2032	319	978	194	596	799	2,453	52	159	69.5	264	743	2,280
2033	334	1,024	203	624	799	2,453	52	159	69.5	264	734	2,252
2034	349	1,070	212	652	799	2,453	52	159	69.5	264	725	2,224
2035	364	1,116	222	680	799	2,453	52	159	69.5	264	716	2,196
2036	378	1,162	231	708	799	2,453	52	159	69.5	264	706	2,168
2037	393	1,207	240	736	799	2,453	52	159	69.5	264	697	2,140

1.5.6 Mass Balance of Water and Salt

The following table 8 presents a projected balance of the potable local water use, the wastewater derived from the use of potable water by the proposed Amberwood development at buildout, and the fate of that water through the treatment process and the water lakes.

Table 8: Mass Balance of Water and Salt

Year	Lake Makeup Water		Wastewater Effluent		Percolation	
	AF/Year	TDS, MG/L	AF/Year	TDS, MG/L	AF/Year	TDS, MG/L
2013	742	100	28	250	723	105
2014	740	100	56	250	723	111
2015	738	100	84	250	723	115
2016	2,564	100	127	250	2,453	107
2017	2,563	100	155	250	2,453	109
2018	2,561	100	183	250	2,453	111
2019	2,559	100	211	250	2,453	112
2020	2,558	100	239	250	2,453	114
2021	2,542	100	281	250	2,453	116
2022	2,538	100	312	250	2,453	118
2023	2,533	100	343	250	2,453	119
2024	2,505	100	371	250	2,453	121
2025	2,477	100	399	250	2,453	122
2026	2,449	100	427	250	2,453	123
2027	2,420	100	456	250	2,453	125
2028	2,392	100	484	250	2,453	126
2029	2,364	100	512	250	2,453	128
2030	2,336	100	540	250	2,453	130
2031	2,308	100	568	250	2,453	131
2032	2,280	100	596	250	2,453	133
2033	2,252	100	624	250	2,453	134
2034	2,224	100	652	250	2,453	136
2035	2,196	100	680	250	2,453	137
2036	2,168	100	708	250	2,453	139
2037	2,140	100	736	250	2,453	140

The initial assumption in this report is that the incremental addition of salt (TDS) due to domestic consumption is 150 mg/l based on traditional experience in California for communities that do not install home water softeners.

For years, a key issue has been the use of water softeners that rely on salt being introduced as a softening agent. The salt ultimately is added to the wastewater and can be a significant factor in the overall TDS increase. Legislation is now pending that could demonstrably change the law and limit the use of these softening systems. The following report describes recent State of California Legislation facilitating the implementation of more restrictive salt discharge requirements by regional water and wastewater agencies:

"SACRAMENTO, CA — Gov. Arnold Schwarzenegger has signed Assembly Bill 1366 (AB 1366) into law, the Pacific Water Quality Association (PWQA) said in an October 12 press release. News of the signing was also carried in an October 12 report on California Newswire®.

The law will make it easier for regional water and wastewater agencies in California to impose local bans or restrictions on water softeners. Some of the agencies have been seeking to reduce salt discharges from water softeners into local wastewater streams, saying those discharges make it difficult to remove enough salt to be in compliance with state wastewater regulations. They also say softener discharges return unwanted salt to natural water supplies which are already stressed.

In a few communities in the state, bans on new softener installations or orders to remove existing ones have been implemented in the past few years under the older process, which required extensive studies and public ballot approvals. Under the new law, agencies would have to go through a less extensive "findings" process to implement softener bans.

The bill was supported by California water/wastewater agencies and environmental advocacy groups."

"California Newswire reported that the new law applies to these hydrologic regions of California: South Coast, Central Coast, San Joaquin Valley, Tulare Lake and the lower half of the Sacramento Valley."

A homeowners association (HOA) will be formed for the Amberwood project. The HOA guidelines and requirements shall require that water softeners that rely on salt not be allowed within the Amberwood project.

Section 2: Application of Title 22 Guidelines

2.1 Overview of Regulations

The Title 22 regulations include comprehensive rules that govern the treatment plant, it's effluent quality, the reliability and the end points of use. There are specific rules for the end points of use applicable to this project that have been copied verbatim from the California Code of Regulations. The intended purpose of producing the effluent is for direct beneficial reuse and to mitigate groundwater overdraft in the Kings River Basin.

Section 60301.200. Direct beneficial use.
"Direct beneficial use" means the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to waters of the State.

The Amberwood project wastewater effluent is directed towards groundwater disposal and surface application. Each of these general categories is further defined in more specific terms such as "recreational impoundment" and "landscape irrigation".

2.1.1 Groundwater Disposal

Groundwater disposal can be achieved by a variety of selected means; the differences have to do with the surface storage and application of the effluent.

2.1.1.1 Recharge Reuse

Recharge in simple terms means the water is applied in order to induce the effluent into the ground as a means to become a portion of the groundwater for beneficial reuse. The definition and restrictions vary with the means and method of recharge.

Section 60301.390. Groundwater Recharge Reuse Project (GRRP)
"Groundwater Recharge Reuse Project (GRRP)" means a project that uses recycled municipal wastewater, has been planned and is operated for the purpose of recharging a groundwater basin designated in the Water Quality Control Plan [defined in Water Code section 13050(j)] for use as a source of domestic water supply, and has been identified as a GRRP by the RWQCB. NOTE: Authority cited: Section 100275, Health and Safety Code and Section 13521, Water Code. Reference: Sections 13520, 13521, and 13050(j), Water Code.

2.1.1.2 Recreational Impoundment

The concept of a recreational impoundment is to hold and benefit from the availability of the water in a surface impoundment. The collateral benefit of recharge is determined on a site specific basis.

Section 60301.760. Restricted recreational impoundment.
"Restricted recreational impoundment" means an impoundment of recycled water in which recreation is limited to fishing, boating, and other non-body-contact water recreational activities.

Section 60305. Use of recycled water for impoundments.

(a) Except as provided in subsection (b), recycled water used as a source of water supply for nonrestricted recreational impoundments shall be disinfected tertiary recycled water that has been subjected to conventional treatment.
(b) Disinfected tertiary recycled water that has not received conventional treatment may be used for nonrestricted recreational impoundments provided the recycled water is monitored for the presence of pathogenic organisms in accordance with the following:

(1) During the first 12 months of operation and use the recycled water shall be sampled and analyzed monthly for *Giardia*, enteric viruses, and *Cryptosporidium*. Following the first 12 months of use, the recycled water shall be sampled and analyzed quarterly for *Giardia*, enteric viruses, and *Cryptosporidium*. The ongoing monitoring may be discontinued after the first two years of operation with the approval of the department. This monitoring shall be in addition to the monitoring set forth in section 60321.

(2) The samples shall be taken at a point following disinfection and prior to the point where the recycled water enters the use impoundment. The samples shall be analyzed by an approved laboratory and the results submitted quarterly to the regulatory agency.

(c) The total coliform bacteria concentrations in recycled water used for nonrestricted recreational impoundments, measured at a point between the disinfection process and the point of entry to the use impoundment, shall comply with the criteria specified in section 60301.230 (b) for disinfected tertiary recycled water.
(d) Recycled water used as a source of supply for restricted recreational impoundments and for any publicly accessible impoundments at fish hatcheries shall be at least disinfected secondary-2.2 recycled water.
(e) Recycled water used as a source of supply for landscape impoundments that do not utilize decorative fountains shall be at least disinfected secondary-23 recycled water.
Specific set back requirements include the following (and others):
(b) No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well.
(c) No irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall take place within 100 feet of any domestic water supply well.

2.1.2 Surface Application

Section 60301.850. Surface Application.
"Surface Application" means the controlled application of recharge water to a spreading area resulting in the recharge of a groundwater basin. NOTE: Authority cited: Section 100275, Health and Safety Code and Section 13521, Water Code. Reference: Section 13520, Water Code.

2.1.2.1 Spreading Area

Section 60301.810. Spreading Area.
"Spreading area" means a natural or constructed impoundment with a depth equal to or less than its widest surface dimension used by a GRRP to recharge a groundwater basin with recharge water infiltrating and percolating through an otherwise (i.e. without the presence of recharge water) unsaturated zone. NOTE: Authority cited: Section 100275, Health and Safety Code and Section 13521, Water Code. Reference: Section 13520, Water Code.

2.1.2.2 Landscape Irrigation

Amberwood will include the use of effluent for private and public park and open space. The effluent will be required to conform to the following guidelines:

Section 60301.800. Spray irrigation.
"Spray irrigation" means the application of recycled water to crops to maintain vegetation or support growth of vegetation by applying it from sprinklers.

Section 60304. Use of recycled water for irrigation.
(a) Recycled water used for the surface irrigation of the following shall be a disinfected tertiary recycled water, except that for filtration pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes:

(1) Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop,
(2) Parks and playgrounds,
(3) School yards,
(4) Residential landscaping,
(5) Unrestricted access golf courses, and
(6) Any other irrigation use not specified in this section and not prohibited by other sections of the California Code of Regulations.

(b) Recycled water used for the surface irrigation of food crops where the edible portion is produced above ground and not contacted by the recycled water shall be at least disinfected secondary-2.2 recycled water.
(c) Recycled water used for the surface irrigation of the following shall be at least disinfected secondary-23 recycled water:

(1) Cemeteries,
(2) Freeway landscaping,
(3) Restricted access golf courses
(4) Ornamental nursery stock and sod farms where access by the general public is not restricted
(5) Pasture for animals producing milk for human consumption, and
(6) Any nonedible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground or school yard

(d) Recycled wastewater used for the surface irrigation of the following shall be at least undisinfected secondary recycled water:

(1) Orchards where the recycled water does not come into contact with the edible portion of the crop,
(2) Vineyards where the recycled water does not come into contact with the edible portion of the crop,
(3) Non food-bearing trees (Christmas tree farms are included in this category provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting or allowing access by the general public),
(4) Fodder and fiber crops and pasture for animals not producing milk for human consumption,

(5) Seed crops not eaten by humans,
(6) Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans, and
(7) Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public.

(e) No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops eaten raw by humans unless the recycled water complies with subsection (a).

2.2 Effluent Standards

Depending upon several factors, there are varying effluent standards that can be applied for reuse. Not all projects are required to apply the same effluent standards in California.

Section 60301.220. Disinfected secondary-2.2 recycled water.
"Disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

Section 60301.225. Disinfected secondary-23 recycled water.
"Disinfected secondary-23 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period.

2.3 Engineering Report

The State of California, DPH requires that before wastewater effluent is recycled, it must be approved and the substantiating document required by law is an Engineering Report. The Central Valley has an existing MOU with the RWQCB so that the RWQCB completes the actual review. RWQCB notifies DPH after the report is approved. The report is required to comply with the law under the language specified:

Article 7. Engineering Report and Operational Requirements.
Section 60323. Engineering report.
(a) No person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless he files an engineering report.
(b) The report shall be prepared by a properly qualified engineer registered in California and experienced in the field of wastewater treatment, and shall contain a description of the design of the proposed reclamation system. The report shall clearly indicate the means for compliance with these regulations and any other features specified by the regulatory agency.
(c) The report shall contain a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to the use area.

Section 3: Wastewater Reclamation Process Alternatives

In this section, two basic process alternatives (sequencing batch reactor and membrane bioreactor) will be presented. Other steps in the process train will be discussed with alternatives for each. The critical selection is the biological treatment which is represented by the sequencing batch reactor and membrane bioreactor. Biological treatment is unquestionably the most important phase of treatment in determining the final effluent quality.

There are many types of biological treatment processes generally employed in treatment plants. However, for the conditions that the Amberwood project presents to the treatment plant site, the quantity of wastewater that will occur, the period of time that will take for the project to develop to full buildout, and to the effluent requirements, there are few other practical alternatives.

The following descriptions are presented to explain the practical alternative choices available for each of the process steps in treating the wastewater.

3.1 Influent Pumping and Pretreatment

The topography of the Amberwood site is typical of agricultural land in California, flat. Projecting collection pipelines, typically 8-inches in diameter and requiring a minimum slope of 0.40 percent across a flat topography results in deep pipelines and the need for an influent pumping station.

Before wastewater can be processed for Title 22, it requires pretreatment to eliminate debris which would either:

- Foul downstream process equipment
- Cause unnecessary abrasion of pumping and pipeline material
- Fill and clog space within tanks and channels

3.1.1 Pumping Station Alternatives

In general, there are three types of influent pumping stations that are used for raw wastewater:

- Submersible pumping units in a single wet well – these are the least expensive in capital cost, very common in practice and considered less favorable by maintenance personnel
- Duplex wet well with a trash rack type screen in the first wet well and pumping submersible pumping units in the second wet well – these are an improvement over the first type but also incur significant maintenance
- Wet pit – dry pit – these are the most expensive in capital cost but are also the most secure and are easily maintained

3.1.2 Pretreatment - Screening

There is a wide spectrum of alternatives for the screening of raw wastewater:

- The least costly effort is typically a manually-cleaned trash rack with screen opening sizes of between ¾-inch and two inches. This does not involve any mechanical cleaning.
- The most common screen size opening for biological treatment systems today is 6 mm (approximately ¾ inch) and is available in many screen configurations such as the "climbing screen", the "stair screen", and the "continuous screen".
- The screen size opening for a plant that incorporates membrane treatment is from 1 mm opening to 3 mm opening size. The reason for this tight opening size is that small fibers (e.g. hair) can blind the membrane and make the process less effective. When using screens of this small opening size, a pre-screen is advisable to prevent the fine screen from being damaged by large debris.
- The general types of screens include:

1. Continuous belt type screen
2. Mechanically – climbing (or simply "climber")
3. Step screen
4. Auger screen

3.1.3 Pretreatment - Grit Removal

Grit removal is necessary if the wastewater is further processed through either a membrane bioreactor or a cloth filter for tertiary treatment. The basic grit removal methods include:

- Circular vortex type vessel for first stage capture of grit slurry
- Screen type capture
- Aerated channel type capture
- Cyclone and classifier for second stage capture

The most important factor in grit removal besides the capture rate is the ability to isolate the unit(s) so that the air from the de-gritting area is controlled and processed as a foul air before exhausting to the atmosphere.

3.2 Biological Treatment for Secondary Effluent

Biological treatment generally consists of BOD reduction and in many cases nutrient reduction. The biological nutrient removal (BNR) is dependent on the disposal or reuse option selected for the effluent. The effluent requirement for spray irrigation does not typically require nutrient reduction. If the effluent is added, stored, or mixed with non-effluent water in a water body (e.g. lakes or rivers) the nutrient reduction can include both nitrogen and phosphorus. The effluent limits on nutrients would be determined by the ability of the water body to biologically uptake them beneficially. The more nitrogen and phosphorus removed in the treatment

process, the less that must be accounted for in a water body for uptake. It is anticipated that nutrient reduction will be required to minimize biological growth within the lakes.

There are many types of biological treatment process units available for the required treatment. Choosing one depends on the requirements for:

- System capacity
- Financial investment in system
- Operator capability
- Effluent quality desired (or required by permit)
- Size of facility

There are two alternative process trains. These can be summarized by the basic biological processes of:

- Sequencing Batch Reactor (SBR) coupled with Tertiary Filtration
- Membrane Bioreactor (MBR)

Both of these provide a highly reliable Title 22 effluent. The differences are that the MBR produces a higher quality effluent that exceeds the Title 22 requirements more than the SBR coupled with the tertiary filtration. The cost differences are slightly higher for the MBR in both capital and O&M. The MBR occupies a slightly smaller footprint because it does not require separate tertiary filters. It appears that MBR's will become the standard for producing Title 22 effluent in the near future.

3.2.1 Sequencing Batch Reactor (SBR)

These are typically found in plants that are small (less than 3 mgd capacity) and often that deal with widely varying loads such as in hotels, recreation facilities, and other areas that do not have a high nighttime load. They are also used as the initial phase for plants that will grow large in a short time and can convert the units to alternate uses such as aerobic digesters for wasted solids.

The concept of a sequencing batch reactor (SBR) is a single vessel (or several parallel vessels), each capable of completing all the stages of biological treatment within the vessel by performing intermittent functions (e.g. filling, mixing, aerating, settling, decanting).

3.2.2 Membrane Bioreactor

The advent of the membrane bioreactor (MBR) came in the 1990's and was initially met with skepticism. It has become highly accepted in the wastewater industry in the past five years. Now, the MBR technology has advanced substantially since the 1990's technology. Earlier concerns about high initial cost, high maintenance requirements, and lack of operator experience have disappeared. The spectrum of membrane types and increase of manufacturers has been growing steadily. Today, the technology is superior to the granular media and cloth media for producing low turbidity and setting up the effluent for a very effective

disinfection and meeting the Title 22, unrestricted reuse requirements with a very comfortable margin.

The membrane bioreactor (MBR) process has become a reliable and cost-effective process where certain conditions occur:

- Space is a constraint
- Highly polished tertiary effluent is required
- BNR is included in the biological process
- Odor control is critical
- Reliability of meeting effluent standards is also critical

The concept of MBR is that a biological treatment using the same type of configuration found in activated sludge or a BNR suspended growth system treats the raw wastewater to remove BOD and reduce nutrients to the required concentration, then the mixed liquor is placed into a single basin where a submerged membrane, acting as both a secondary clarifier and a tertiary filter produces a very highly treated tertiary effluent. The membrane is fabricated from one of a variety on membrane configurations (e.g. rolled sheets, tubes, etc.) and is grouped into thousands of tubes submerged in the activated sludge mixed liquor.

3.2.3 Other Alternatives

Due to these project constraints, other alternative processes have been considered problematic:

- Ponds – too large, aesthetically unpleasing, not capable of meeting effluent requirements
- Packaged, extended aeration system – capable of being custom designed to meet effluent requirements but the area required is larger than the selected alternatives considered best
- Conventional biological nutrient removal treatment with multiple tank system – more costly and requires larger area than the alternatives considered best

3.3 Tertiary Treatment

Tertiary filtration is a required process in order to meet the Title 22 requirements and administratively is required for unrestricted reuse. Tertiary Treatment is physically necessary in order to obtain the low turbidity and to allow the disinfection to achieve the low coliform count (2.2 MPN/100 ml).

3.3.1 Granular Media Filtration

The traditional means for achieving tertiary filtration is by use of granular media. The specifications for granular media vary depending on several variables. The factors include:

- Goals for backwash frequency and duration

- Presence and amount of fine particulates and colloidal material

3.3.2 Cloth Media Filtration

In recent years, cloth media has become a popular choice for tertiary filtration. The advantages of cloth media are low pore size and high capture rate, simple backwash system, and low operating cost.

3.3.3 Membrane Bioreactor

The membrane bioreactor is considered in both categories of biological treatment and of tertiary filtration. It combines both functions in one package. The membrane bioreactor membrane pore opening size is finer than that of the cloth disk pore size or any of the other tertiary filtration media. The result is that with the membrane bioreactor, the effluent turbidity is typically below 0.5 NTU and frequently as low as 0.1 NTU. The Title 22 requirement to perform at an NTU of 2 is easily met. The only reason for achieving a turbidity this low is to proceed to an even finer effluent requirement and higher standard than needed for landscape irrigation or for recreational lakes. Thus, it represents a more stringent standard than may be required for the Amberwood project.

3.4 Disinfection

Disinfection is the final process required. There are several alternatives that are commonly used today. Disinfection is required following the tertiary process (either membrane or filtration) after the effluent achieves turbidity of 2 NTU's or fewer to achieve the coliform concentration of 2.2 MPN/100 ml or fewer.

3.4.1 Chlorine Gas

The use of chlorine gas for new wastewater treatment plants has all but disappeared in California because of the stringent safety requirements. The reason gas chlorine was desirable was because it was inexpensive to purchase, store, and use. Also, the gas form of chlorine did not increase the dissolved solids that has become a concern in wastewater today.

3.4.2 Liquid Chlorine (Sodium Hypochlorite)

Chlorine in a liquid form has become highly popular in California for wastewater treatment disinfection because it represents a significantly reduced hazard for human safety compared to the gas form of chlorine. However, the liquid form comes with several adverse conditions:

- The effective concentration of active chlorine has a decay rate which is largely affected by initial concentration, time, temperature and sunlight
- Transportation costs include the liquid in which the dissolved chlorine is mixed
- The storage volume is considerably larger than required for gas chlorine
- The chlorine is in the form of a salt (sodium hypochlorite) which adds a dissolved salt content to the wastewater effluent

- Plumbing has to be specially constructed for the sodium hypochlorite for leakage control and corrosion protection

3.4.3 Ultraviolet Irradiation

Ultraviolet disinfection by irradiation is a popular means of disinfection when the water is tertiary filtered. The reason that tertiary is necessary for ultraviolet disinfection is that the technology requires the ability for light transmittance. Typically, a transmittance value of 65 percent is expected for ultraviolet disinfection to work well. Unlike chemical means of disinfection, UV achieves the process by inactivating the organisms thereby eliminating their ability to replicate. Chemical means literally kill the organisms directly by oxidation.

3.5 Biosolids Stabilization

The alternative methods for biosolids stabilization to achieve Class B include several means:

- Anaerobic digestion – this involves construction of an atmospherically-sealed vessel to isolate the biosolids from an air supply and to allow the liquid mass to biologically convert the volatile solids into carbon dioxide, methane and water. This process is usually conducted in large circular vessels in which mixing is constantly occurring by one of several forces. These forces can be mechanical mixing, hydraulic mixing, or gas mixing. The capital costs of these anaerobic systems are very high when compared to the capital costs of the alternative aerobic digestion.
- Aerobic digestion – this involves feeding a constant air supply through coarse bubble diffusers in the bottom of tanks that can be either rectangular or circular in shape. The biological process is different from the anaerobic digestion process, Methane is NOT generated in aerobic digestion. The operating cost of aerobic digestion is higher than anaerobic digestion because more energy is required. In anaerobic digestion an energy producing by-product is created (methane is an energy resource than can be applied for heating, or as a fuel to create electricity).
- In a plant that is as small as the Amberwood treatment plant (less than 1 mgd capacity) the life cycle costs will be clearly in favor of aerobic digestion.

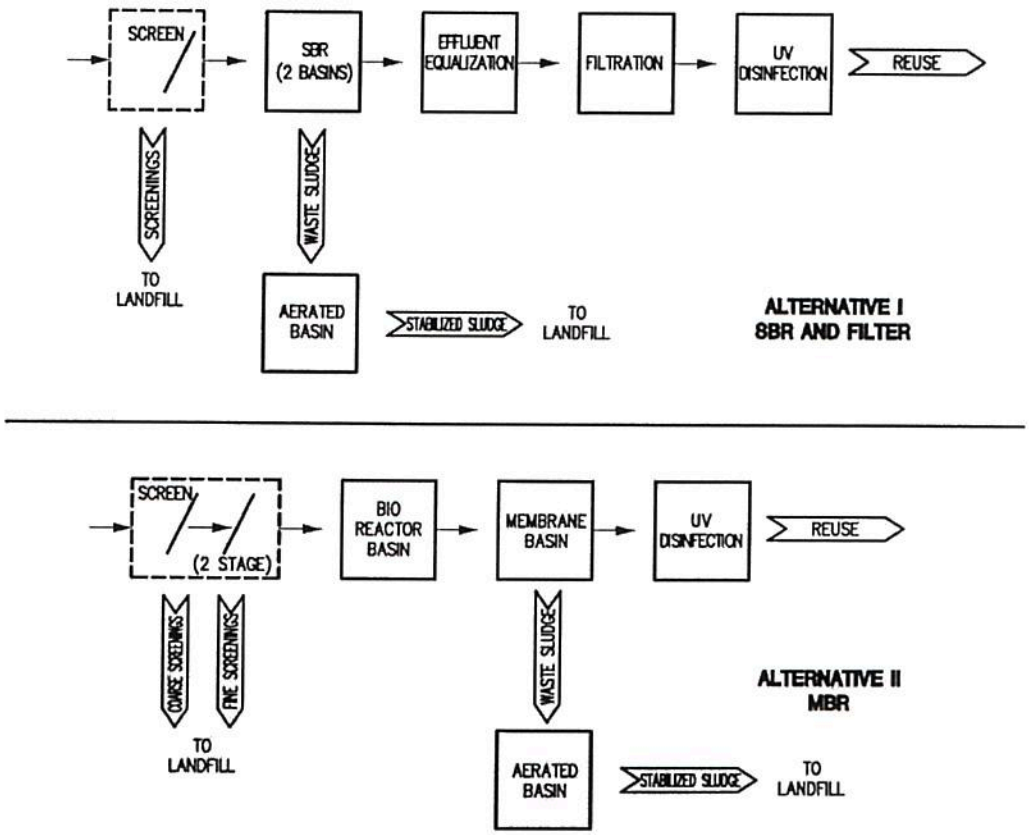
3.6 Recommended Process Alternatives

The recommended process train includes the following selections from the alternatives described above:

- Influent Pumping Station (submersible units)
- Pretreatment screening with screen type unit – 1 to 3 mm screen opening size
- Pretreatment grit removal (channel type with centrifugal separator followed by classifier)
- Membrane Bioreactor for biological treatment and tertiary treatment filtration
- Ultraviolet irradiation for disinfection (low pressure, low intensity)
- Aerobic digestion of biosolids

A summary of two overall process trains illustrating the difference between sequencing batch reactor and membrane bioreactor is illustrated in Figure 3. The disposal of the stabilized sludge as a landfill option is considered the backup option if onsite land application is not cost effective. In that case, the stabilized sludge would not necessarily need to meet the Class B requirements.

Figure 3: Projected Treatment Process Schematic

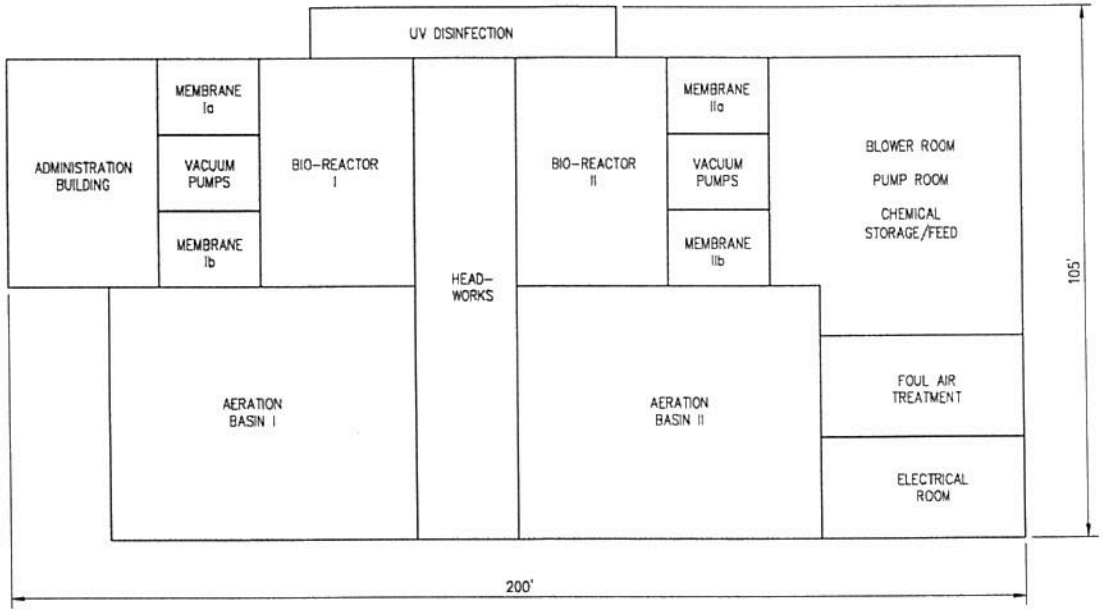


Each of the two processes can be constructed in a compact format (one that minimizes the plant footprint) by incorporating common wall construction. Common wall construction provides several benefits:

- Minimizes area of plant
- Reduces number of walls to enclose basins
- Provides integral structural integrity by locking walls into a grid-like pattern
- Minimizes lengths of pipeline runs for liquid transfer between basins
- Minimizes conduit runs for electrical and instrumentation

Figure 4 presents a layout of the proposed MBR process and Figure 5 presents a layout of the proposed SBR process.

Figure 4: Treatment Plant Layout – Membrane Bioreactor (MBR)

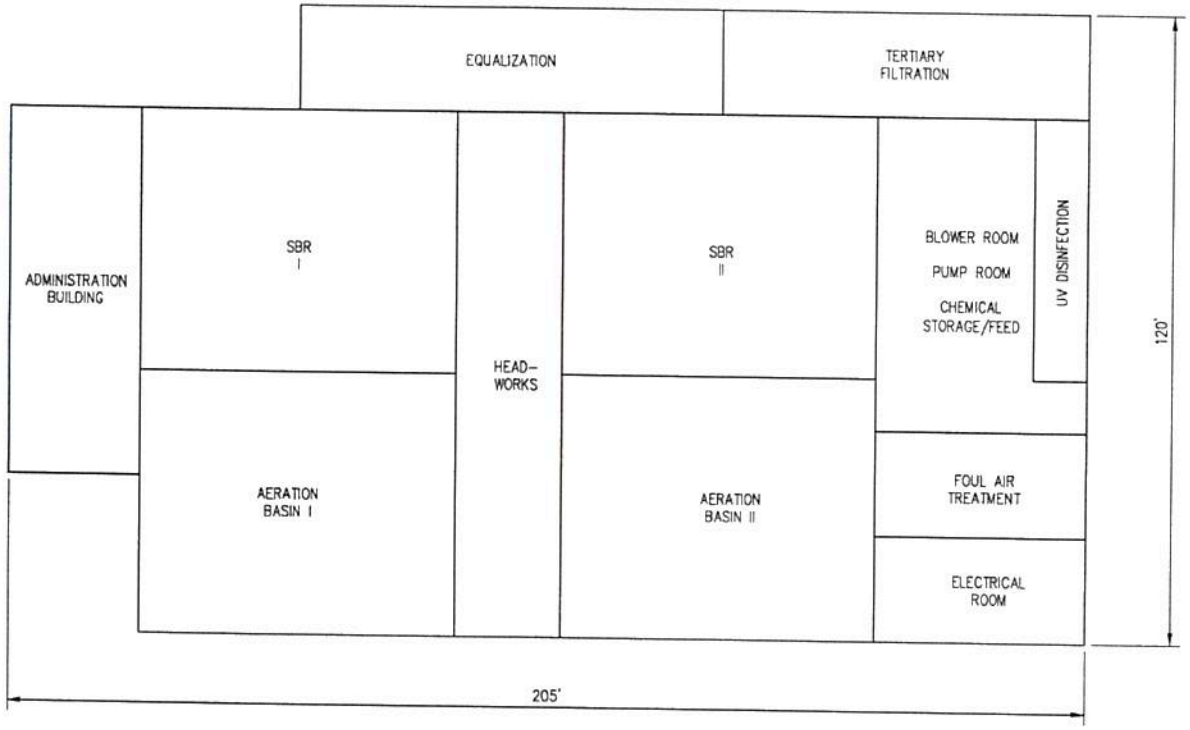


MBR + UV
1"=20'
SITE SCHEMATIC

Kennedy/Jenks Consultants
Amberwood Properties, LLC
Selma, California
MBR + UV SITE SCHEMATIC
0993006
Nov 2009
FIGURE 4

The MBR is very similar to the SBR except that: (1) The MBR requires a more rigorous (two-stage) screening, and (2) there are membrane tanks instead of filter tanks. Both are well-suited for the objectives of the project.

Figure 5: Treatment Plant Layout – Sequencing Batch Reactor (SBR)



SBR + FILTRATION + UV
1"=20'
SITE SCHEMATIC

Kennedy/Jenks Consultants
Amberwood Properties, LLC
Selma, California

SBR + FILTRATION + UV SITE SCHEMATIC

0993006
Nov 2009

FIGURE 5

Section 4: Cost Estimates for Alternatives

The project will be implemented in three phases to coincide with the capacity required. The ultimate buildout capacity is 0.75 mgd. To divide this capacity into three approximately equal capacity phases would be 0.75 divided by three or:

- 0.29 mgd – Phase I (construct by 2013 – capacity limited in 2020)
- 0.51 mgd – Phase II (construct by 2020 – capacity limited in 2028)
- 0.75 mgd. – Phase III (construct by 2028 - buildout)

The phasing will require installation of structures, equipment, and electrical hardware in each of the three phases.

4.1 Project Costs

The project capital costs include these elements:

- Design (including preliminary design)
- Bid period costs
- Construction Costs
- Construction Contingency
- Construction Management, Administration and Field Inspection including office engineering for review of shop drawings, RFI's, meetings, change orders, etc.
- Administration of Contract
- Start up of Wastewater Treatment Plant

Table 9: Project Costs

Unit	Civil	Structural	Mechanical	E&I	Subtotal
Pumping Station	$25,000	$25,000	$100,000	$25,000	$175,000
Headworks	$50,000	$50,000	$250,000	$25,000	$375,000
Equalization	$50,000	$100,000	$50,000	$25,000	$225,000
MBR	$50,000	$300,000	$2,410,000	$120,000	$2,880,000
Solids Dewatering	$0	$25,000	$150,000	$25,000	$200,000
Disinfection	$25,000	$250,000	$500,000	$75,000	$850,000
Effluent PS	$25,000	$25,000	$50,000	$25,000	$125,000
Operation Bldg	$15,000	$100,000	$100,000	$75,000	$290,000
Site Work	$100,000	$100,000	$100,000	$100,000	$400,000

Cost	$340,000	$975,000	$3,710,000	$495,000	$5,520,000
Overhead and Profit		10%			$552,000
Contingency		15%			$828,000
Total Construction Cost					$6,900,000
Engineering Design		9%			$621,000
Engineering Bidding		0.75%			$51,750
Construction Management, Administration and Field Inspection		9%			$621,000
WWTP Start Up Phase and O&M Manual		1%			$69,000
TOTAL PROJECT COST					$8,262,750
Project Cost (Phase I) – 75%					**$6,197,063**
Project Cost (Phase II) – 12.5%		**Plus 12.5% Inflation Cost to 2019**			**$2,065,688**
Project Cost (Phase III) – 12.5%		**Plus 15% Inflation Cost to 2027**			**$2,272,256**
Total Project Cost AT FULL BUILD OUT IN 2027					**$10,535,007**

4.2 Project Implementation

4.2.1 Preliminary Schedule

The preliminary schedule includes the construction of the ultimate plant in three phases. It should be noted that the first phase includes provisions of structural work for the second and third phases.

Figure 6: Project Schedule for Three Phases of Implementation

	Phase I	Phase II	Phase III
Complete EIR	Jan-11		
Begin Permitting by Developer	Feb-11	Feb-19	Feb-27

Begin Pre-Design by Engineer – Complete Title 22 Engineering Report	Mar-11	Mar-19	Mar-27
Begin Design by Engineer – Complete Improvement Plans, Specifications and Contract Documents	Apr-11	Apr-19	Apr-27
50% Design	Jul-11	Jul-19	Jul-27
90 % Design	Oct-11	Oct-19	Oct-27
Final Design	Jan-12	Jan-20	Jan-28
Begin Bid Period	Feb-12	Feb-20	Feb-28
Contractor NTP	Apr-12	Apr-20	Apr-28
Begin Construction	May-12	May-20	May-28
Complete Construction	Sep-13	Sep-20	Sep-28
Begin Startup	Oct-13	Oct-20	Oct-28
End of Startup	Dec-13	Dec-20	Dec-28

4.2.2 Financial Assistance for a Recycling Project

It may be possible that because the objective of the effluent is to recycle, that some financial assistance may be available.

- The Bureau of Reclamation's Title XVI program was authorized by Congress in 1992 as a part of the Reclamation Projects Authorization and Adjustment Act (P.L. 105-575) and provides the Bureau with the authority to participate in planning, design, and construction of facilities to reclaim and reuse wastewater.
- Title XVI permits the Bureau to provide 25% (up to $20 million) of the costs of planning, designing, and constructing water recycling and reuse projects within the seventeen Western Reclamation States on a reimbursable basis.
- In order for a project to receive funding pursuant to Title XVI it must be separately authorized by Congress to participate in the program. Since 1992, 43 projects have been authorized by Congress to participate. The House Natural Resources Committee and the Senate Energy and Natural Resources Committee have jurisdiction over all Title XVI authorization bills.
- Once authorized, a project is eligible to receive funding on an annual basis through the regular Congressional appropriations process as a part of the Bureau's appropriation within the Energy and Water Development Appropriations bill.
- Congress recently appropriated $126 million for Title XVI as a part of the American Recovery and Reinvestment Act of 2009. To date, well over $1 billion dollars has been appropriated to Title XVI projects.

Section 5: Regulatory Requirements

5.1 Regulatory Submittals

The Department of Public Health requires completion of an accepted Title 22 Engineer's Report by the RWQCB prior to the distribution of recycled water to end users. This would apply for the Amberwood project. In addition, the local jurisdictions for construction would require construction permits and likely would also require structural calculations for major concrete structures.

5.1.1 Department of Public Health (DPH)

The required Title 22 Engineers Report that will be necessary is aimed at protecting public health for the end users of the effluent. Important factors are the redundancy and reliability incorporated into the wastewater treatment plant design. Constant monitoring and control are required to assure the effluent meets the coliform and turbidity limits. The coliform tests can only be conducted intermittently, but the effluent turbidity is monitored continuously and can be used to divert effluent flow in the event of a monitored problem.

5.1.2 Regional Water Quality Control Board

Any discharge of effluent to a Water of the United States, such as a drainage course, would require the wastewater treatment plant obtain an NPDES permit. The discharge may be severely restricted, depending on the current status of a natural watercourse, and limited on constituents such as toxics in addition to the more common constituents. No surface discharge is proposed for this project. A Waste Discharge permit for a land discharge is required.

5.2 Environmental Submittals

This document is part of an environmental assessment for the project. For the wastewater treatment plant, assessments of a variety of factors are calculated such as the air, noise, carbon, and dust impacts.

5.2.1 Environmental Impact Report

This project is being evaluated in its entirety under and being reported in an Environmental Impact Study of which this report will become part thereof.

5.2.2 California Department of Fish and Game

If the effluent may be discharged as a contingency plan into a live stream bed, then Fish and Game would review the project for compliance with the stream standards for indigenous biota.

5.3 Local Agency Submittals

5.3.1 Consolidated Irrigation District

The Consolidated Irrigation District is to review the project from the perspective of water consumption and water returned to the local water supply. A net usage, or duty factor (acre-feet per acre per year, or simply feet per year) is a District concern.

5.3.2 Fresno County

The City of Selma is the lead agency for the review of the Amberwood Development.

5.3.3 City of Selma

The City of Selma department of Public Works is to review the proposed design for compliance with local standards on:

- Site improvements such as roadways, sidewalks, lighting, and security measures
- Structural design of superstructures, reinforced concrete walls, and retaining walls
- Architectural standards
- Local electrical and plumbing code requirements
- Connection to local infrastructure

References

US Geography/US Weather/California/Selma – Selma Weather (Copyright 2008 countrystudies.us

Live Oak Associates, Section 2.0 Existing Conditions (Amberwood Soils)

Kenneth D. Schmidt and Associates, Groundwater Quality Consultants,"Groundwater Conditions in the City of Selma General Plan Update 2035 Area"

Michael Gaston & Associates, Memo to Project File, September 21, 2009

HMH Engineers, "Amberwood Properties LLC", Conceptual Land Plan

Appendix A: Hydrogeological Report (Schmidt)

GROUNDWATER CONDITIONS IN THE CITY OF SELMA GENERAL PLAN UPDATE 2035 AREA

COPY

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-

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.

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.

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.

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

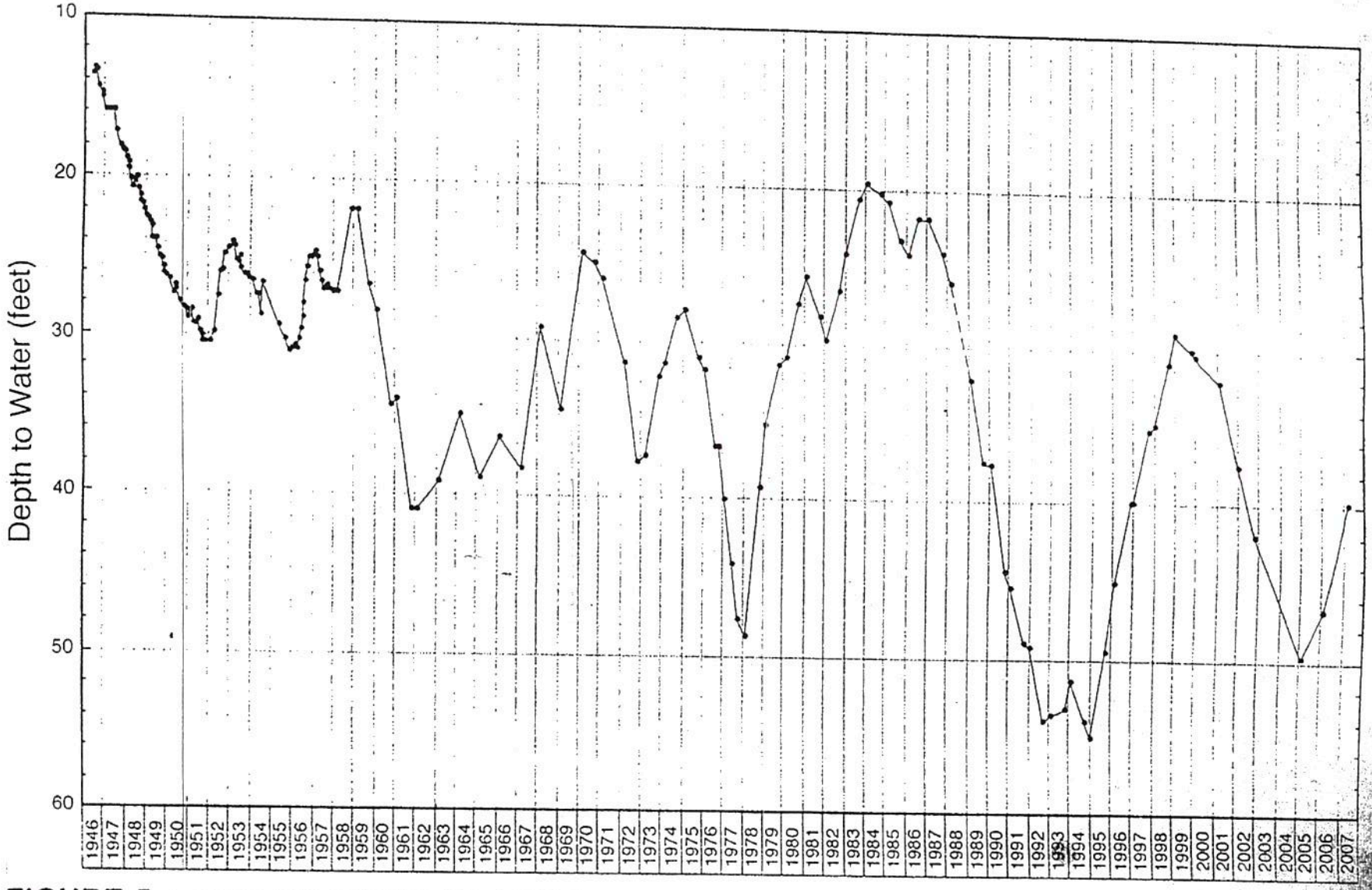

FIGURE 5- LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T15S/R22E-32N1

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.

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 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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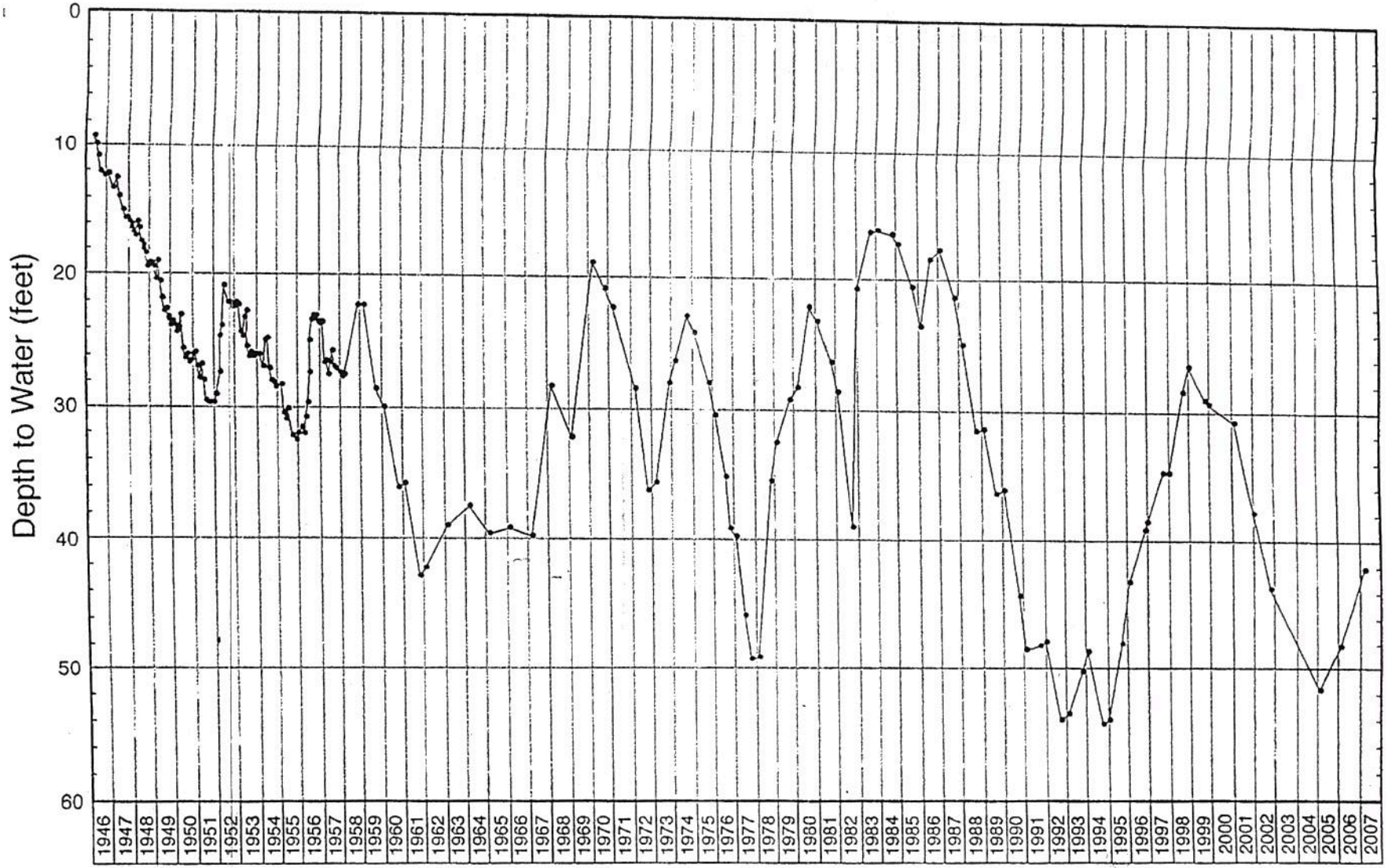
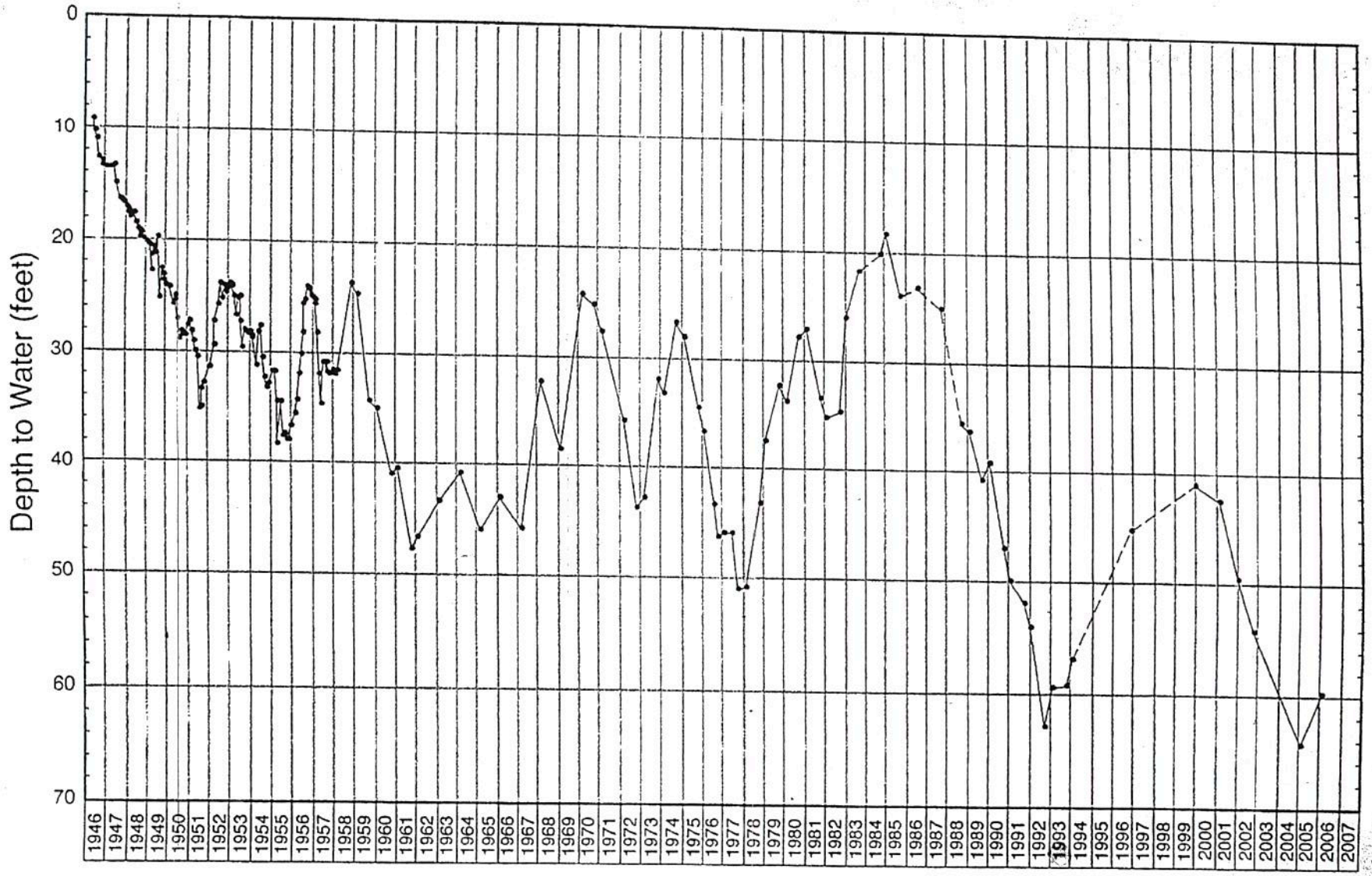


LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T16S/R21E-14A2



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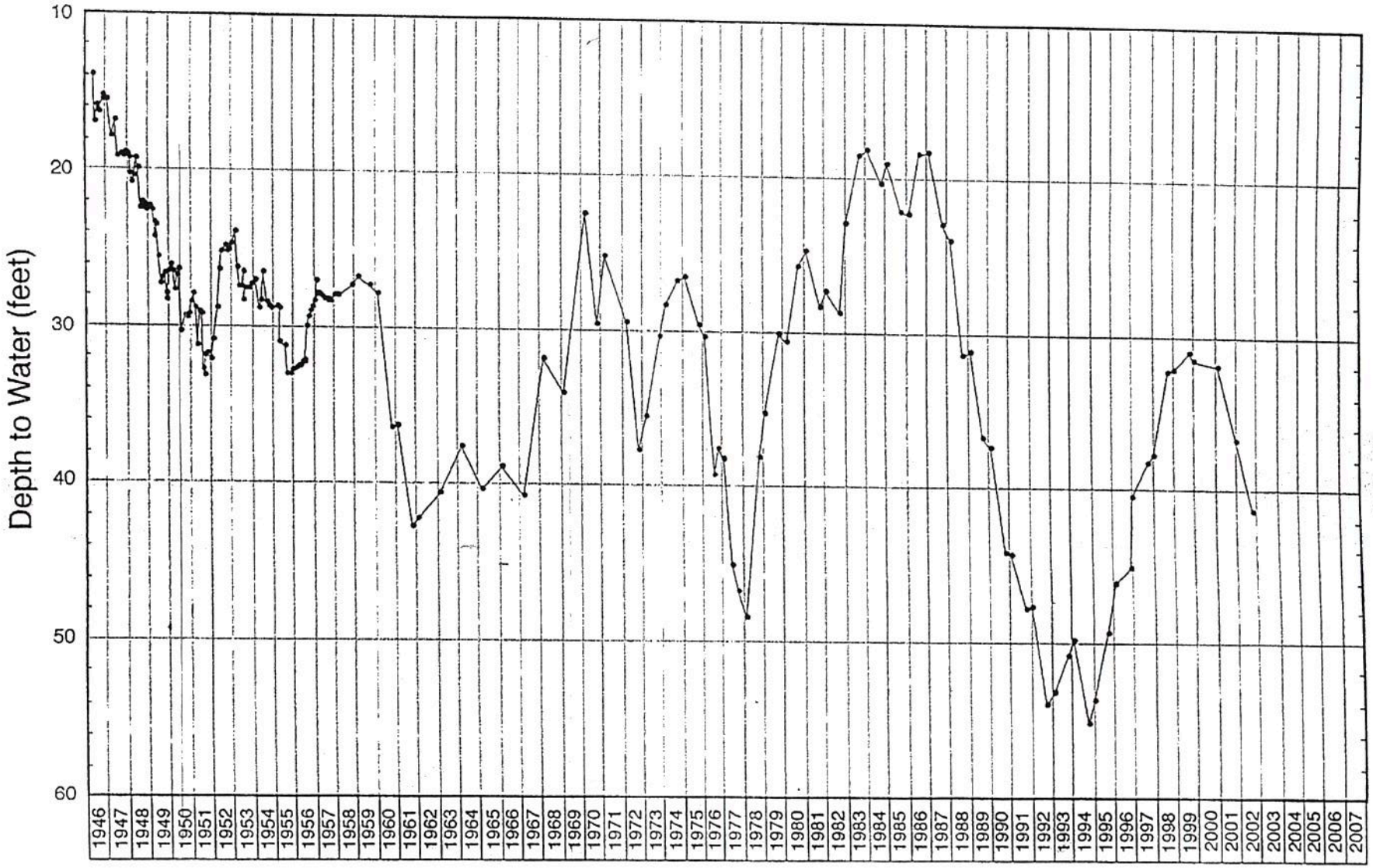
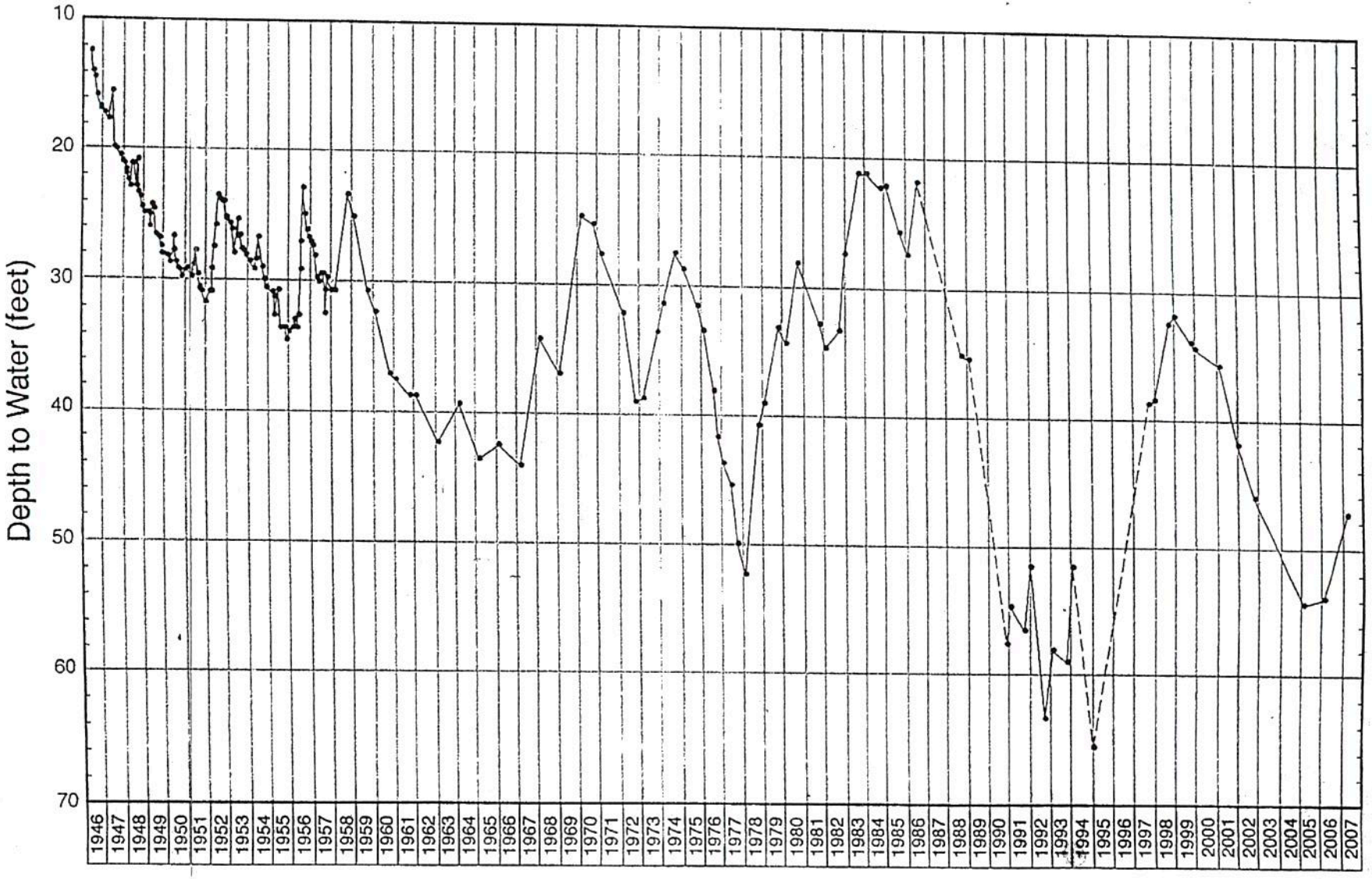


LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T16S/R22E-18A1



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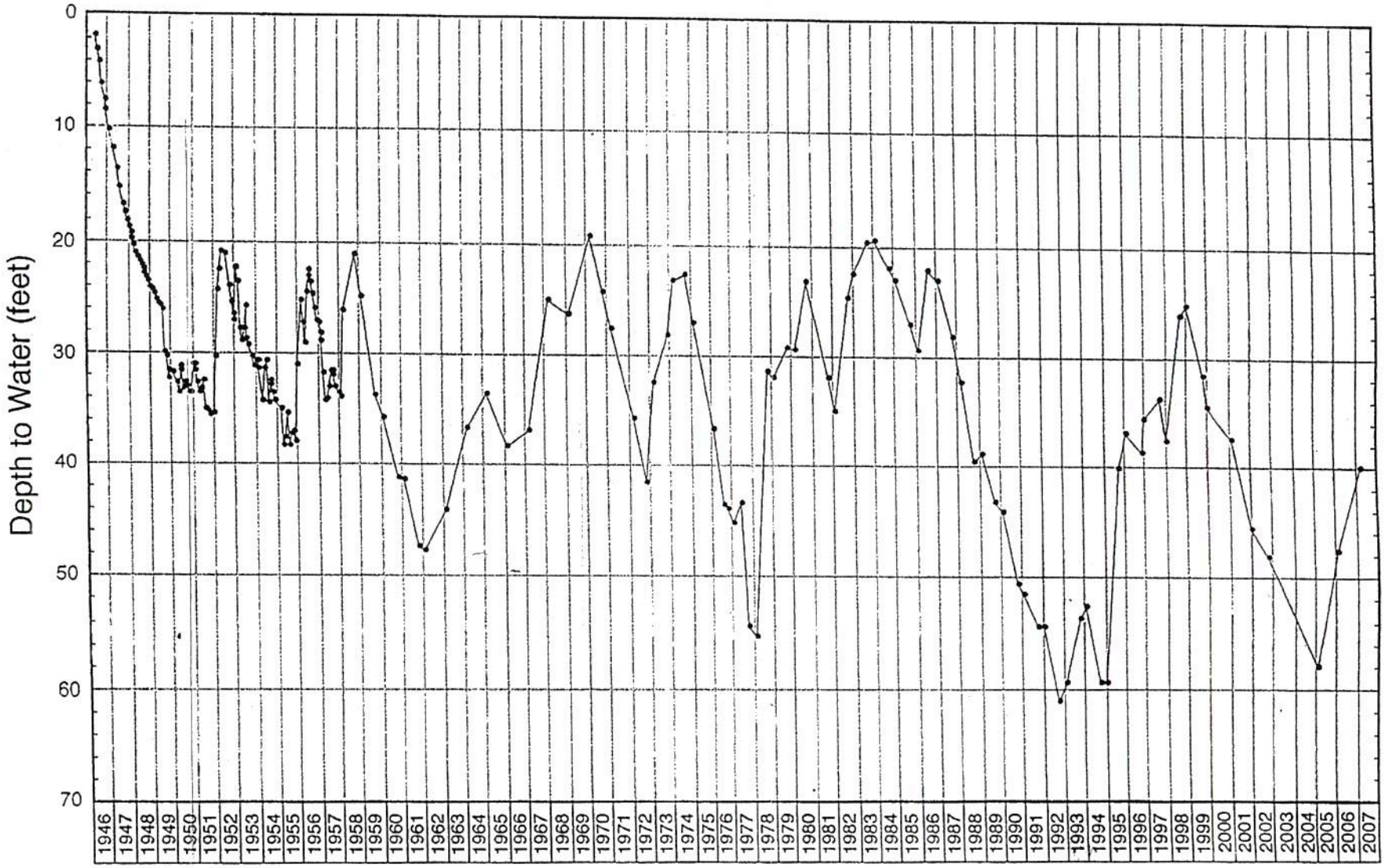

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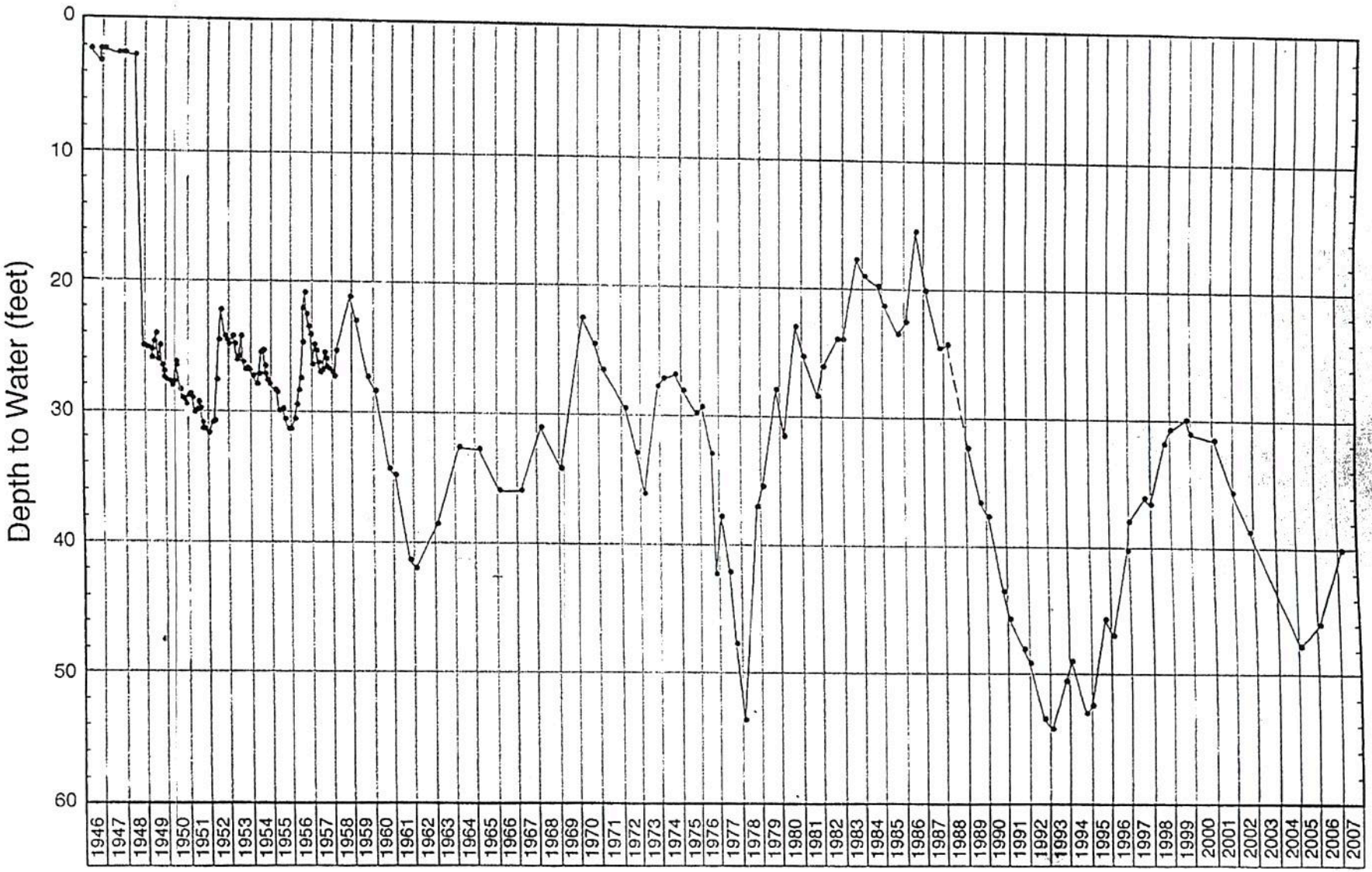

LONG-TERM WATER-LEVEL HYDROGRAPH FOR WELL T15S/R22E-33R1

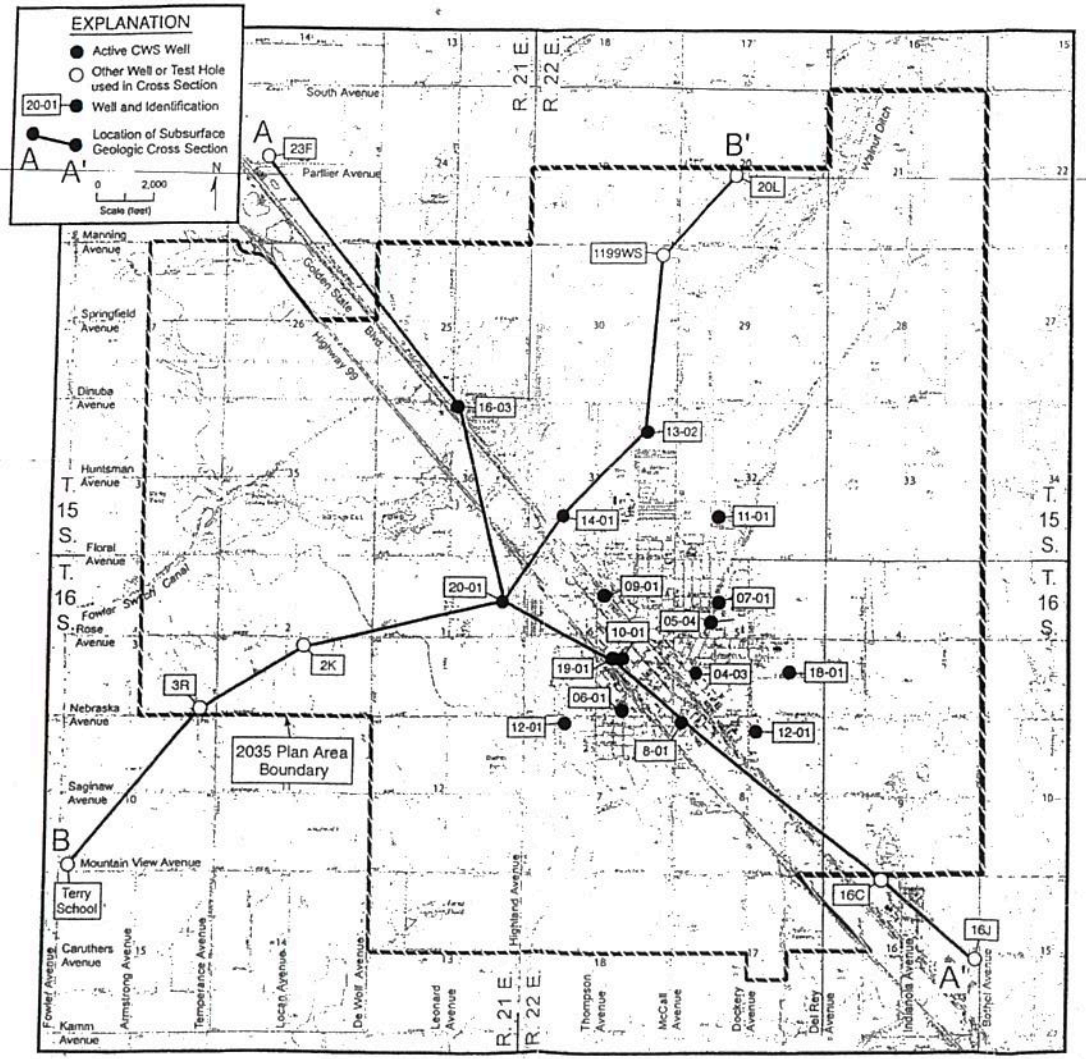

FIGURE 1 - LOCATION OF PLAN UPDATE AREA, ACTIVE CALIFORNIA WATER SERVICE CO. SELMA WELLS, AND SUBSURFACE GEOLOGIC CROSS SECTIONS

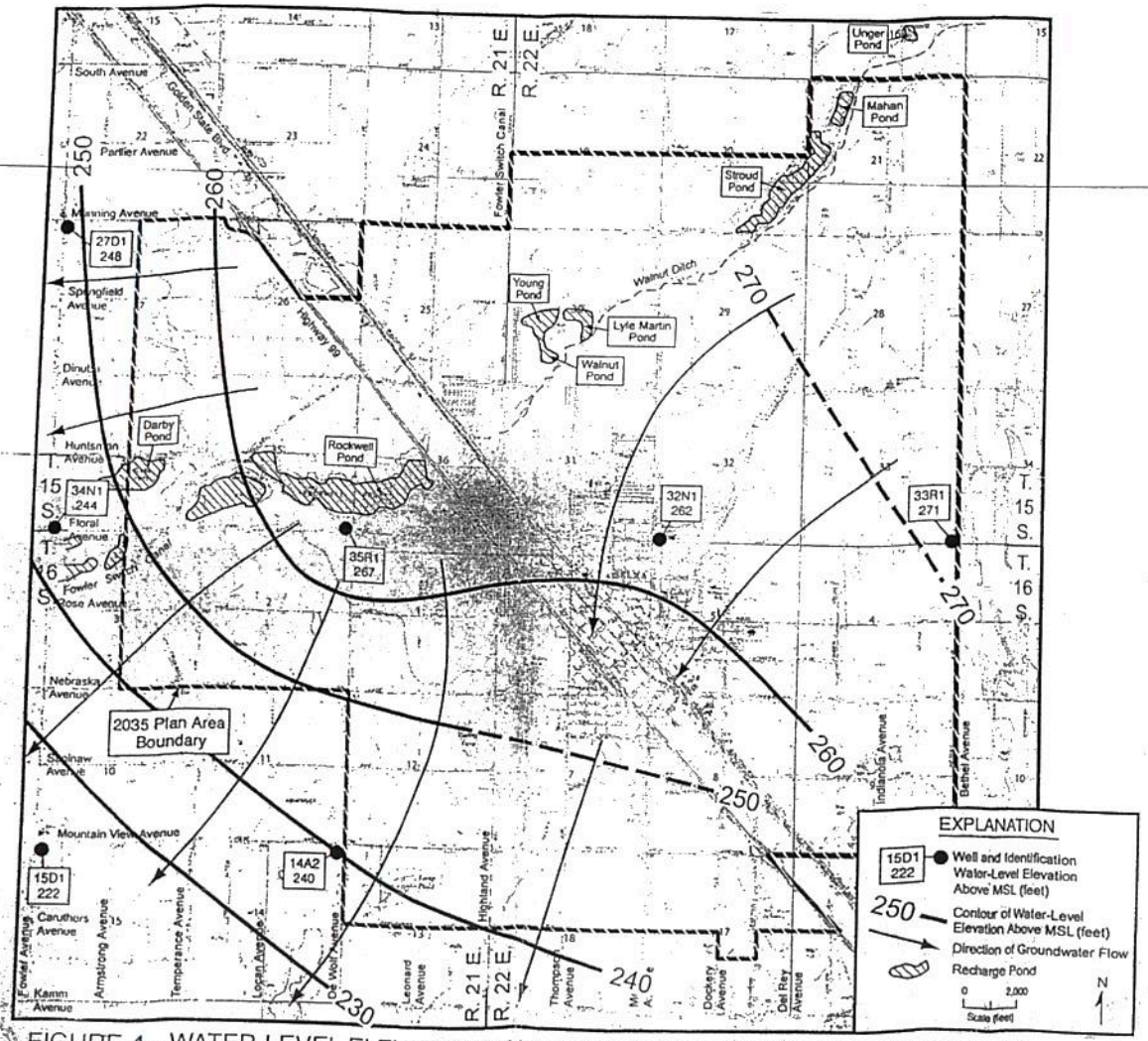

FIGURE 4 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW
(JANAURY 11, 2006)

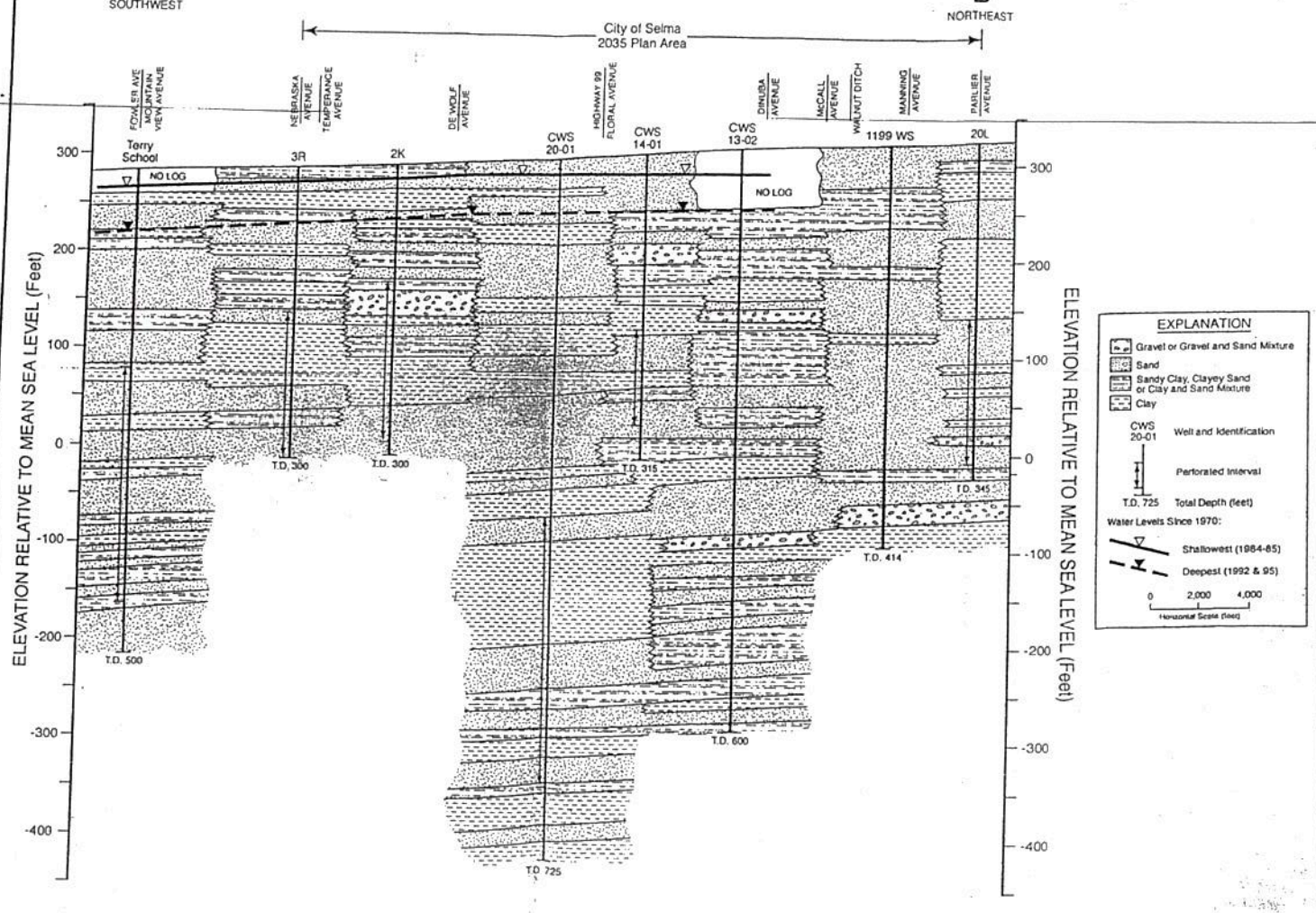

FIGURE 3 - SUBSURFACE GEOLOGIC CROSS SECTION B - B'

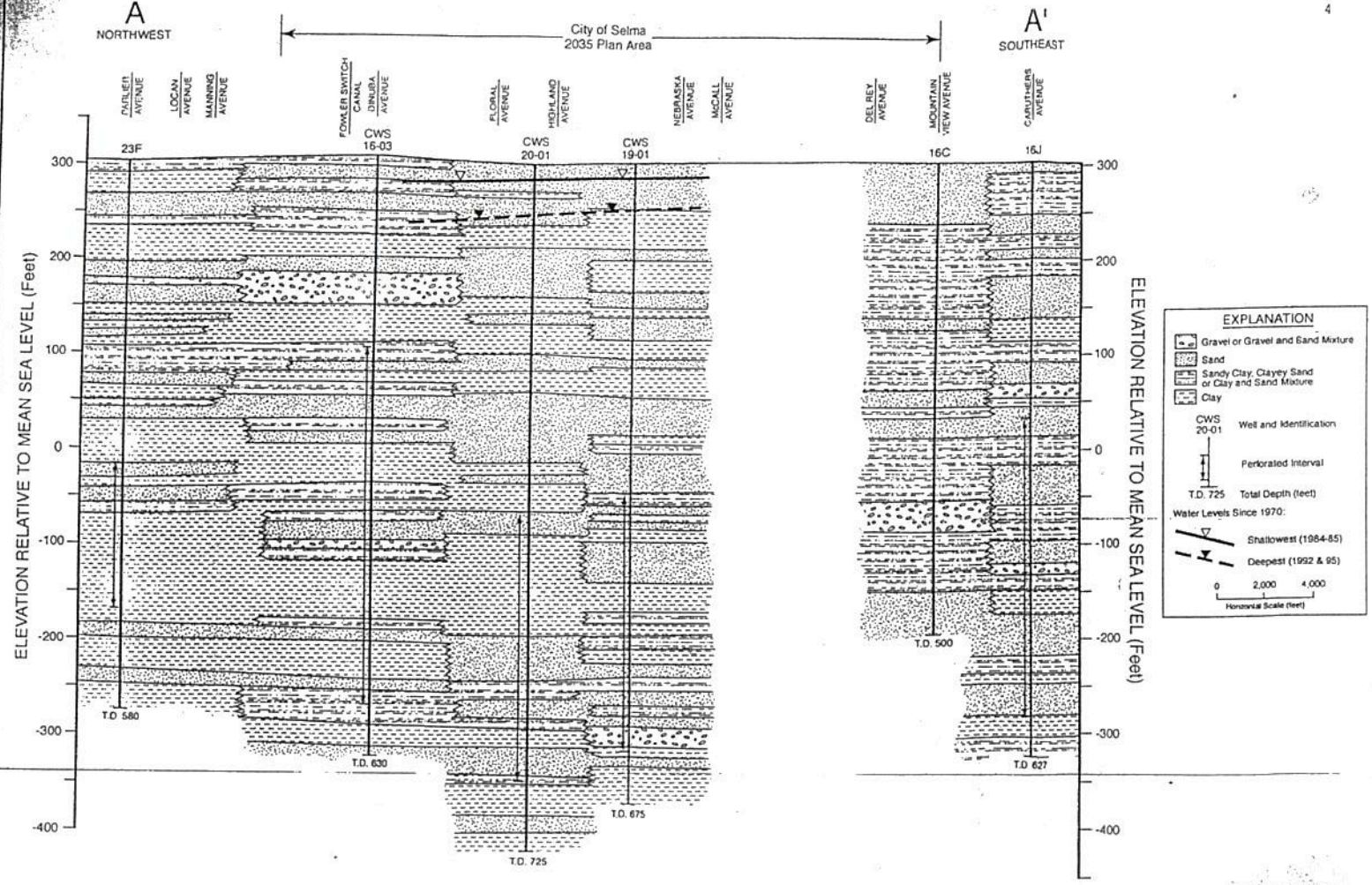

FIGURE 2 - SUBSURFACE GEOLOGIC CROSS SECTION A - A'

APPENDIX F

TRAFFIC IMPACT STUDY REPORT (SEPARATE DOCUMENT)

CITY OF SELMA
ANNEX
OCT 11 2010
COMMUNITY DEVELOPMENT
RECEIVED

Traffic Impact Study for:

Amberwood Specific Plan

Selma, California

Prepared for:
Michael Gaston & Associates
Consulting Urban Planners

Submitted by:

Dowling Associates, Inc.
Transportation Engineering • Planning • Research • Education

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June 4, 2010

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REGISTERED PROFESSIONAL ENGINEER
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TRAFFIC
STATE OF CALIFORNIA

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TRAFFIC IMPACT STUDY
AMBERWOOD SPECIFIC PLAN
SELMA, CALIFORNIA

June 4, 2010

1. INTRODUCTION

The purpose of this traffic analysis is to estimate the impacts of the Amberwood Specific Plan on peak hour traffic conditions at key intersections, identify any mitigation measures necessary, and determine the project's potential impacts on the local and regional roadway system. Figure 1 shows the project site plan upon which this analysis is based.

Project Description

The proposed project site is located on approximately 690.7 acres of land and will include approximately 2,558 detached residential units on 489.3 acres and the following non-residential land uses[1]:

- A 7.5-acre Neighborhood Commercial site (131,200 sq. ft. GFA)
- A 10.8-acre Elementary School site (700 students)
- A 3.0-acre site for a new Police and Fire Public Safety Facility (10,000 sq. ft. GFA)
- 54.3 acres for Public Park sites
- 15.2 acres for Private Park areas
- 80.4 acres for streets
- 30.2 acres for Private Lake areas

Project Location and Circulation Network

The proposed project site is located in the northeastern portion of the Selma Sphere of Influence. Figure 2 shows the project location, the vicinity roadway system, the connections to the nearby State highways, and the key intersections analyzed in this study. Figures 3a, 3b, and 3c show the existing lanes and controls at the key intersections.

The Selma General Plan identifies the designations shown in Table 1 for the key roadways providing local and regional access for the site.

[1] Project description is taken from Specific Plan Dated June 2007

Figure 1 – Project Site Plan

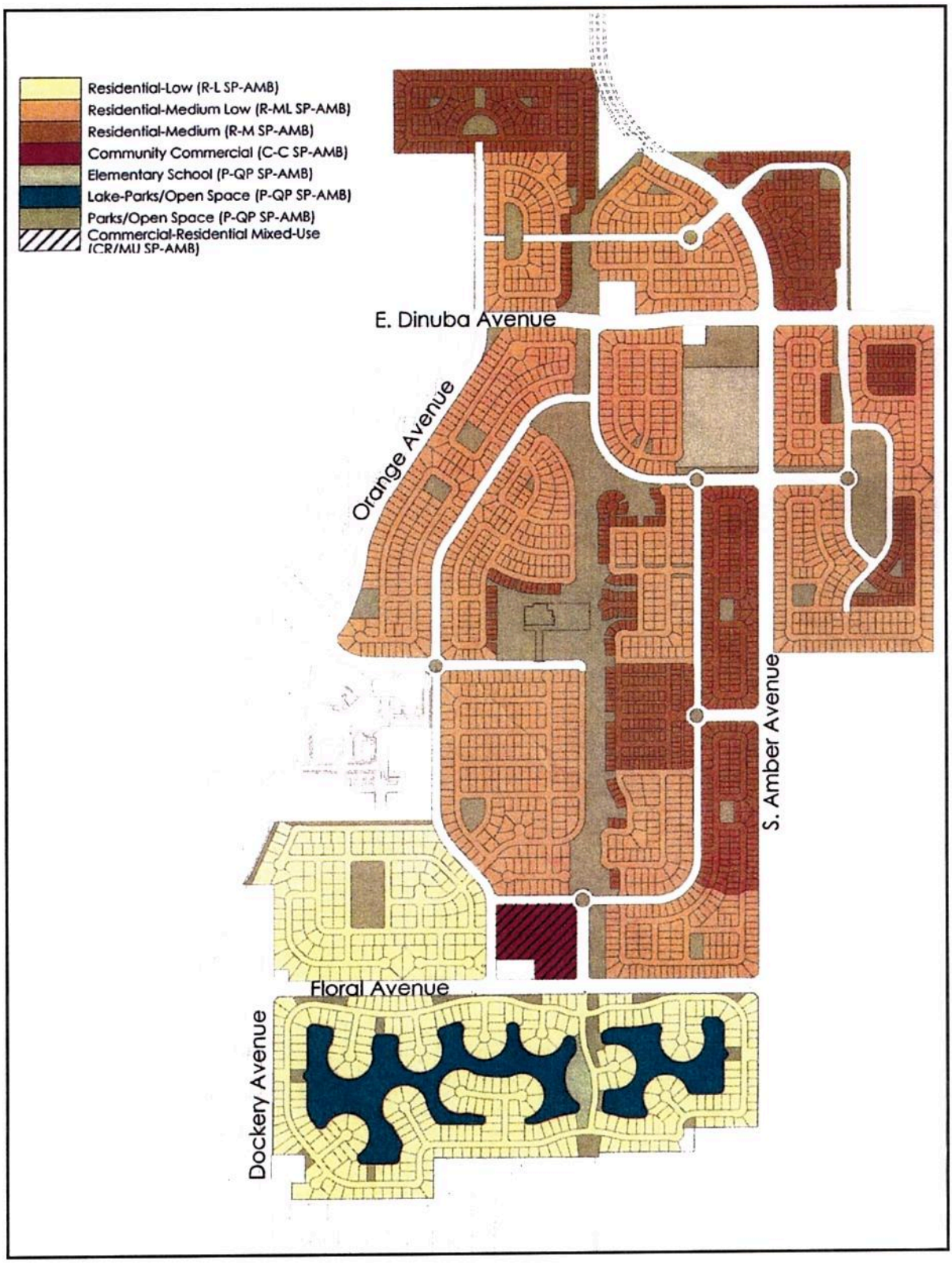


Table 1 – General Plan Roadway Designations

Roadway	Designation	Planned Lanes	Existing Lanes
Manning Avenue			
Armstrong to SR 99	Arterial	4	2
SR 99 to Bethel	Expressway	4	4
Dinuba Avenue			
Armstrong to DeWolf	Arterial	4	2
Across SR 99	Arterial	4	not existing
SR 99 to Bethel	Arterial	4	2
Floral Avenue			
Armstrong to Leonard	Arterial	4	2
Leonard to Wright	Arterial	4	4
Wright to Bethel	Arterial	4	2
Rose Avenue			
Armstrong to Thompson	Collector	4	2
McCall to Country Rose	Collector	4	4
Country Rose to Bethel	Collector	4	2
Nebraska Avenue			
Armstrong to 2nd	Arterial	4	2
Golden State to Bethel	Arterial	4	2
Mountain View Avenue			
DeWolf to Golden State	Arterial	4	2
Golden State to Bethel	Arterial	4	4
Highland Avenue			
Golden State to Floral	Major Arterial	6	2
Floral to Nebraska/Saginaw	Major Arterial	6	4
Nebraska/Saginaw to Caruthers	State Highway	4	2
McCall Avenue			
Parlier to Hicks	Arterial	4	2
Hicks to Floral	Arterial	4	4
Floral to Arrants	Arterial	4	2
Arrants to Rose	Arterial	4	4
Rose to High/Mill	Arterial	4	4
Dockery Avenue			
Manning to Dinuba	Collector	2	not existing
Dinuba to Nelson	Collector	2	2
SR 99 to Caruthers	Collector	2	2
Del Ray Avenue			
Manning to Mill Ditch	Arterial	4	2
Amber Avenue			
Dinuba to Floral	Arterial	4	not existing
Floral to Nebraska	Arterial	4	2
Nebraska to Mountain View	Arterial	4	not existing
Bethel Avenue			
South to Mountain View	Arterial	4	2
State Route 99			
Manning to Caruthers	State Highway	6	6
Golden State Blvd			
Manning to Highland	Major Arterial	6	4
Nebraska to Mountain View	Major Arterial	6	4
Whitson Street			
Highland to Nebraska	Major Arterial	6	4

Source: Selma General Plan Update Traffic Analysis, May 7, 2009

Figure 2 – Site Location and Key Intersections

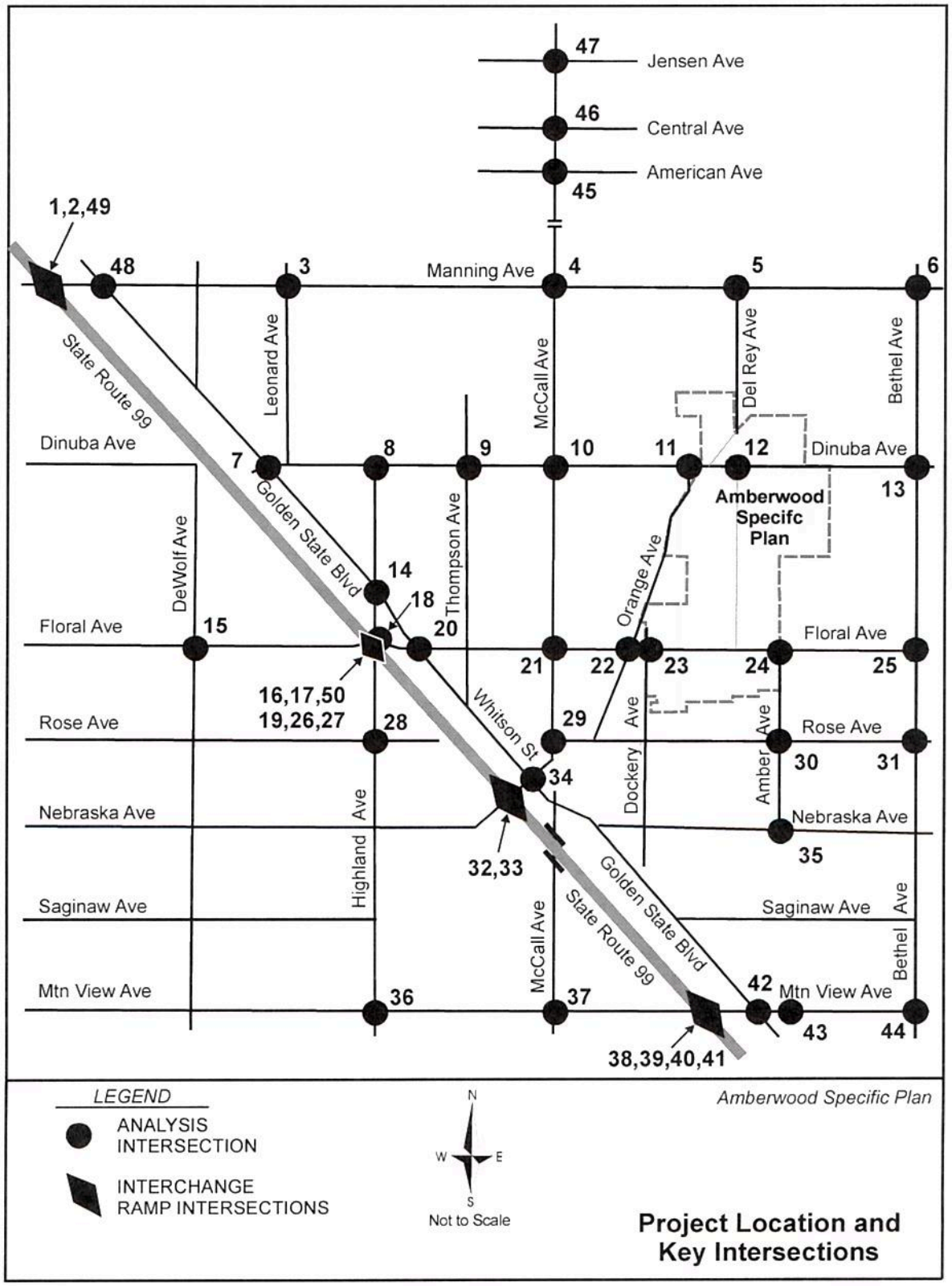


Figure 3a – Key Intersections Lanes & Controls

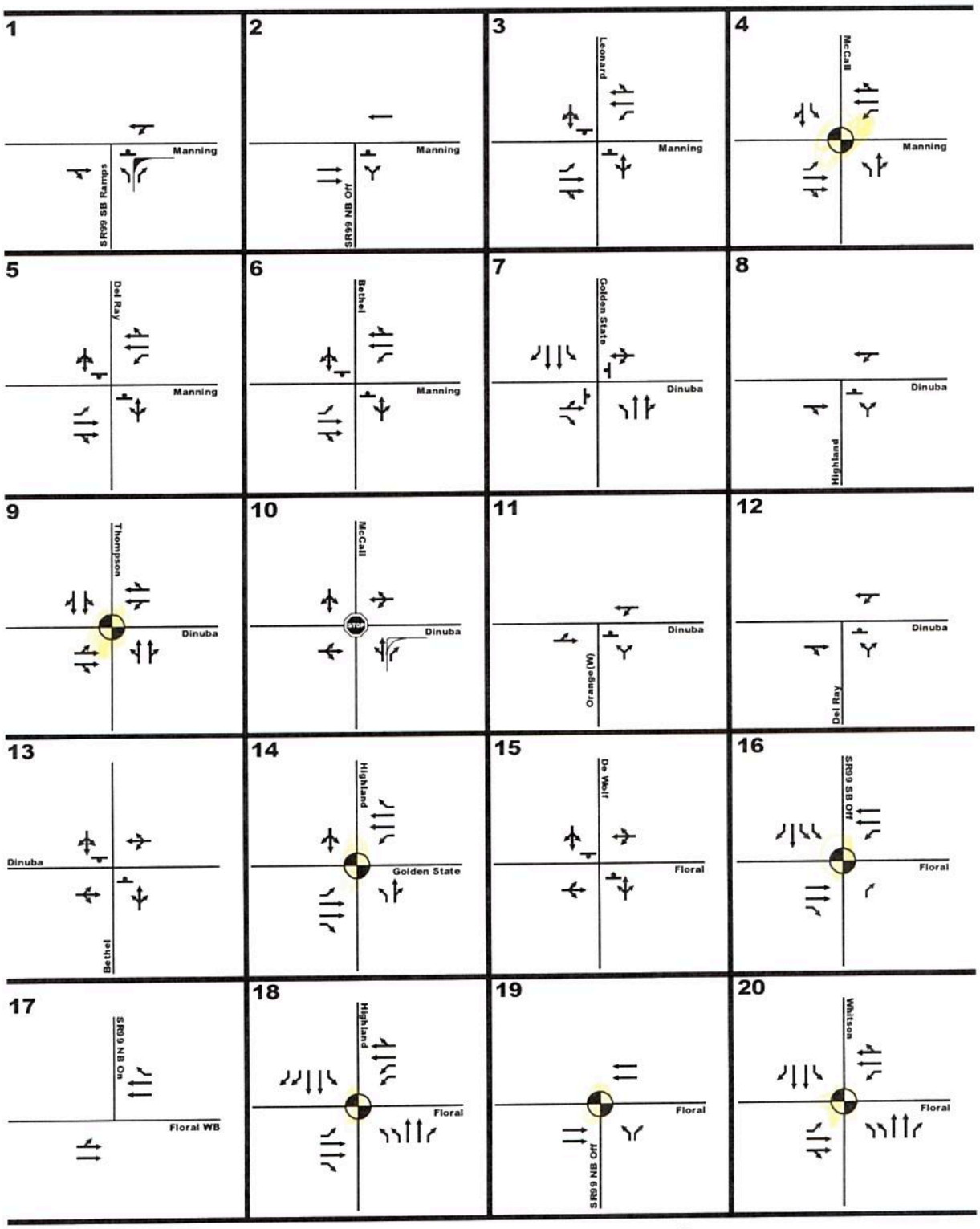
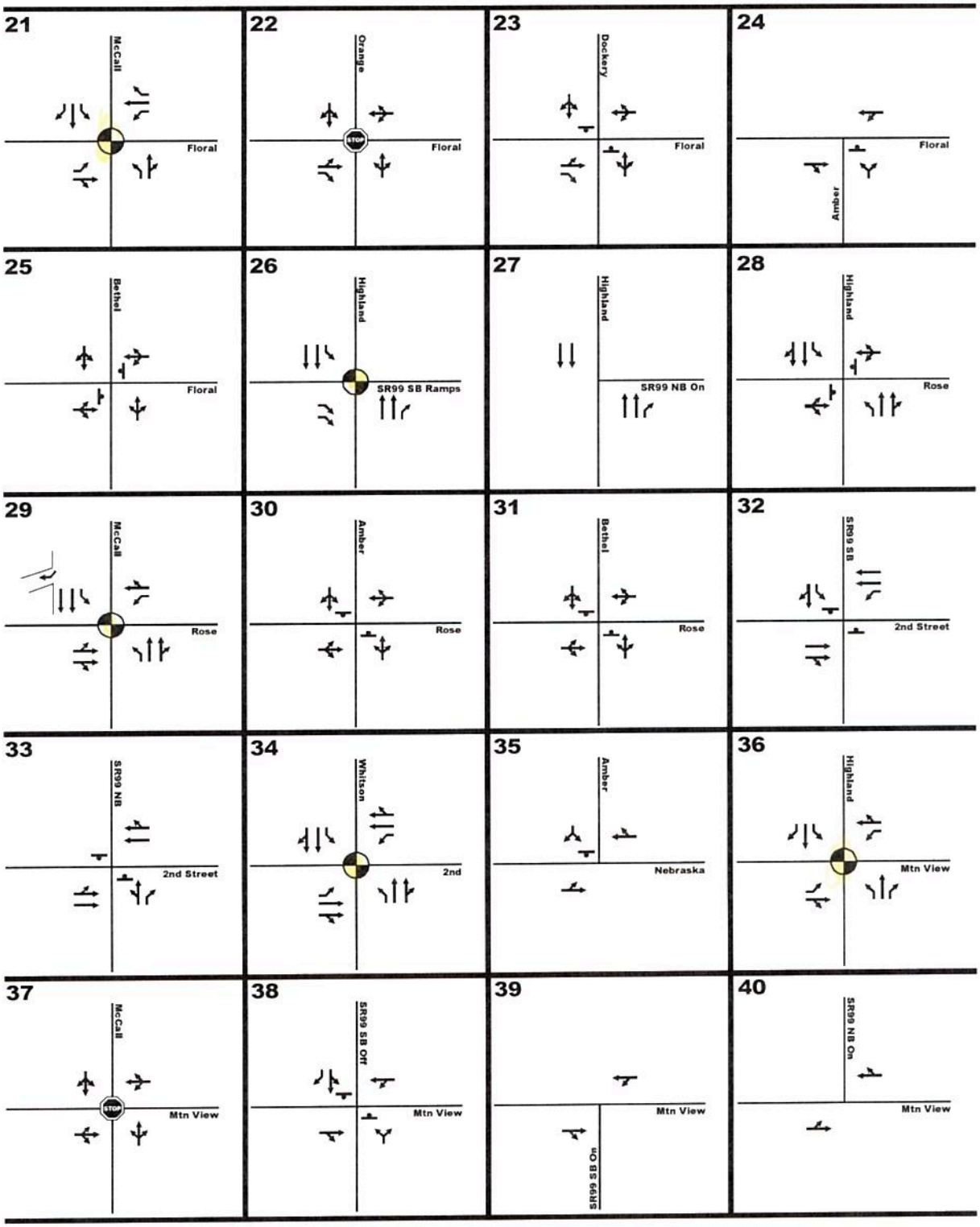
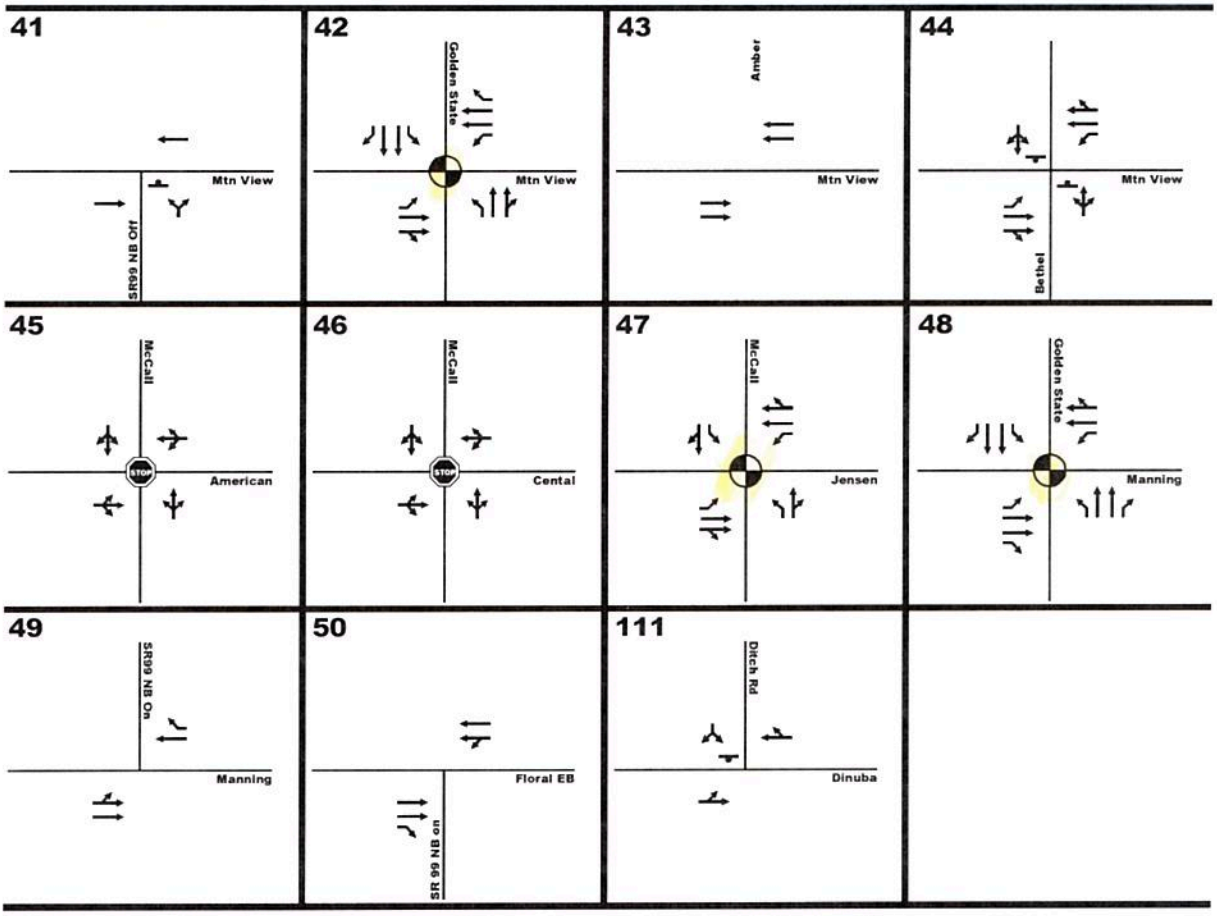


Figure 3b – Key Intersections Lanes & Controls



Stop sign control All-way Stop sign control Traffic Signal

Figure 3c – Key Intersections Lanes & Controls



Stop sign control All-way Stop sign control Traffic Signal

Project Phasing

It is anticipated that the Amberwood project will be built out in up to 20 phases over a period of approximately 20 years, depending upon future market demand for new housing. The first phase of the project development will begin at the southern end of the project and will include the private lake areas. The project will then be completed in a south to north direction. The last phases of the project will include the areas east of Amber Avenue. The Amberwood project site will be annexed into the City of Selma in two separate annexations. The first annexation area will include that portion of the project site that is located within the existing Selma Sphere of Influence. Prior to the annexation of the project areas located east of Amber Avenue, a Sphere of influence amendment will be required.

Other Traffic Impact Studies in the Vicinity

Draft EIR (Section 15.0 Traffic)
Rockwell Pond Commercial Project
September 9, 2009
Peters Engineering Group (author of traffic analysis)
Land Use Associates (author of DEIR)

Traffic Analysis
Selma General Plan Update
May 7, 2009
Peters Engineering Group

Traffic Impact Study
Proposed Floral Avenue Commercial Developments
Floral Avenue West of State Route 99
September 19, 2008
Peters Engineering Group

Traffic Impact Analysis
Rockwell Pond Commercial Development
April 25, 2008
VRPA Technologies, Inc.

Admin Draft, Preliminary Traffic Impact Study
Wal-Mart Supercenter
June 11, 2007
Dowling Associates, Inc.

Major Roadway Improvements Planned for the Future

The following major roadway improvements are planned and included in the City of Selma General Plan Circulation Map:

- S. Amber Avenue between S. Del Rey Avenue and E. Mountain View Avenue with four lanes from north of Dinuba Avenue to Mountain View Avenue
- SR 43 diagonal connection from De Wolf Avenue to Highland Avenue
- SR 99/Mountain View Avenue interchange improvements
- SR 99/Floral Avenue interchange improvements
- SR 99/Dinuba Avenue interchange

2. TRAFFIC ANALYSIS

Assumptions and Methodologies

Levels of Service Methodology

The methodology used herein to analyze intersection level of service is that outlined in the Transportation Research Board's *Highway Capacity Manual, 2000*. Level of service (LOS) is a concept used by traffic engineers to describe the peak hour traffic conditions at a given intersection. There are six levels of service, Level A through Level F, with A being the least congested and F being the most congested. It is the policy of the City of Selma that LOS A through D are considered to provide traffic conditions in the acceptable range and LOS E and F provide traffic conditions in the unacceptable range on all but local streets. Local streets must operate with LOS B or better. None of the key intersections analyzed herein are local streets.

At intersections with minor street stop control, most of the major street traffic is undelayed, and by definition have acceptable conditions. The major street left-turn movements and the minor street movements are all susceptible to delay of varying degrees. Generally, the higher the major street traffic volumes, the higher the delay for the minor movements. For analysis of unsignalized intersections an average total delay per vehicle for each minor street movement and for the major street left-turn movements is calculated, based on the availability of adequate gaps in the major street through traffic. A level of service designation is assigned to individual movements or to combinations of movements (in the case of shared lanes) based upon delay. Levels of service are reported herein for each movement (or group of movements) based upon the respective average delay per vehicle. Table 2 presents the average delay criteria used to determine the level of service at unsignalized intersections.

At all-way stop intersections and at signalized intersections, the level of service is determined by the weighted average delay for all vehicles entering the intersection. The methodologies for these types of intersections calculate a single weighted average delay and LOS for the intersection as a whole. The average delay criteria used to determine the level of service at all-way stop intersections is the same as that presented in Table 2. Table 3 presents the average delay criteria used to determine the level of service at signalized intersections.

For roadway segment analysis the methodology of the Florida Department of Transportation is used. This method determines the level of service for a roadway segment based on the traffic volume carried by the roadway. Table 4 shows the level of service thresholds for this methodology.

Table 2 – Level of Service Criteria – Unsignalized Intersections

Level of Service	Average Delay[1] (seconds/veh)
A	0.0 - 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	>50.0

[1] Weighted average of delay

Source: *Highway Capacity Manual 2000*, Transportation Research Board, Washington DC

Table 3 – Level of Service Criteria – Signalized Intersections

Level of Service (LOS)	Average Delay[1] (secs/veh)	Description
A	≤ 10.0	**Very Low Delay:** This level of service occurs when progression is extremely favorable and most vehicles arrive during a green phase. Most vehicles do not stop at all.
B	10.1-20.0	**Minimal Delays:** This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	20.1-35.0	**Acceptable Delay:** Delay increases due to only fair progression, longer cycle lengths, or both. Individual cycle failures (*to service all waiting vehicles*) may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	35.1-55.0	**Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1-80.0	**Unstable Operation/Significant Delays:** This is considered by many agencies the upper limit of acceptable delays. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	> 80.0	**Excessive Delays:** Describes operations with average delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

[1] Weighted average of delay on all approaches. This is the measure used by the *Highway Capacity Manual* to determine level of service.

Source: *Highway Capacity Manual 2000*, Transportation Research Board, Washington DC

Table 4 – Roadway Segment Level of Service Peak Hour Threshold Volumes

Lanes	Median	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
2	Undivided – No Left Turn Lanes	–	–	≤696	697 – 1,112	1,113 – 1,184	≥1,184
2	Undivided – With Left Turn Lanes	–	–	≤870	871 – 1,390	1,391 – 1,480	≥1,480
2	Divided – With Left Turn Lanes	–	–	≤913	914 – 1,459	1,460 – 1,554	≥1,554
4	Undivided – No Left Turn Lanes	–	–	≤1,522	1523 – 2,212	2,213 – 2,340	≥2,340
4	Undivided – With Left Turn Lanes	–	–	≤1,928	1,929 – 2,802	2,803 – 2,964	≥2,964
4	Divided – With Left Turn Lanes	–	–	≤2.030	2.031 – 2,950	2,951 – 3,120	≥3,120
6	Divided – With Left Turn Lanes	–	–	≤3,170	3,171 – 4,450	4,451 – 4,690	>4,690

Source: Florida Transportation Table 4-4, Generalized Peak Hour Two-Way Volumes for Urbanized Areas (Non-State Roadways, Major City/Count Roadways)

Signal Warrant Status

The potential need for traffic signals at the unsignalized intersections is evaluated herein, using the peak hour signal warrant criteria of the Manual on Uniform Traffic Control Devices (MUTCD). This warrant considers the traffic levels during the peak hour of an average day.

Signal warrant criteria are traffic volume levels above which it is presumed that the need for a traffic signal is warranted. Traffic signals tend to reduce the potential for right-angle type collisions but also tend to increase the potential for less severe rear-end collisions. The signal warrant volumes represent the threshold point at which the potential for more rear-end collisions is offset by the potential for fewer more severe right-angle collisions. When the signal warrant volumes are exceeded, an intersection should be considered for signalization; however, the decision to install a traffic signal should not be based solely upon the warrants. Delay, congestion, approach conditions, driver confusion, future land use or other evidence of the need for right of way assignment beyond that provided by stop signs must be demonstrated.

As stated in the 2003 edition of the Manual on Uniform Traffic Control Devices (MUTCD), "*An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of the need for a traffic control signal shall include an analysis of the*

applicable factors contained in the following traffic signal warrants and other factors related to existing operation and safety at the study location:

Warrant 1, Eight-Hour Vehicular Volume.
Warrant 2, Four-Hour Vehicular Volume.
Warrant 3, Peak Hour.
Warrant 4, Pedestrian Volume.
Warrant 5, School Crossing.
Warrant 6, Coordinated Signal System.
Warrant 7, Crash Experience.
Warrant 8, Roadway Network.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal."

This traffic impact analysis did not evaluate all of the warrants for traffic signals, but instead focused on the peak hour warrant. The MUTCD states that, "*This [peak hour] signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time*". The unusual aspect of this analysis is the fact that when forecasting future traffic volumes, only the peak hour or daily traffic volumes are available, so evaluation of the signal warrants that require more detailed traffic data is not possible.

So the peak hour warrant is being used in this study as an "indicator" of the likelihood of an existing or future unsignalized intersection warranting a traffic signal in the future. Intersections that fail to exceed the peak hour warrant are considered (for the purposes of this study) to be unlikely to meet one or more of the other signal warrants (such as the 4-hour or 8-hour warrants). However, this does not mean that a signal is definitely unwarranted. A signal may be warranted by other criteria, some of which cannot be known until the intersection is constructed and operational. This peak hour analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction.

Appendix A presents the MUTCD signal warrant charts for urban and rural conditions, and the results of applying these warrants to the various scenarios .evaluated in this analysis. The urban conditions warrant was used to evaluate all of the unsignalized intersections of this study.

Impact Threshold Criteria

This subsection describes the criteria used to determine if the proposed project's traffic impacts are significant and therefore require mitigation.

Signalized and All-Way STOP intersections

1. At signalized intersections, all-way STOP controlled intersections, and roadway segments, if the project's traffic cause the overall peak hour LOS to worsen from LOS A, B, C, or D to LOS E or F, then the project's impacts will be considered significant.

2. If the overall peak hour LOS is E or F without the project, then the project's impacts will be considered significant if the project's traffic causes any worsening of the peak hour overall average delay.

Unsignalized Intersections (1-way or 2-ways Stop Controlled)

3. At other unsignalized intersections, if peak hour volume traffic signal warrants are not met and minor movements have LOS E or F conditions even with all other reasonable improvement measures, then the project's impacts will not be considered significant. This criterion is justified because, in such cases, the number of vehicles that experience the LOS E/F conditions is usually quite small and until the traffic volumes reach the signal warrant levels, the overall operation and safety of the intersection would be better with stop sign control.

4. If the project's traffic causes peak hour volume traffic signal warrants to be met, then the project's impacts will be considered significant.

5. If the peak hour volume traffic signal warrants are met without the project and minor movements have LOS E or F conditions, then the project's impacts will be considered significant if the project's traffic causes any worsening of the peak hour average delay for the movements with LOS E or F conditions.

Roadway Segments

6. For roadway segments, if the project's traffic cause the peak hour LOS to worsen from LOS A, B, C, or D to LOS E or F, then the project's impacts will be considered significant.

7. If the peak hour LOS is E or F without the project, then the project's impacts will be considered significant if the project's traffic causes any increase in the peak hour two-way volume.

Existing Traffic Volumes

Figures 4a, 4b, and 4c show the current weekday peak hour traffic volumes at the key intersections analyzed in this study. The AM peak hour volumes generally occur from 7 and 8 a.m. and the PM peak hour volumes generally occur between 5 and 6 p.m. These turning movement volumes were from other recent traffic studies

and through manual traffic counts taken in September 2009 at the some key intersections. All of the counts were taken within the last two years. Appendix B shows the inventory of peak hour traffic counts used in this study.

Truck vehicles were included in the counts at many of the key intersections. In most cases on weekdays trucks represent about 5-6.5% of all vehicles in the AM peak hour and about 2-4.5% in the PM peak hour. Some locations were found to have higher levels of truck traffic, especially those near industrial and trucking-related land uses. The measured percentages have been used in the level of service calculations of this traffic analysis. Where truck count data were not available, assumptions were made based on the type of roadways involved and the nature of the surrounding land uses, using the results from those intersections where truck data were available. Appendix B also shows the heavy vehicle percentages assumed for each intersection in this study.

Peak hour factors (PHF) per Highway Capacity Manual procedures were used in the capacity calculations of this study. For the near-term scenarios the actual existing measured PHF's were used. For the future scenarios the minimum PHF of 0.92 for urban conditions per HCM were used, unless the existing PHF's are greater, in which case the existing PHF's were used. Appendix B also shows the PHF's assumed for each intersection in this study.

Approved and Recently Completed Developments

Approved and recently completed developments in the study area include the following:

1. Selma Industrial Park II (near SR 99/Mtn. View interchange)
2. Subdivision Tract No. 5361 (Raven Homes), 160 single Family residential lots located immediately north of Dinuba Avenue between Dockery and Orange Avenues.
3. Subdivision Tract No. 5519 (Central Valley Land group), 66 single family residential lots located on Highland Avenue south of Rose Avenue and West of Hwy 99.
4. Subdivision Tract No. 5765 (Bratton I), 220 single family residential lots located south of Rose Avenue and west of Highway 43 (Highland Avenue).
5. Map 5296 – Raven, South of Dinuba Ave, east of Dockery; Single Family Residential lots, 134 dus
6. Map 5303 – Valley View, South of Valley View between Thomson and McCall; Single Family Residential lots, 193 dus

7. Map 5217 – Canales, East side of SR 43/Highland and south of Nebraska, Residential & Commercial: 153 dus Residential and 138.3 ksf Retail (12.7 acs)
8. 2006-0044 – EYE Q II, West of Whitson, north of Stillman, Commercial building, 11.8 ksf

The peak hour trip assignments for these approved and recently completed developments are shown in Figures 5a, 5b, and 5c for the AM and PM peak hours, respectively. These volumes were obtained from the traffic impact analysis prepared for each respective project, and where necessary, estimates were made by this consultant for intersections not include in the project's traffic analysis, or where analysis was otherwise not available.

Figures 6a, 6b, and 6c show the combined Existing plus Approved AM and PM peak hour traffic volumes.

Figure 4a – Existing Peak Hour Traffic Volumes – AM (PM)

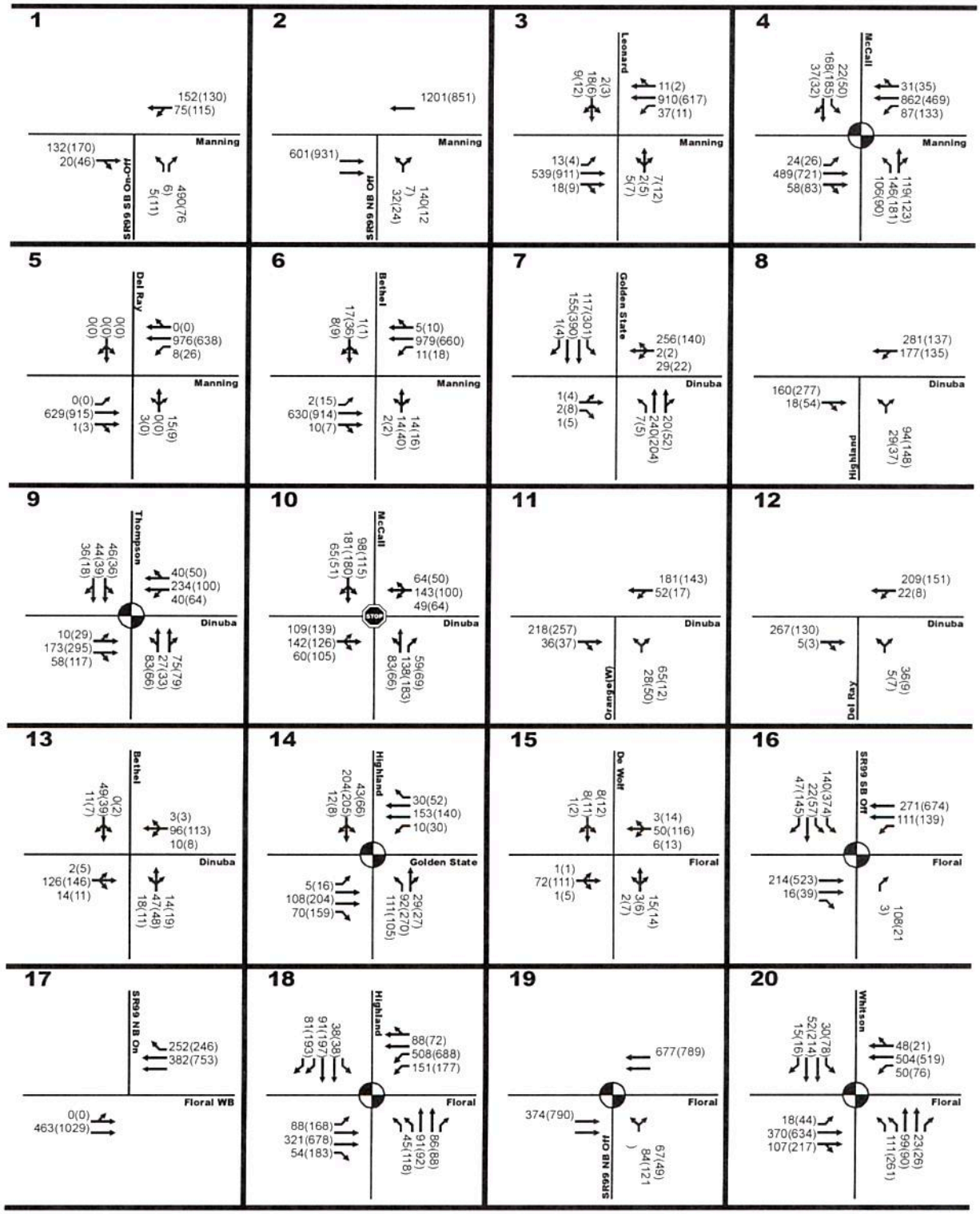


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Figure 4b – Existing Peak Hour Traffic Volumes – AM (PM)

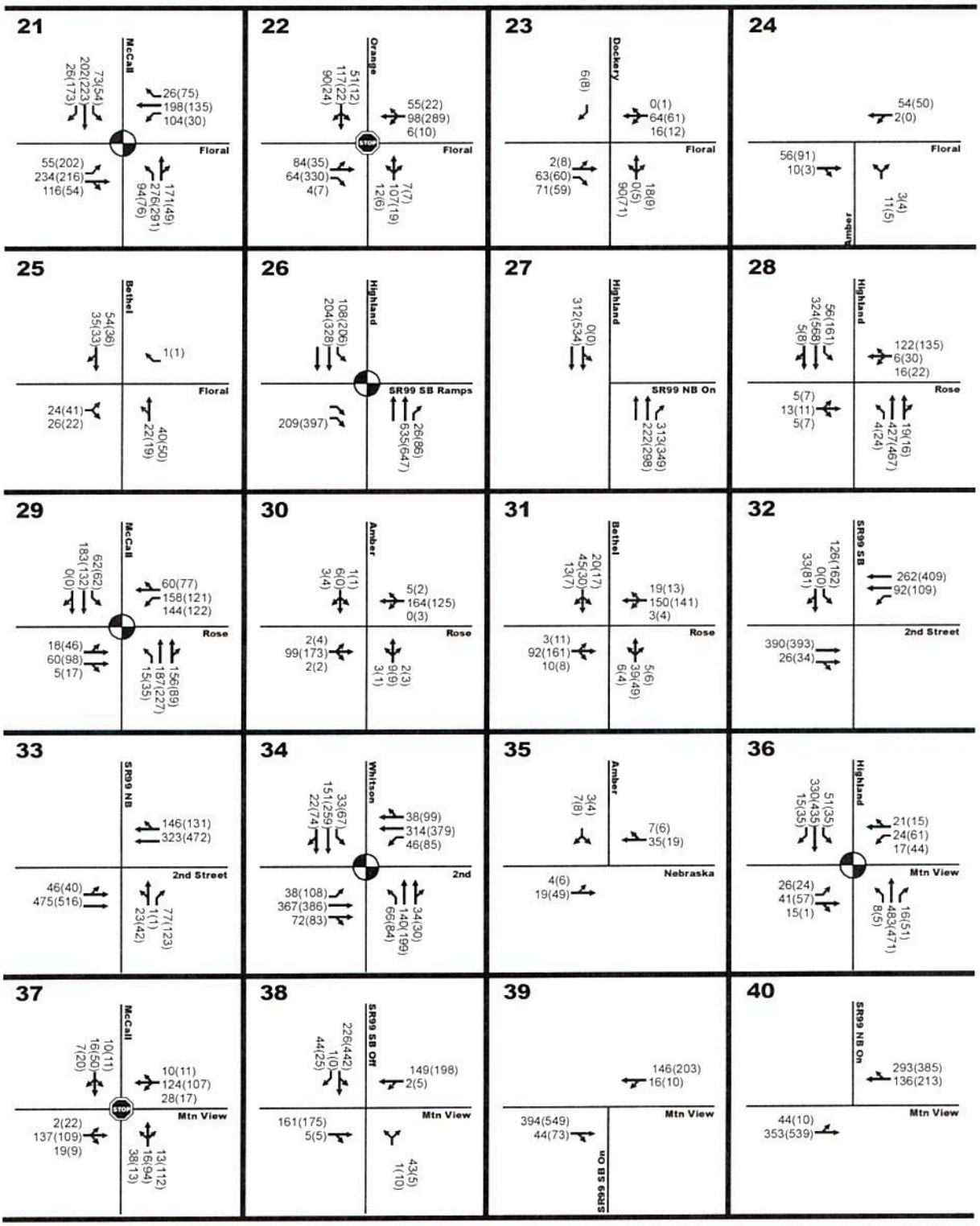

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Figure 4c – Existing Peak Hour Traffic Volumes – AM (PM)

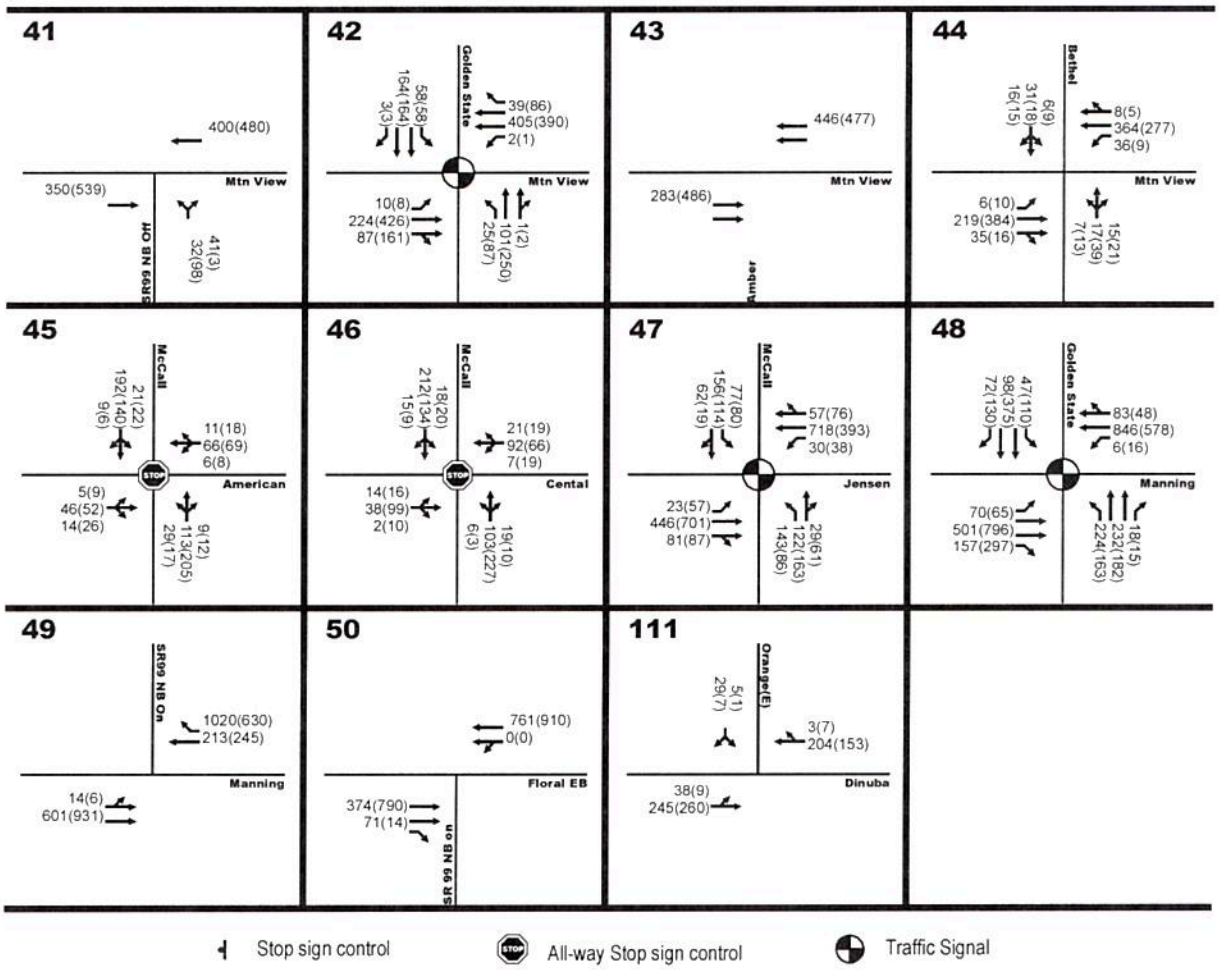

Figure 5a – Approved Development Peak Hour Traffic Volumes – AM (PM)

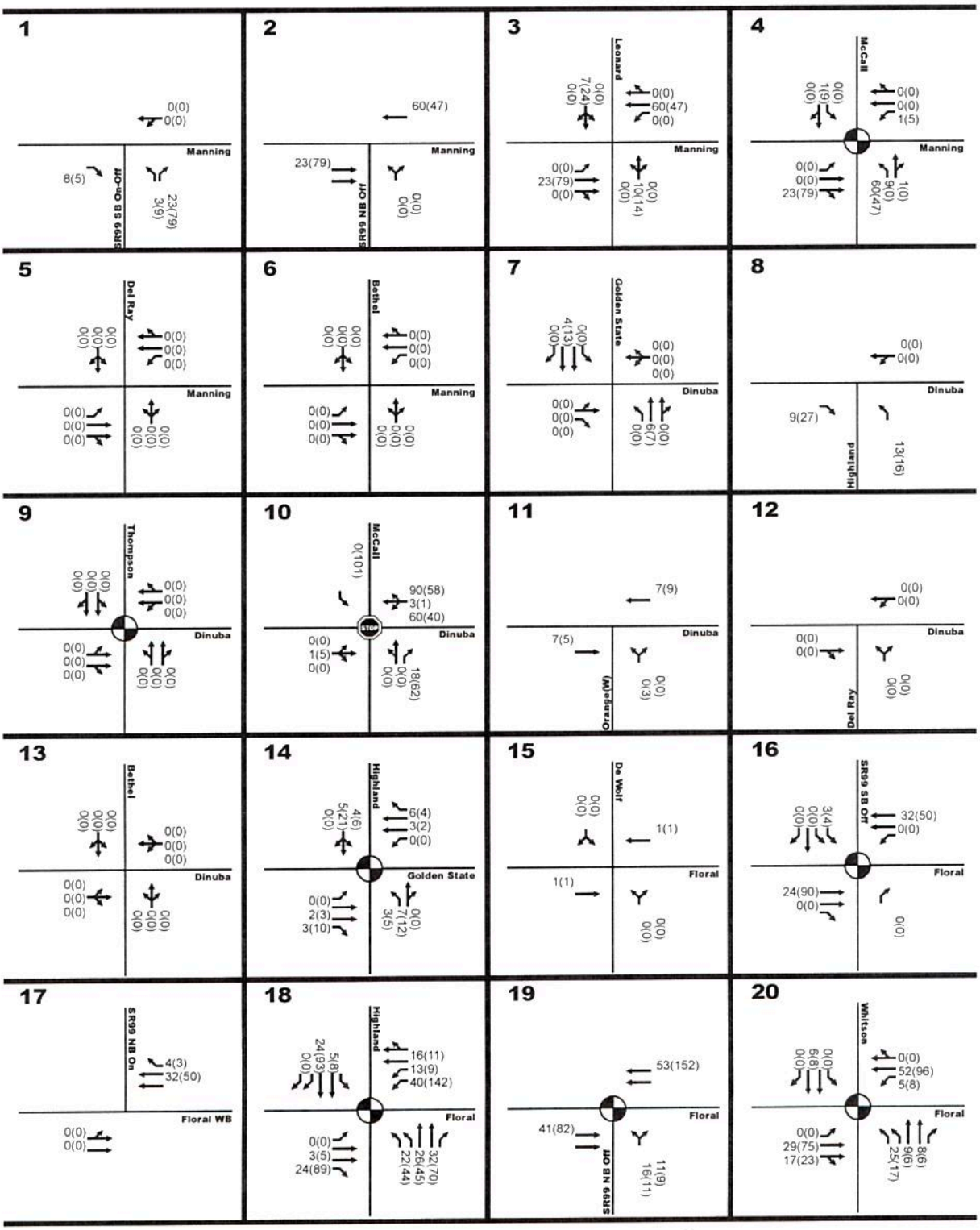

Figure 5b – Approved Development Peak Hour Traffic Volumes – AM (PM)

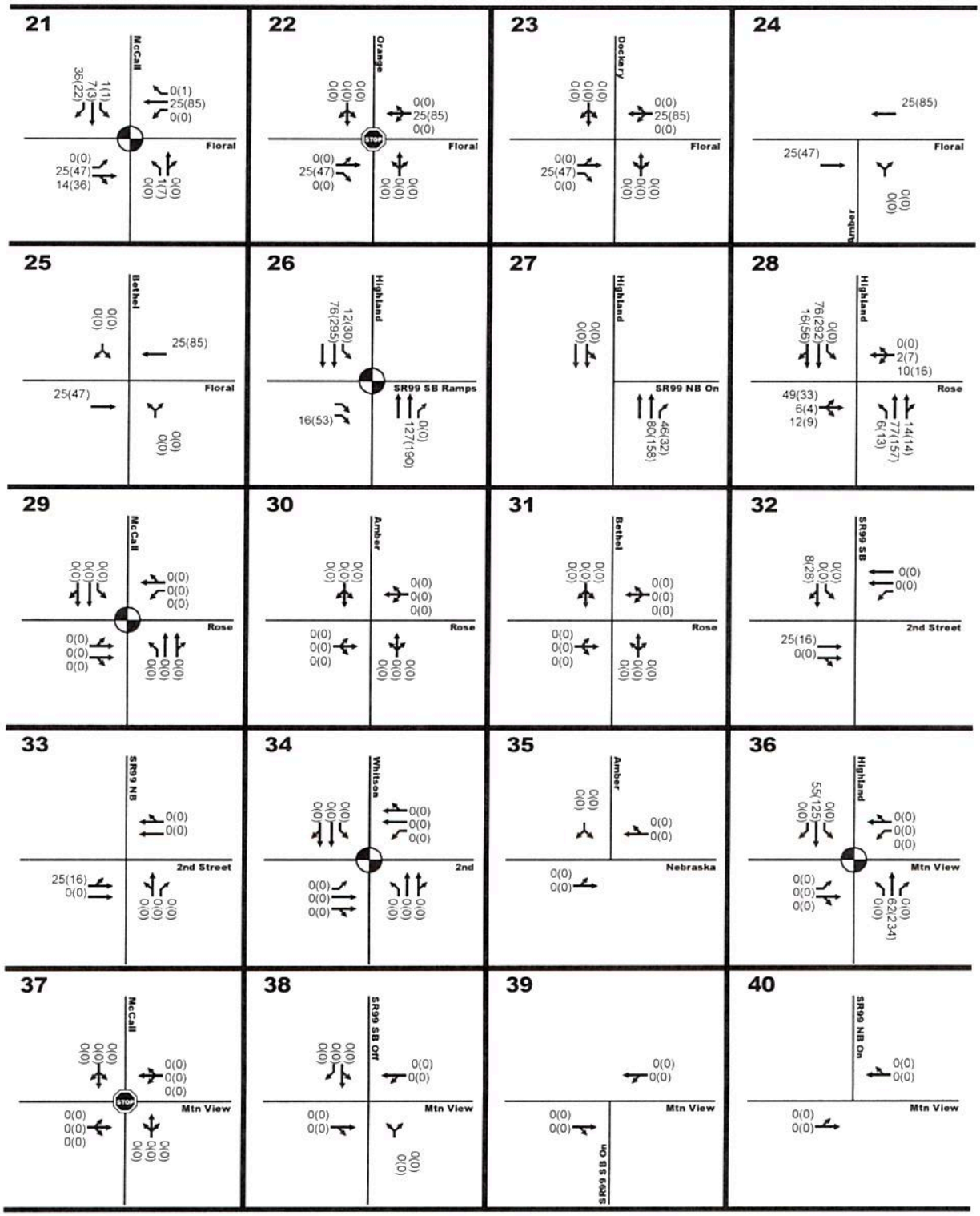

Figure 5c – Approved Development Peak Hour Traffic Volumes – AM (PM)

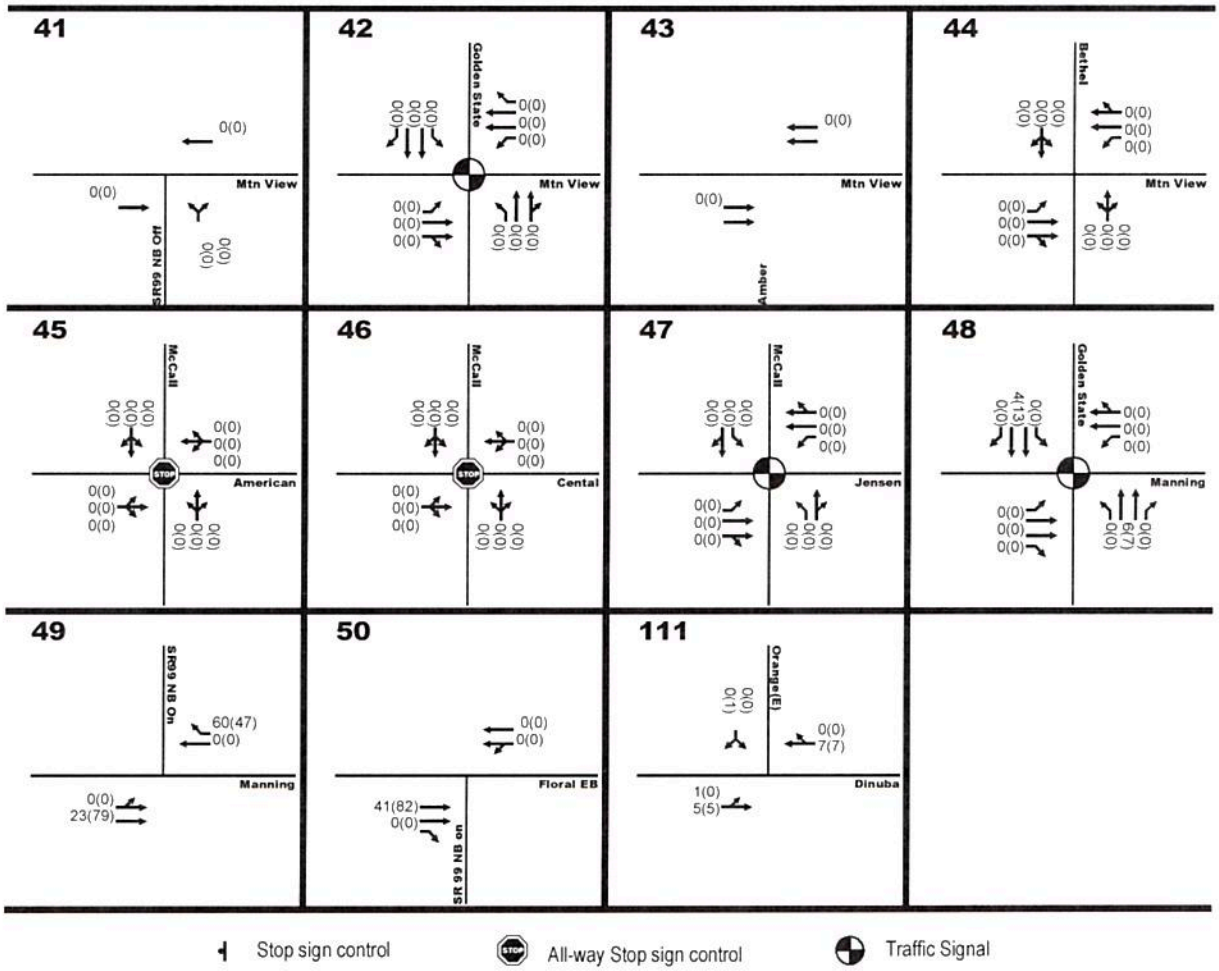

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Figure 6a – Existing + Approved Peak Hour Traffic Volumes – AM (PM)

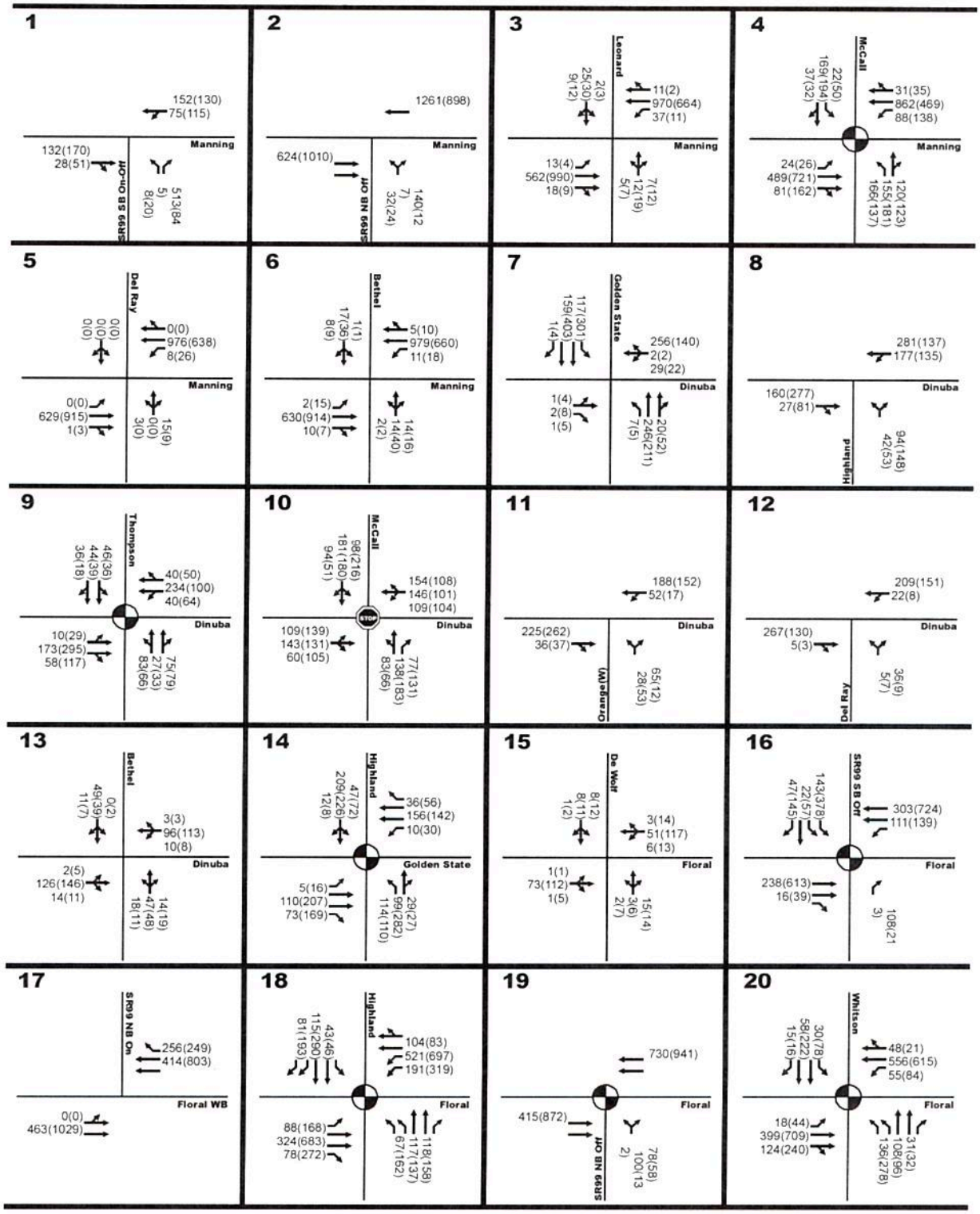

Figure 6b – Existing + Approved Peak Hour Traffic Volumes – AM (PM)

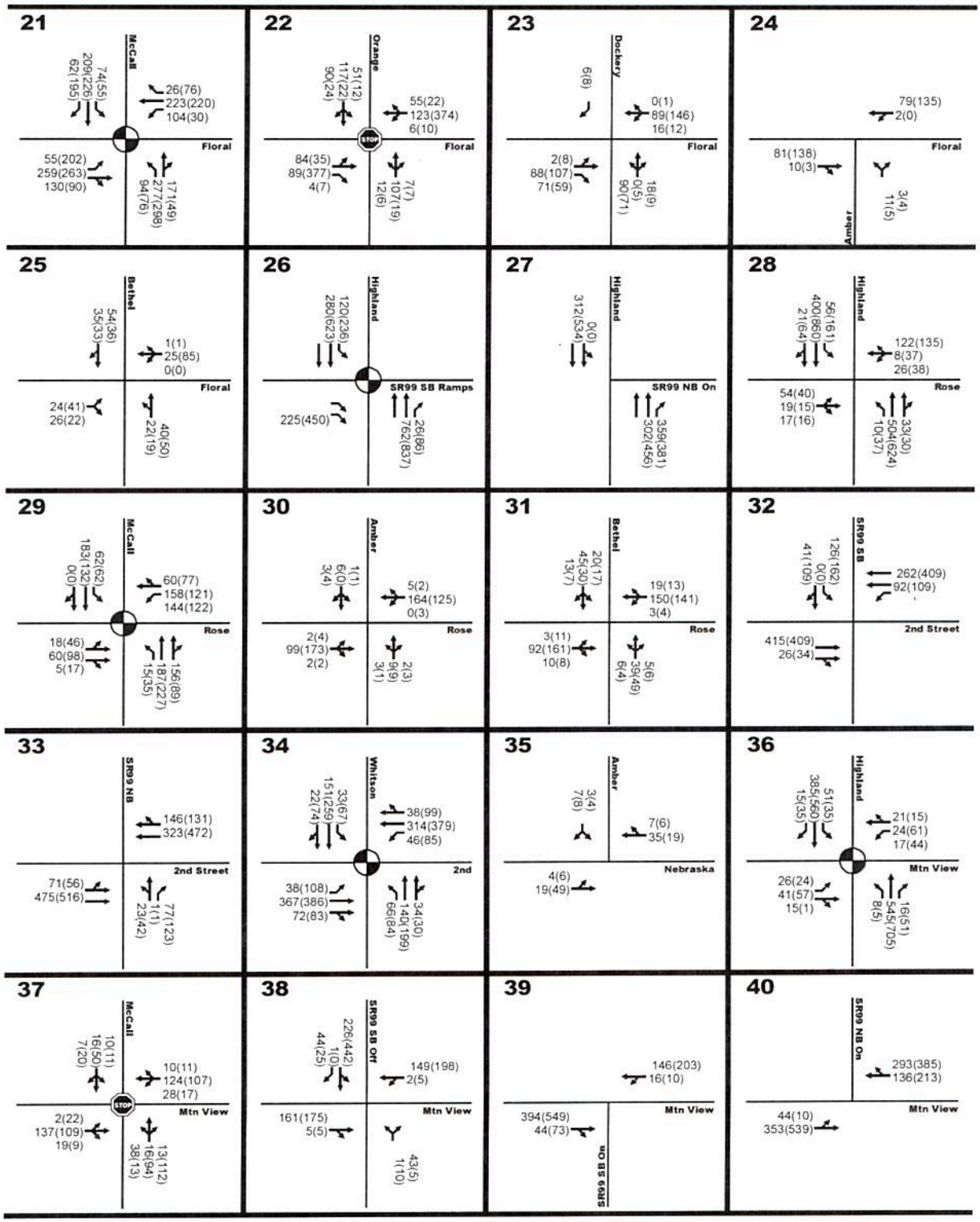

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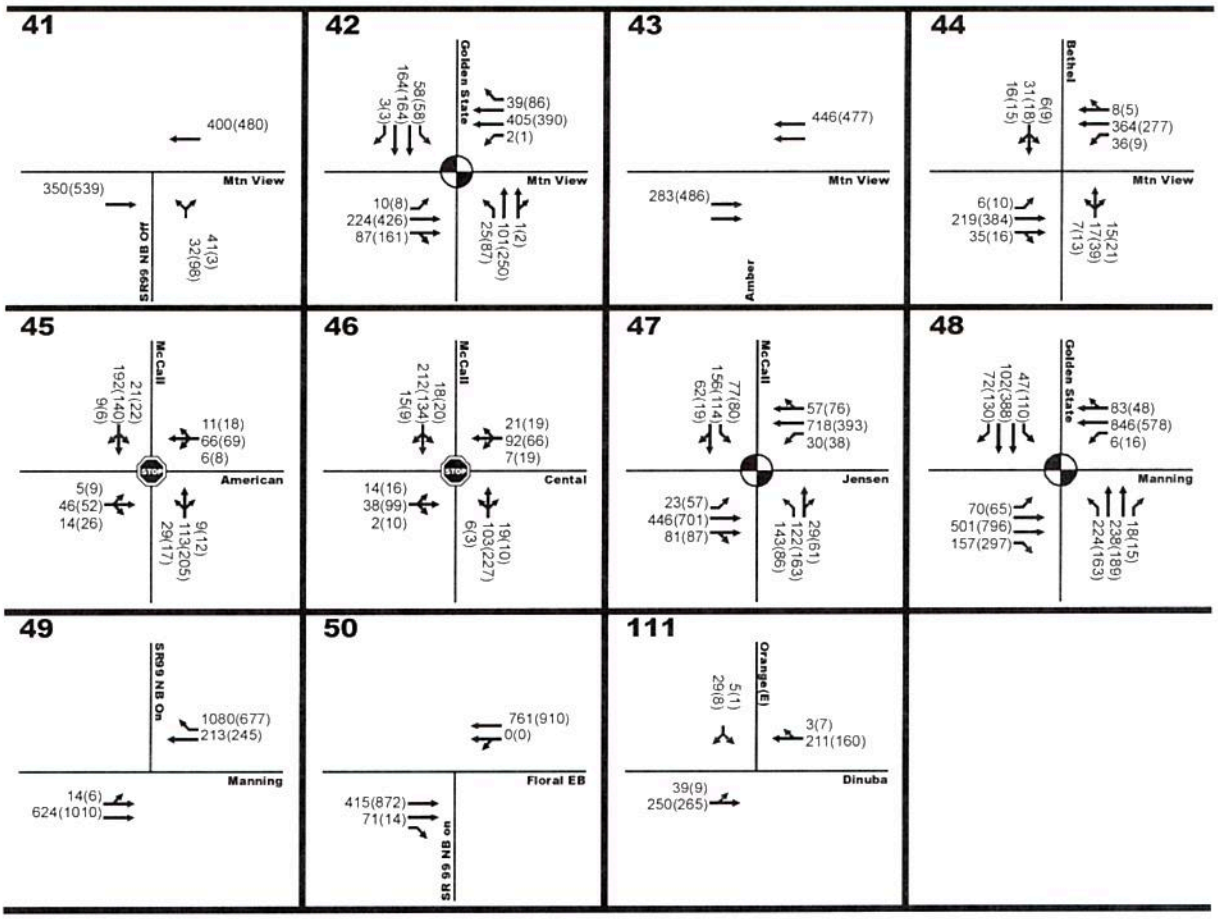
Figure 6c – Existing + Approved Peak Hour Traffic Volumes – AM (PM)



Project Trip Generation

The project's potential trip generation was estimated using trip generation rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation*, 7th Edition. These rates are the result of traffic generation studies performed on actual land uses of similar types.

Table 5 presents the trip generation rates and the resulting daily and peak hour trips to be generated by the entire project. The peak hours are the hours of peak traffic activity on adjacent streets, and generally occur in the 7-9 a.m. period and the 4-6 p.m. period. A trip is defined as a one-way vehicle movement that either begins or ends within the project site.

This estimate shows that the project has the potential to generate about 26,350 trips per day, with about 1,950 in the morning peak hour and about 2,420 in the afternoon peak hour. This would be the traffic generation that would be added to the study area roadways and intersections analyzed herein and does not include the internal traffic flows that would remain within the Specific Plan area. The internal trips were estimated using the ITE methodology for on-site trip capture with input from the Fresno COG regional travel forecasting model's estimate of the project's internal trips. The regional model's estimates of the project's peak hour internal trips are shown in Table 6.

These results have been used because they represent a comprehensive approach to estimating the internal interaction of the project's land uses and the likely trip-making patterns. Note that the values used herein are only the intra-zonal percentages (trips that do not leave the zone where they are generated). There would be other trips that would travel between project zones and some of these would use off-site roadways. These trips have not been included in the internal trips percentages. It is recognized that there may be differences of opinion about how many trips will remain internal to the project; however, any other suggestions about the internal trips component should be supported by a reasonable estimation process that is at least as comprehensive and technically accepted as that used herein.

The resulting estimate of the internal trip percentage is about 16.5% in the AM peak hour and about 17.6% in the PM peak hour. To be conservative and because there is little traffic in the vicinity now, no separate adjustment was made for passby trips for the shopping center land use.

Table 5 – Trip Generation Estimate

ITE Land Use Code	Use	units[1]	Size	Daily Trips[2]	Peak Hour Trips[2] AM In	AM Out	AM Total	PM In	PM Out	PM Total
2100	Res - SF	du	2,558	20,521	450	1,350	1,800	1,224	719	1,944
8201	Shopping Center	ksf	131.200	8,102	110	71	181	374	389	763
7100	Office (eqn) (Public Safety Facility)	ksf	10	227	26	4	30	15	75	90
5201	Elem School (rate)	stu	700	903	173	142	315	51	54	105
4110	City Park (rate)	ac	54.3	434	4	1	5	13	19	33
	Sub-total:			30,188	764	1,568	2,332	1,678	1,256	2,934
	Internal Trips:			3,836	192	192	384	257	257	513
	New Trips:			26,352	572	1,375	1,947	1,422	999	2,421

[1] du = dwelling units; ksf = 1,000 square feet; rm = rooms; stu = students
[2] computed from equations where available from ITE, unless noted as "rate"

Table 6 – Fresno COG Model Estimates of Project's Internal Trips

$\frac{131,200}{1000} \times 1.03 = 135$

$135 \times .61 = 82$

$135 \times .39 = 52$

AM

Project Zones	Total Trips From	Total Trips To	Intra-Zonal	Between Project Zones 1763 - 1767 From	To
1763	339	95	28	16	10
1764	125	81	20	9	10
1765	704	496	310	25	40
1766	121	53	8	12	9
1767	231	93	20	16	11
	1520	818	**386**	78	80
total trips →	**2338**				

trips within and between project zones → **544**

percent intrazonal: 386 / 2338 = **16.5%** 544 / 2338 = 23.3%

PM

Project Zones	Total Trips From	Total Trips To	Intra-Zonal	Between Project Zones 1763 - 1767 From	To
1763	147	361	30	12	20
1764	108	151	24	13	11
1765	726	915	446	46	33
1766	79	139	10	10	14
1767	139	261	24	14	17
	1199	1827	**534**	95	95
total trips →	**3026**				

trips within and between project zones → **724**

percent intrazonal: 534 / 3026 = **17.6%** 724 / 3026 = 23.9%

Project Trip Distribution and Assignment

Trip distribution for the project trips was based on trip distribution data produced using the Fresno COG regional travel forecasting model. The model determined the directional travel patterns for the project's trips given the local and regional distribution of population and non-residential land uses. The model then estimated the roadways that these trips would likely use to travel to and from the site, given the projected travel speeds and levels of congestion on the various possible routes. Percentages were derived from these model estimates and applied to the project's estimated trip generation presented earlier in Table 5. Figure 7 shows the distribution pattern based on this approach.

Using the directional distribution patterns above, the project's peak hour traffic generation was assigned to the vicinity roadway system. Generally the shortest most direct travel path was used in the assignment process. Where relatively equivalent alternate routes exist traffic was assigned proportionately to each route based on the travel times and distances involved. Because the future roadway network will include the new north-south Amber Avenue arterial, separate traffic assignment paths were estimated for the near-term and long-term scenarios.

The resulting near-term AM and PM peak hour trip assignments using the distribution and assignment assumptions presented above are presented in Figures 8a, 8b, and 8c. The only difference between the near-term and future project tip assignments is the use of new routes in the future that are not available in the near-term. The number of trips assigned is the same in both cases.

Figure 7 – Trip Distribution Pattern

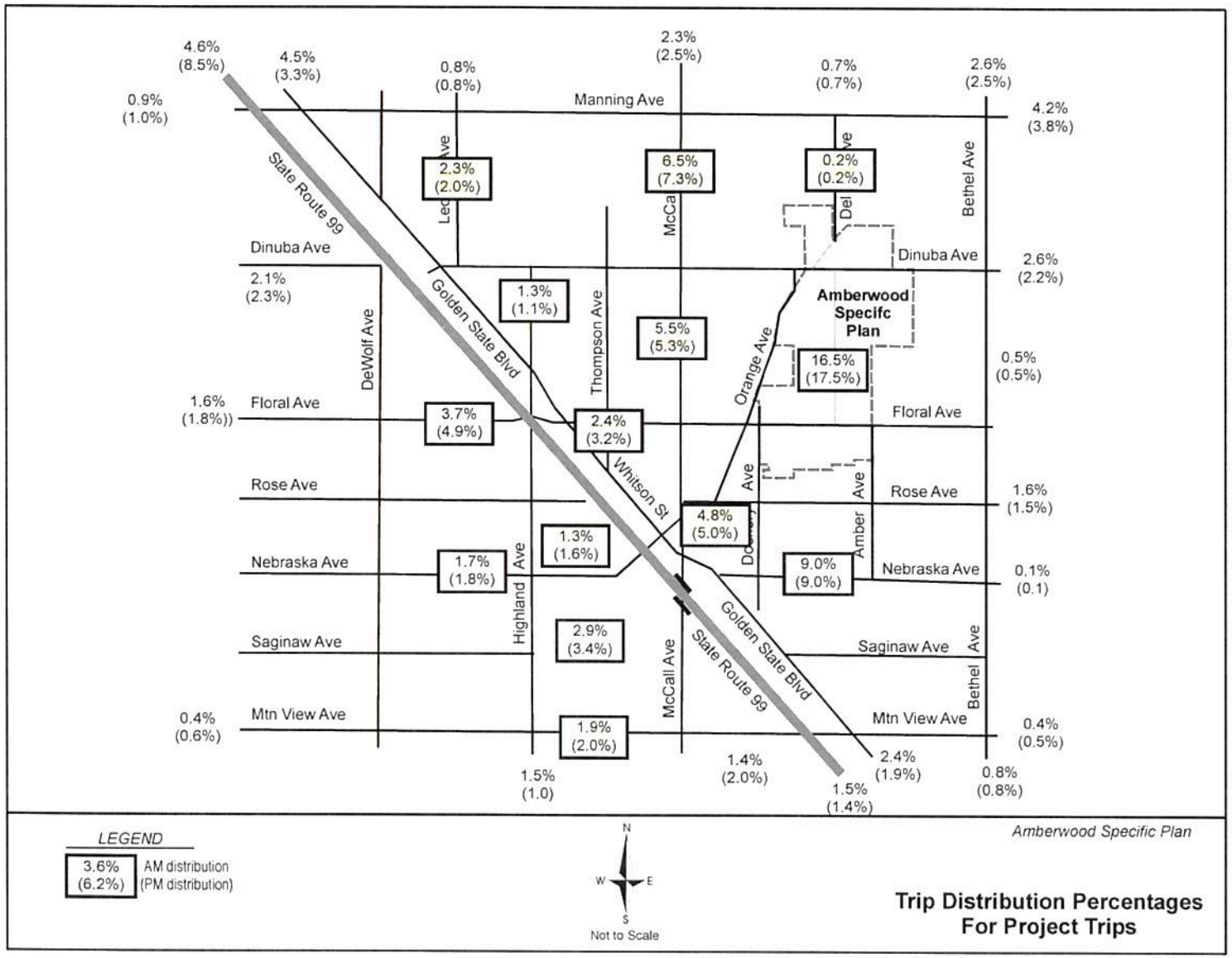


Figure 8a – Project Peak Hour Trips (Near-Term) – AM (PM)

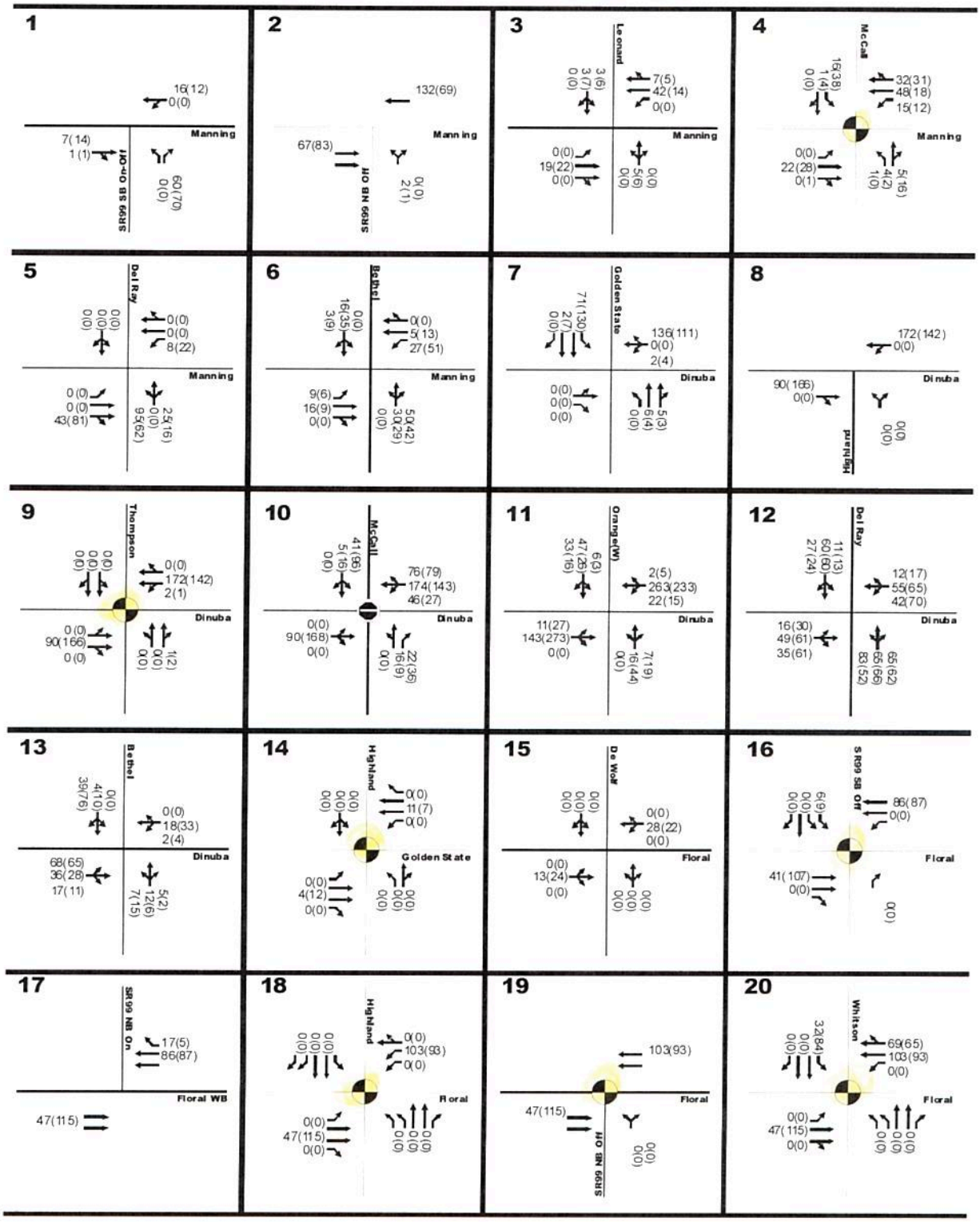


Figure 8b – Project Peak Hour Trips (Near-Term) – AM (PM)

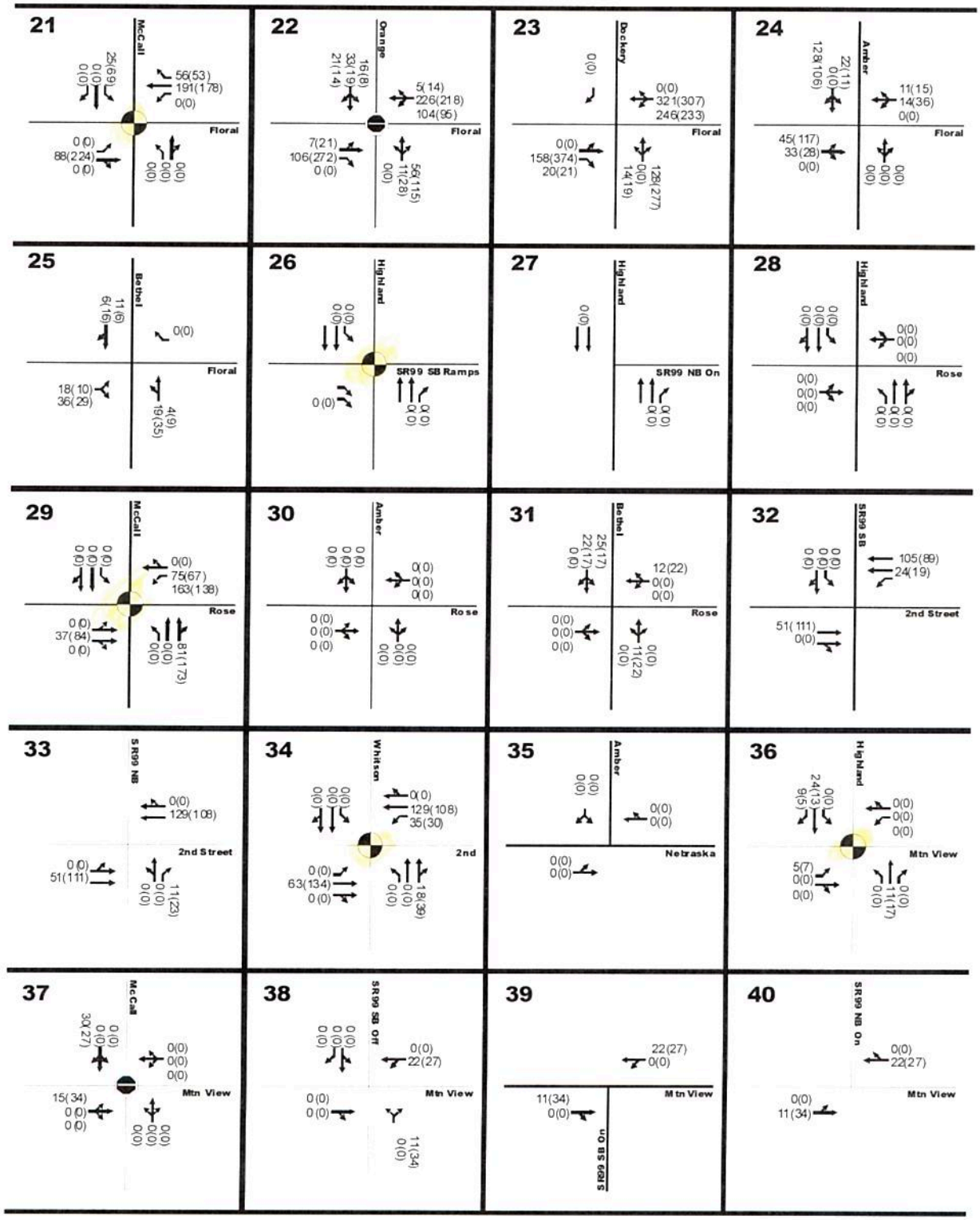


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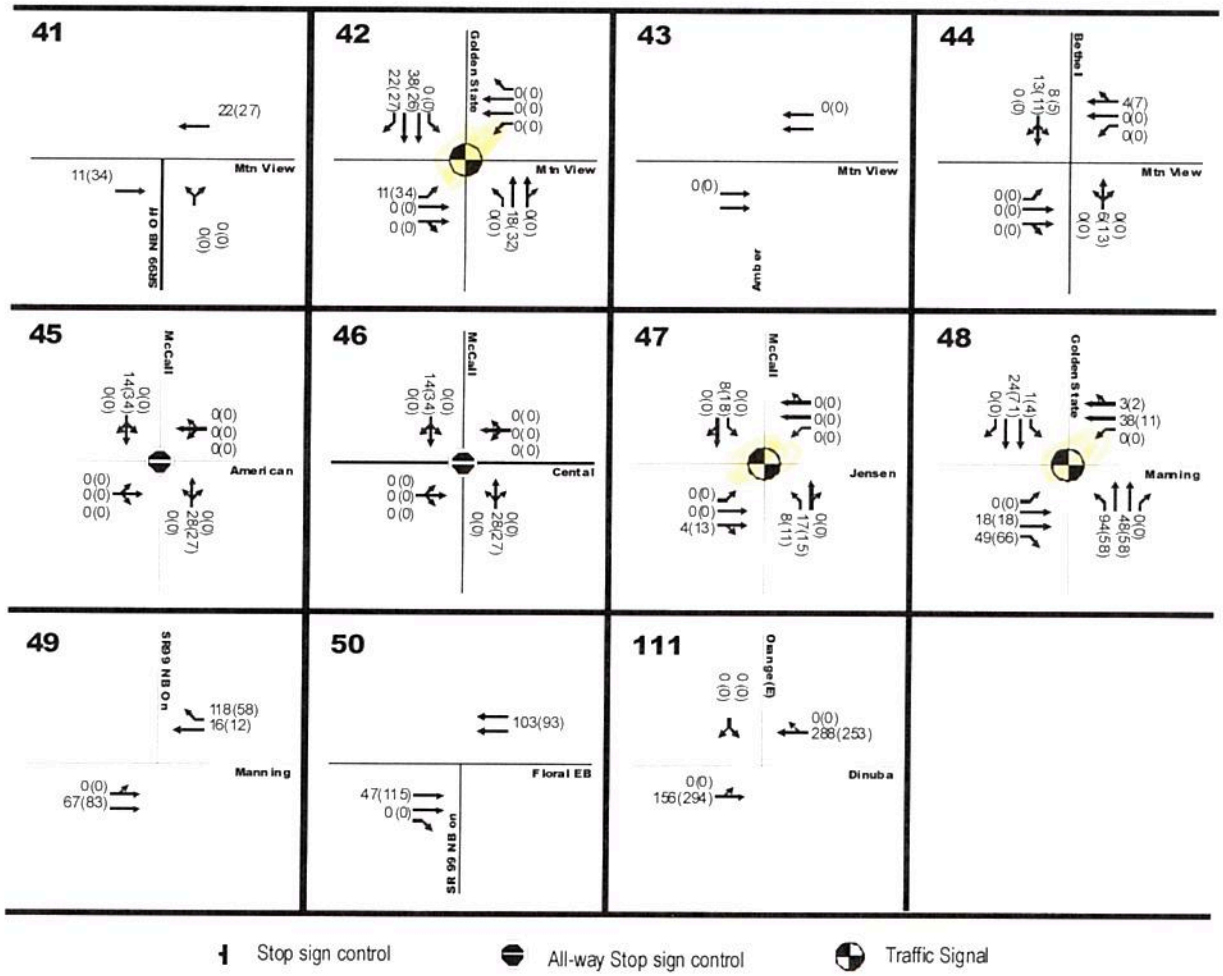
Figure 8c – Project Peak Hour Trips (Near-Term) – AM (PM)



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Existing Levels of Service and Signal Warrant Analysis

Using the existing lanes and controls, the existing traffic volumes, and the methodologies described in the previous sections of this report, the existing levels of service for the key intersections and roadway segments that will serve the project's traffic were determined. Table 7 shows the results for the key intersections and Table 8 shows the results for the key County roadway segments. These results indicate that eight of this study's intersections currently experience LOS E or F conditions in at least one of the peak hours. These are summarized below.

		Existing		Signal
	Control	AM	PM	Waranted?
2 SR99 NB Off/Manning	Unsig	F	E	**Yes**
3 Leonard/Manning	Unsig	F	E	No
6 Bethel/Manning	Unsig	F	F	No
7 Golden State/Dinuba	Unsig		E	No
28 Highland/Rose	Unsig		F	No
32 SR99 SB/2nd Street	Unsig		E	No
38 SR99 SB Off/Mtn View	Unsig		F	**Yes**
41 SR99 NB Off/Mtn View	Unsig		E	No

The potential need for traffic signals at the key intersections was evaluated and Appendix A presents the signal warrant results. The results indicate that two of this study's unsignalized intersections currently carry traffic volumes that exceed the signal warrant levels and therefore would meet the signal warrant criteria. These are the SR99 NB Off/Manning intersection and the SR99 SB Off/Mtn View intersection, both of which are included in the list above.

All of the roadway segments analyzed in this study currently have LOS C conditions in the peak hours.

Table 7a – Existing Intersection Levels of Service

Scenarios:		EX AM		EX PM		EX+Project AM		EX+Project PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 SR99 SB On-Off/Manning	Unsig								
NB approach		12.3	B	14.1	B	12.6	B	14.5	B
WB left-turn		7.7	A	8.0	A	7.7	A	8.1	A
2 SR99 NB Off/Manning	Unsig								
NB approach		76.1	F	49.8	E	187.4	F	86.4	F
3 Leonard/Manning	Unsig								
NB approach		37.2	E	35.9	E	60.3	F	50.2	F
SB approach		71.4	F	28.6	D	108.1	F	48.2	E
EB left-turn		10.9	B	9.0	A	11.2	B	9.1	A
WB left-turn		9.1	A	10.5	B	9.2	A	10.6	B
4 McCall/Manning	Sig	20.0	C	22.4	C	21.1	C	24.5	C
5 Del Ray/Manning	Unsig								
NB approach		14.1	B	12.2	B	88.0	F	86.0	F
WB left-turn		9.1	A	10.5	B	9.3	A	11.2	B
6 Bethel/Manning	Unsig								
NB approach		52.7	F	0.0	F	246.5	F	0.0	F
SB approach		70.5	F	0.0	F	0.0	F	0.0	F
EB left-turn		11.0	B	9.8	A	11.1	B	9.9	A
WB left-turn		9.3	A	11.4	B	9.5	A	12.4	B
7 Golden State/Dinuba	Unsig								
NB left-turn		7.6	A	8.2	A	7.6	A	8.2	A
SB left-turn		8.2	A	8.8	A	8.5	A	9.6	A
EB approach		16.5	C	38.7	E	23.4	C	85.0	F
WB approach		14.4	B	19.9	C	23.0	C	68.9	F
8 Highland/Dinuba	Unsig								
NB approach		13.7	B	14.9	B	18.1	C	22.7	C
WB left-turn		8.1	A	8.4	A	8.4	A	9.1	A
9 Thompson/Dinuba	Sig	14.5	B	13.0	B	12.9	B	11.2	B
10 McCall/Dinuba	AWS	22.3	C	24.3	C	139.4	F	155.7	F
11 Orange(W)/Dinuba	Unsig								
NB approach		11.8	B	12.4	B	32.6	D	64.6	F
SB approach		--	--	–	--	30.9	D	24.9	C
EB left-turn		--	--	–	--	8.4	A	8.2	A
WB left-turn		7.9	A	7.9	A	8.5	A	8.9	A
12 Del Ray/Dinuba	Unsig								
NB approach		11.4	B	9.7	A	418.7	F	29.9	D
SB approach		--	--	–	--	53.1	F	21.0	C
EB left-turn		--	--	–	--	8.1	A	7.8	A
WB left-turn		8.1	A	7.5	A	8.6	A	8.0	A
13 Bethel/Dinuba	Unsig								
NB approach		11.9	B	11.3	B	17.5	C	15.6	C
SB approach		11.4	B	11.2	B	13.6	B	12.3	B
EB left-turn		7.4	A	7.4	A	7.6	A	7.6	A
WB left-turn		7.6	A	7.5	A	7.7	A	7.6	A
14 Highland/Golden State	Sig	34.8	C	36.4	D	35.0	D	36.5	D
15 De Wolf/Floral	Unsig								
NB approach		9.0	A	10.0	A	9.2	A	10.3	B
SB approach		9.8	A	10.9	B	10.2	B	11.4	B
EB left-turn		7.3	A	7.5	A	7.4	A	7.5	A
WB left-turn		7.4	A	7.5	A	7.4	A	7.5	A
16 SR99 SB Off/Floral	Sig	23.4	C	27.6	C	22.4	C	27.2	C
17 SR99 NB On/Floral WB	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
18 Highland/Floral	Sig	24.4	C	26.0	C	23.5	C	25.2	C
19 SR99 NB Off/Floral	Sig	11.3	B	10.9	B	10.4	B	10.0	A
20 Whitson/Floral	Sig	22.3	C	28.2	C	21.4	C	27.9	C
21 McCall/Floral	Sig	33.6	C	27.4	C	36.2	D	31.8	C
22 Orange/Floral	AWS	10.5	B	12.7	B	47.3	E	128.4	F
23 Dockery/Floral	Unsig								
NB approach		11.0	B	10.3	B	754.3	F	561.1	F
SB approach		8.7	A	8.6	A	11.6	B	10.8	B
EB left-turn		7.4	A	7.4	A	8.4	A	8.2	A
WB left-turn		7.6	A	7.5	A	9.6	A	10.1	B
24 Amber/Floral	Unsig								
NB approach		9.2	A	9.1	A	12.3	B	12.3	B
SB approach		--	--	–	--	10.1	B	9.9	A
EB left-turn		--	--	–	--	7.5	A	7.6	A
WB left-turn		7.4	A	0.0	A	7.4	A	0.0	*

Table 7b – Existing Intersection Levels of Service

Scenarios:		EX AM		EX PM		EX+Project AM		EX+Project PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
25 Bethel/Floral	Unsig								
NB left-turn		7.4	A	7.4	A	7.5	A	7.5	A
EB approach		9.4	A	9.6	A	10.1	B	10.4	B
WB approach		8.5	A	8.6	A	8.5	A	8.6	A
26 Highland/SR99 SB Ramps	Sig	19.9	B	25.7	C	19.9	B	25.7	C
27 Highland/SR99 NB On	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
28 Highland/Rose	Unsig								
NB left-turn		8.0	A	8.9	A	8.0	A	8.9	A
SB left-turn		8.5	A	9.1	A	8.5	A	9.1	A
EB approach		19.2	C	54.1	F	19.2	C	54.1	F
WB approach		13.6	B	58.5	F	13.6	B	58.5	F
29 McCall/Rose	Sig	26.6	C	30.1	C	27.2	C	30.6	C
30 Amber/Rose	Unsig								
NB approach		11.2	B	11.1	B	11.2	B	11.1	B
SB approach		10.9	B	9.5	A	10.9	B	9.5	A
EB left-turn		7.7	A	7.5	A	7.7	A	7.5	A
WB left-turn		0.0	A	7.6	A	0.0	A	7.6	A
31 Bethel/Rose	Unsig								
NB approach		11.6	B	13.3	B	12.0	B	14.4	B
SB approach		11.9	B	13.4	B	13.2	B	15.4	C
EB left-turn		7.6	A	7.6	A	7.6	A	7.7	A
WB left-turn		7.4	A	7.7	A	7.4	A	7.7	A
32 SR99 SB/2nd Street	Unsig								
SB approach		21.3	C	39.5	E	35.3	E	95.6	F
WB left-turn		8.7	A	8.7	A	9.0	A	9.3	A
33 SR99 NB/2nd Street	Unsig								
NB approach		12.6	B	14.3	B	13.5	B	16.7	C
EB left-turn		8.7	A	9.1	A	9.2	A	9.6	A
34 Whitson/2nd	Sig	24.5	C	29.4	C	24.0	C	29.0	C
35 Amber/Nebraska	Unsig								
SB approach		8.7	A	8.6	A	8.7	A	8.6	A
EB left-turn		7.3	A	7.3	A	7.3	A	7.3	A
36 Highland/Mtn View	Sig	13.7	B	14.0	B	13.7	B	14.2	B
37 McCall/Mtn View	AWS	8.5	A	9.2	A	8.6	A	9.5	A
38 SR99 SB Off/Mtn View	Unsig								
NB approach		9.7	A	11.5	B	9.7	A	10.6	B
SB approach		18.8	C	67.8	F	23.2	C	143.1	F
WB left-turn		7.6	A	7.6	A	7.7	A	7.7	A
39 SR99 SB On/Mtn View	Unsig								
WB left-turn		8.6	A	9.2	A	8.6	A	9.4	A
40 SR99 NB On/Mtn View	Unsig								
EB left-turn		8.6	A	9.1	A	8.7	A	9.2	A
41 SR99 NB Off/Mtn View	Unsig								
NB approach		16.1	C	48.8	E	16.7	C	60.2	F
42 Golden State/Mtn View	Sig	19.1	B	20.6	C	20.8	C	22.9	C
43 Amber/Mtn View	Unsig			----- Future Intersection -----					
44 Bethel/Mtn View	Unsig								
NB approach		15.0	C	20.9	C	16.0	C	23.6	C
SB approach		17.1	C	17.4	C	19.4	C	20.5	C
EB left-turn		8.2	A	8.0	A	8.2	A	8.1	A
WB left-turn		7.9	A	8.5	A	7.9	A	8.5	A
45 McCall/American	AWS	10.1	B	9.5	A	10.6	B	10.1	B
46 McCall/Cental	AWS	10.1	B	9.6	A	10.5	B	10.2	B
47 McCall/Jensen	Sig	27.1	C	25.1	C	27.7	C	25.6	C
48 Golden State/Manning	Sig	31.6	C	27.8	C	45.1	D	32.5	C
49 SR99 NB On/Manning	Unsig								
EB left-turn		7.7	A	7.8	A	7.8	A	7.8	A
50 SR 99 NB on/Floral EB	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
111 Orange(E)/Dinuba	Unsig								
SB approach		10.2	B	9.5	A	13.9	B	12.2	B
EB left-turn		7.8	A	7.6	A	8.7	A	8.3	A

Table 8 – Existing Roadway Segment Levels of Service

	Existing				Existing + Project			
	AM		PM		AM		PM	
	Volume*	LOS	Volume*	LOS	Volume*	LOS	Volume*	LOS
McCall Avenue from:								
Manning to American	428	C	509	C	481	C	584	C
American to Central	351	C	403	C	393	C	464	C
Central to Jensen	561	C	549	C	598	C	606	C

** Two-way peak hour volume*

Existing plus Project LOS and Signal Warrant Analysis

Again using the existing lanes and controls, the Existing+Project levels of service for the intersections and roadway segments of this study were determined. Table 7 also shows this scenario's results for the key intersections and Table 8 also shows the results for the key County roadway segments. These results indicate that the project will cause an additional six intersections to experience LOS E or F conditions in at least one of the peak hours. These are summarized below, with the additional intersections shaded. Three of these additional intersections would carry traffic volumes that exceed the signal warrant levels and therefore they would meet the signal warrant criteria (see Appendix A).

Also shown in the tabulation below is an indication of the significance of the project's traffic impact on each intersection using the impact threshold criteria presented earlier (see page 13). This shows that the project would have a significant traffic impact on eight intersections for this scenario.

		Existing		Signal	Existing+Project		Signal	Significant
	Control	AM	PM	Waranted?	AM	PM	Waranted?	Impact? *
2 SR99 NB Off/Manning	Unsig	F	E	Yes	F	F	Yes	Yes
3 Leonard/Manning	Unsig	F	F	No	F	F	No	No
5 Del Ray/Manning	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
6 Bethel/Manning	**Unsig**	**F**	**F**	**No**	**F**	**F**	**Yes**	**Yes**
7 Golden State/Dinuba	**Unsig**		**E**	**No**		**F**	**Yes**	**Yes**
10 McCall/Dinuba	**AWS**			**No**	**F**	**F**	**Yes**	**Yes**
11 Orange(W)/Dinuba	**Unsig**			**No**		**F**	**No**	**No**
12 Del Ray/Dinuba	**Unsig**			**No**	**F**		**No**	**No**
22 Orange/Floral	**AWS**			**No**	**E**	**F**	**No**	**No**
23 Dockery/Floral	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
28 Highland/Rose	Unsig		F	No		F	No	No
32 SR99 SB/2nd Street	**Unsig**		**E**	**No**	**E**	**F**	**Yes**	**Yes**
38 SR99 SB Off/Mtn View	Unsig		F	Yes		F	Yes	Yes
41 SR99 NB Off/Mtn View	Unsig		E	No		F	No	No

* Note that for unsignalized intersections, if a signal is not warranted, LOS E or F conditions are still considered to be in the acceptable range per the significance criteria outlined on page 14, and the impact is not significant.

All of the roadway segments analyzed in this study would continue to have LOS C conditions in the peak hours even with the project's added traffic.

Existing plus Approved LOS and Signal Warrant Analysis

Table 9 shows the level of service results for the key intersections with the approved and recently completed development traffic added to the existing peak hour traffic volumes. Table 10 shows the results for the key County roadway segments. These results indicate that nine of this study's intersections would experience LOS E or F conditions in at least one of the peak hours. These are summarized below.

		EX+Approved		Signal
	Control	AM	PM	Waranted?
2 SR99 NB Off/Manning	Unsig	F	F	**Yes**
3 Leonard/Manning	Unsig	F	F	No
6 Bethel/Manning	Unsig	F	F	No
7 Golden State/Dinuba	Unsig		E	No
10 McCall/Dinuba	AWS	F	F	**Yes**
28 Highland/Rose	Unsig	E	F	**Yes**
32 SR99 SB/2nd Street	Unsig		E	No
38 SR99 SB Off/Mtn View	Unsig		F	**Yes**
41 SR99 NB Off/Mtn View	Unsig		E	No

The potential need for traffic signals at the key intersections was evaluated and Appendix A presents the signal warrant results. The results indicate that four of this study's unsignalized intersections would carry traffic volumes that exceed the signal warrant levels and therefore would meet the signal warrant criteria. These are the SR99 NB Off/Manning intersection, the McCall/Dinuba intersection, the Highland/Rose intersection, and the SR99 SB Off/Mtn View intersection, all of which are included in the list above.

All of the roadway segments analyzed in this study would also have LOS C conditions in the peak hours for this scenario.

Table 9a – Existing + Approved Intersection Levels of Service

Scenarios:		EX+Aprvd AM		EX+Aprvd PM		EX+Aprvd+Proj AM		EX+Aprvd+Proj PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 SR99 SB On-Off/Manning	Unsig								
NB approach		12.4	B	14.4	B	12.7	B	14.8	B
WB left-turn		7.7	A	8.0	A	7.8	A	8.1	A
2 SR99 NB Off/Manning	Unsig								
NB approach		104.8	F	74.1	F	251.2	F	137.5	F
3 Leonard/Manning	Unsig								
NB approach		83.2	F	95.1	F	135.2	F	151.9	F
SB approach		120.4	F	94.7	F	204.2	F	167.2	F
EB left-turn		11.3	B	9.2	A	11.6	B	9.3	A
WB left-turn		9.2	A	10.9	B	9.3	A	11.1	B
4 McCall/Manning	Sig	21.8	C	24.3	C	22.8	C	26.4	C
5 Del Ray/Manning	Unsig								
NB approach		14.1	B	12.2	B	88.0	F	86.0	F
WB left-turn		9.1	A	10.5	B	9.3	A	11.2	B
6 Bethel/Manning	Unsig								
NB approach		52.7	F	0.0	F	246.5	F	0.0	F
SB approach		70.5	F	0.0	F	0.0	F	0.0	F
EB left-turn		11.0	B	9.8	A	11.1	B	9.9	A
WB left-turn		9.3	A	11.4	B	9.5	A	12.4	B
7 Golden State/Dinuba	Unsig								
NB left-turn		7.6	A	8.3	A	7.6	A	8.3	A
SB left-turn		8.2	A	8.9	A	8.5	A	9.7	A
EB approach		16.7	C	40.0	E	23.8	C	89.1	F
WB approach		14.5	B	20.4	C	23.4	C	75.1	F
8 Highland/Dinuba	Unsig								
NB approach		15.5	C	16.9	C	22.3	C	29.2	D
WB left-turn		8.1	A	8.5	A	8.4	A	9.2	A
9 Thompson/Dinuba	Sig	14.5	B	13.0	B	12.9	B	11.2	B
10 McCall/Dinuba	AWS	52.1	F	61.2	F	223.9	F	220.1	F
11 Orange(W)/Dinuba	Unsig								
NB approach		11.9	B	12.6	B	34.0	D	72.6	F
SB approach		--	–	--	--	31.8	D	25.5	D
EB left-turn		--	–	--	--	8.4	A	8.2	A
WB left-turn		8.0	A	7.9	A	8.5	A	8.9	A
12 Del Ray/Dinuba	Unsig								
NB approach		11.4	B	9.7	A	418.7	F	29.9	D
SB approach		--	–	--	--	53.1	F	21.0	C
EB left-turn		--	–	--	--	8.1	A	7.8	A
WB left-turn		8.1	A	7.5	A	8.6	A	8.0	A
13 Bethel/Dinuba	Unsig								
NB approach		11.9	B	11.3	B	17.5	C	15.6	C
SB approach		11.4	B	11.2	B	13.6	B	12.3	B
EB left-turn		7.4	A	7.4	A	7.6	A	7.6	A
WB left-turn		7.6	A	7.5	A	7.7	A	7.6	A
14 Highland/Golden State	Sig	34.9	C	37.1	D	35.1	D	37.2	D
15 De Wolf/Floral	Unsig								
NB approach		9.1	A	10.0	B	9.2	A	10.3	B
SB approach		9.8	A	10.9	B	10.2	B	11.4	B
EB left-turn		7.3	A	7.5	A	7.4	A	7.5	A
WB left-turn		7.4	A	7.5	A	7.4	A	7.5	A
16 SR99 SB Off/Floral	Sig	23.0	C	27.3	C	22.1	C	26.9	C
17 SR99 NB On/Floral WB	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
18 Highland/Floral	Sig	25.4	C	29.3	C	24.5	C	28.7	C
19 SR99 NB Off/Floral	Sig	12.3	B	10.8	B	11.5	B	10.3	B
20 Whitson/Floral	Sig	22.7	C	28.0	C	21.6	C	27.8	C
21 McCall/Floral	Sig	34.2	C	28.5	C	37.2	D	33.4	C
22 Orange/Floral	AWS	11.1	B	15.4	C	59.0	F	173.4	F
23 Dockery/Floral	Unsig								
NB approach		11.7	B	11.9	B	898.8	F	798.2	F
SB approach		8.9	A	9.1	A	11.9	B	11.6	B
EB left-turn		7.4	A	7.6	A	8.5	A	8.5	A
WB left-turn		7.7	A	7.6	A	9.8	A	10.4	B
24 Amber/Floral	Unsig								
NB approach		9.5	A	9.7	A	13.1	B	13.9	B
SB approach		0.0	*	0.0	*	10.5	B	10.7	B
EB left-turn		7.4	A	0.0	*	7.6	A	7.9	A
WB left-turn		7.4	A	0.0	*	7.5	A	0.0	*

Table 9b – Existing + Approved Intersection Levels of Service

Scenarios:		EX+Aprvd AM		EX+Aprvd PM		EX+Aprvd+Proj AM		EX+Aprvd+Proj PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
25 Bethel/Floral	Unsig								
NB left-turn		7.4	A	7.4	A	7.5	A	7.5	A
SB left-turn		--	–	--	--	0.0	*	0.0	*
EB approach		--	–	--	--	10.8	B	12.3	B
WB approach		10.4	B	10.9	B	11.0	B	12.3	B
26 Highland/SR99 SB Ramps	Sig	19.1	B	24.8	C	19.1	B	24.8	C
27 Highland/SR99 NB On	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
28 Highland/Rose	Unsig								
NB left-turn		8.3	A	10.5	B	8.3	A	10.5	B
SB left-turn		8.9	A	10.0	B	8.9	A	10.0	B
EB approach		37.6	E	0.0	F	37.6	E	0.0	F
WB approach		18.9	C	766.8	F	18.9	C	766.8	F
29 McCall/Rose	Sig	26.6	C	30.1	C	27.2	C	30.6	C
30 Amber/Rose	Unsig								
NB approach		11.2	B	11.1	B	11.2	B	11.1	B
SB approach		10.9	B	9.5	A	10.9	B	9.5	A
EB left-turn		7.7	A	7.5	A	7.7	A	7.5	A
31 Bethel/Rose	Unsig								
NB approach		11.6	B	13.3	B	12.0	B	14.4	B
SB approach		11.9	B	13.4	B	13.2	B	15.4	C
EB left-turn		7.6	A	7.6	A	7.6	A	7.7	A
WB left-turn		7.4	A	7.7	A	7.4	A	7.7	A
32 SR99 SB/2nd Street	Unsig								
SB approach		21.3	C	37.8	E	35.7	E	90.6	F
WB left-turn		8.8	A	8.8	A	9.1	A	9.4	A
33 SR99 NB/2nd Street	Unsig								
NB approach		13.0	B	14.8	B	14.0	B	17.3	C
EB left-turn		8.8	A	9.2	A	9.3	A	9.7	A
34 Whitson/2nd	Sig	24.5	C	29.4	C	24.0	C	29.0	C
35 Amber/Nebraska	Unsig								
SB approach		8.7	A	8.6	A	8.7	A	8.6	A
EB left-turn		7.3	A	7.3	A	7.3	A	7.3	A
36 Highland/Mtn View	Sig	12.9	B	13.0	B	12.9	B	13.2	B
37 McCall/Mtn View	AWS	8.5	A	9.2	A	8.6	A	9.5	A
38 SR99 SB Off/Mtn View	Unsig								
NB approach		9.7	A	11.5	B	9.7	A	10.6	B
SB approach		18.8	C	67.8	F	23.2	C	143.1	F
WB left-turn		7.6	A	7.6	A	7.7	A	7.7	A
39 SR99 SB On/Mtn View	Unsig								
WB left-turn		8.6	A	9.2	A	8.6	A	9.4	A
40 SR99 NB On/Mtn View	Unsig								
EB left-turn		8.6	A	9.1	A	8.7	A	9.2	A
41 SR99 NB Off/Mtn View	Unsig								
NB approach		16.1	C	48.8	E	16.7	C	60.2	F
42 Golden State/Mtn View	Sig	19.1	B	20.6	C	20.8	C	22.9	C
43 Amber/Mtn View	Unsig			----- Future Intersection -----					
44 Bethel/Mtn View	Unsig								
NB approach		15.0	C	20.9	C	16.0	C	23.6	C
SB approach		17.1	C	17.4	C	19.4	C	20.5	C
EB left-turn		8.2	A	8.0	A	8.2	A	8.1	A
WB left-turn		7.9	A	8.5	A	7.9	A	8.5	A
45 McCall/American	AWS	10.1	B	9.5	A	10.6	B	10.1	B
46 McCall/Cental	AWS	10.1	B	9.6	A	10.5	B	10.2	B
47 McCall/Jensen	Sig	27.1	C	25.1	C	27.7	C	25.6	C
48 Golden State/Manning	Sig	31.5	C	28.0	C	45.0	D	32.9	C
49 SR99 NB On/Manning	Unsig								
EB left-turn		7.7	A	7.8	A	7.8	A	7.8	A
50 SR 99 NB on/Floral EB	Unsig	0.0	A	0.0	A	0.0	A	0.0	A
111 Orange(E)/Dinuba	Unsig								
SB approach		10.3	B	9.5	A	14.1	B	12.1	B
EB left-turn		7.8	A	7.6	A	8.7	A	8.3	A

Table 10 – Existing + Approved Roadway Segment Levels of Service

	Existing + Approved				EX + Approved + Project			
	AM		PM		AM		PM	
	Volume*	LOS	Volume*	LOS	Volume*	LOS	Volume*	LOS
McCall Avenue from:								
Manning to American	438	C	518	C	491	C	593	C
American to Central	361	C	412	C	403	C	473	C
Central to Jensen	571	C	558	C	608	C	615	C

** Two-way peak hour volume*

Existing plus Approved plus Project LOS and Signal Warrant Analysis

Table 9 also shows the level of service results at the key intersections with the project traffic volumes added to the existing-plus-approved traffic volumes. Table 10 also shows the results for the key roadway segments with the project.

These results indicate that the project's traffic will cause an additional five intersections to experience LOS E or F conditions in at least one of the peak hours. These are summarized below, with the additional intersections shaded. Four of these additional intersections would carry traffic volumes that exceed the signal warrant levels and therefore they would meet the signal warrant criteria (see Appendix A). The project's traffic would also cause three other intersections in this tabulation to carry traffic volumes that exceed the signal warrant levels and therefore to meet the signal warrant criteria.

Also shown in the tabulation below is an indication of the significance of the project's traffic impact on each intersection using the impact threshold criteria presented earlier (see page 13). This shows that the project would have a significant traffic impact on ten intersections for this scenario.

All of the roadway segments analyzed in this study would continue to have LOS C conditions in the peak hours even with the project's added traffic.

	Control	EX+Approved AM	EX+Approved PM	Signal Warranted?	EX+Aprvd+Project AM	EX+Aprvd+Project PM	Signal Warranted?	Significant Impact? *
2 SR99 NB Off/Manning	Unsig	F	F	Yes	F	F	Yes	Yes
3 Leonard/Manning	Unsig	F	F	No	F	F	No	No
5 Del Ray/Manning	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
6 Bethel/Manning	Unsig	F	F	No	F	F	Yes	Yes
7 Golden State/Dinuba	Unsig		E	No		F	Yes	Yes
10 McCall/Dinuba	AWS	F	F	Yes	F	F	Yes	Yes
11 Orange(W)/Dinuba	**Unsig**			**No**		**F**	**No**	**No**
12 Del Ray/Dinuba	**Unsig**			**No**	**F**		**Yes**	**Yes**
22 Orange/Floral	**AWS**			**No**	**F**	**F**	**Yes**	**Yes**
23 Dockery/Floral	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
28 Highland/Rose	Unsig	E	F	Yes	E	F	Yes	No**
32 SR99 SB/2nd Street	Unsig		E	No	E	F	Yes	Yes
38 SR99 SB Off/Mtn View	Unsig		F	Yes		F	Yes	Yes
41 SR99 NB Off/Mtn View	Unsig		E	No		F	No	No

* Note that for unsignalized intersections, if a signal is not warranted, LOS E or F conditions are still considered to be in the acceptable range per the significance criteria outlined on page 14, and the impact is not significant.

** Project adds no trips to this intersection during the peak hours

Cumulative 2035 Traffic Volumes and Roadway System

The 2035 peak hour traffic volumes were estimated from the 2035 Fresno COG (FCOG) regional travel forecasting model. The FCOG model forecasts for 2035 are based upon the City of Selma's recent General Plan Update and the County's General Plan. The City's General Plan Update includes the project site as it is currently proposed.

The model forecasts include AM and PM peak hour one-way street segment volumes. The FCOG increment method was used to estimate the 2035 approach and departure volumes for each of this study's key intersections. A Furness procedure was then used to estimate the turning movement volumes for each intersection. The Furness procedure is an iterative process that factors the future approach volumes (using the existing turn movement patterns as a starting point) to estimate the future turning volumes. After each iteration, the departure volumes produced by these estimated turn volumes are compared with the future target departure volumes (from the model), and if the estimates are not yet acceptable, additional iterations are made with adjusted turning factors.

This estimation process resulted in peak hour forecast volumes that are consistent with the forecasts and future peak hour conditions estimated for the General Plan Update, which is the most recent traffic analysis involving the project vicinity and the City as a whole. Earlier traffic studies for other proposed land use developments may have differing forecasts; however, the General Plan Update represents the best recent source for future traffic forecasts and reflects the City's current thinking regarding future land use concepts and the associated traffic levels and patterns.

The resulting 2035 AM and PM peak hour traffic volumes at the study intersections are shown in Figures 9a, 9b, and 9c.

The 2035 roadway system of the FCOG model includes the major roadway improvements described earlier in this analysis (see page 9). It also includes then General Plan's planned lanes for the freeway, expressway, arterial, and collector facilities within the City's General Plan Area, some of which were presented in an earlier section of this analysis (see Table 1).

For the purposes of the peak hour intersection analysis of this study, the General Plan's standard lane configurations for major arterials, arterials, and collectors were assumed for the 2035 no project scenario. These standard lane configurations are included in Appendix D of this study. For each intersection, lane configurations consistent with these standard configurations were assumed, but only to the extent needed by the intersection's specific traffic volume patterns to achieve LOS D or better peak hour conditions. Figures 9a, 9b, and 9c also show the 2035 lane configurations and controls assumed at each of the intersections analyzed herein.

Cumulative 2035 LOS and Signal Warrant Analysis

The potential need for traffic signals at the key intersections was evaluated and Appendix A presents the results. The results indicate that, at the 2035 traffic volume levels, eighteen of this study's unsignalized intersections would carry traffic volumes that exceed the signal warrant levels and therefore would meet the signal warrant criteria. For the 2035 no project scenario, it has been assumed that these intersections would be signalized, and the LOS results discussed below reflect these assumptions.

Table 11 shows the level of service results for the key intersections with the 2035 peak hour traffic volumes without the project. Table 12 shows the results for the key County roadway segments. These results indicate that two of this study's intersections would experience LOS E or F conditions in at least one of the peak hours and neither would carry traffic volumes that exceed the signal warrant levels. These are summarized below.

		EX+Approved		Signal
	Control	AM	PM	Waranted?
3 Leonard/Manning	Unsig	F	F	No
44 Bethel/Mtn View	Unsig		F	No

Two of the three roadway segments analyzed in this study would have LOS D or better conditions in the peak hours for this scenario. The third segment, McCall from Central to Jensen, would have LOS D in the AM peak hour and LOS E in the PM peak hour.

Cumulative 2035 plus Project LOS and Signal Warrant Analysis

The Project's buildout level traffic volumes were added to the 2035 no-project volumes described above. The resulting 2035 + Project AM and PM peak hour traffic volumes at the study intersections are shown in Figures 10a, 10b, and 10c.

Table 11 also shows the level of service results at the key intersections with the project traffic volumes added to the 2035 traffic volumes. Table 12 also shows the 2035 results for the key roadway segments with the project.

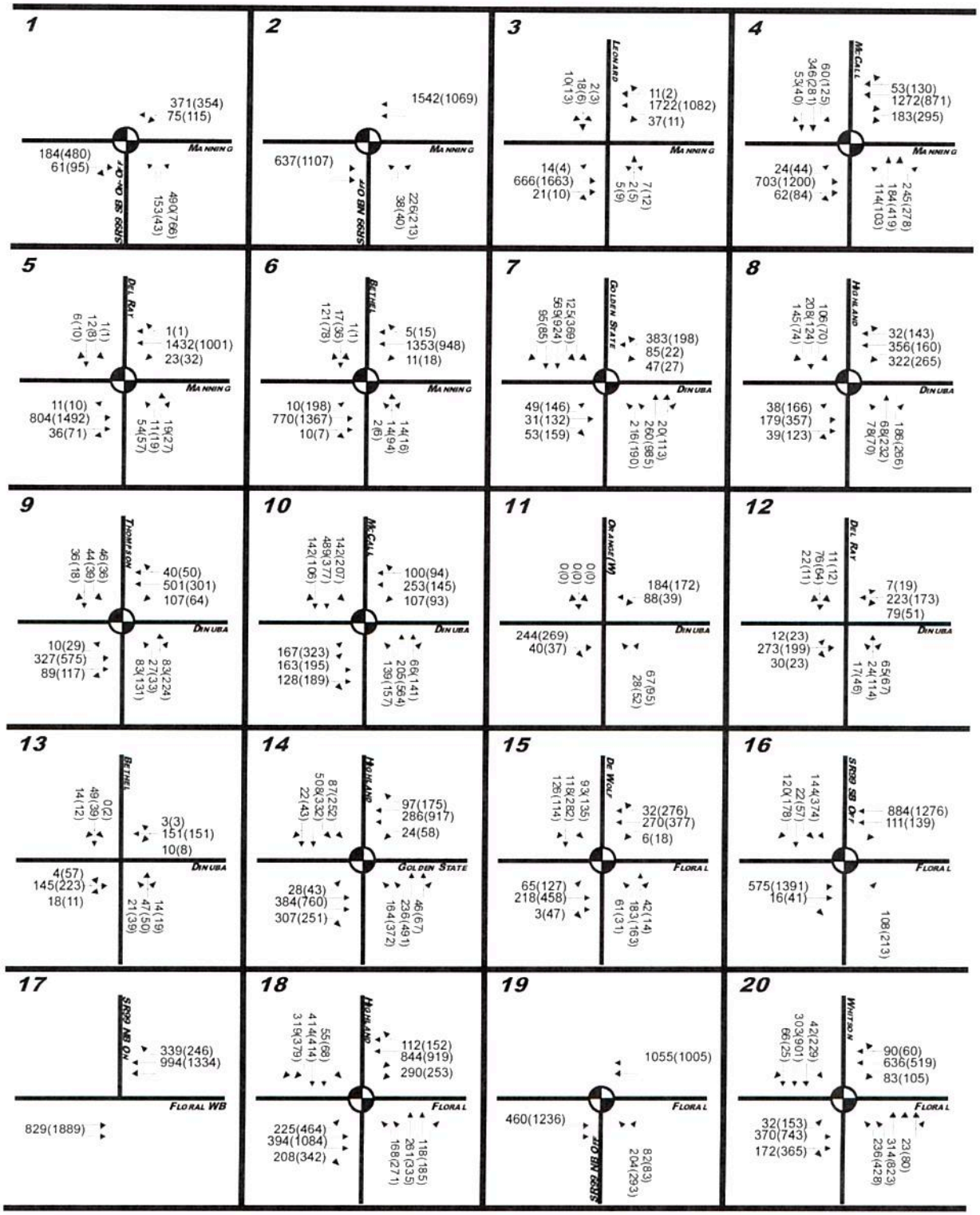
These results indicate that the project's traffic will cause six additional intersections to experience LOS E or F conditions in at least one of the peak hours. These are summarized below, with the additional intersections shaded. All but one of these additional intersections would carry traffic volumes that exceed the signal warrant levels and therefore would meet the signal warrant criteria (see Appendix A).

		2035		Signal	2035+Project		Signal	Significant
	Control	AM	PM	Waranted?	AM	PM	Waranted?	Impact? *
3 Leonard/Manning	Unsig	F	F	No	F	F	No	No
11 Orange(W)/Dinuba	**Unsig**			**No**	**E**	**F**	**Yes**	**Yes**
12 Del Ray/Dinuba	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
22 Orange/Floral	**AWS**			**No**	**E**	**F**	**Yes**	**Yes**
23 Dockery/Floral	**Unsig**			**No**	**F**	**F**	**Yes**	**Yes**
24 Amber/Floral	**Unsig**			**No**		**E**	**No**	**No**
30 Amber/Rose	**Unsig**			**No**		**F**	**Yes**	**Yes**
44 Bethel/Mtn View	Unsig		F	No	F	No	No	No

* Note that for unsignalized intersections, if a signal is not warranted, LOS E or F conditions are still considered to be in the acceptable range per the significance criteria outlined on page 14, and the impact is not significant.

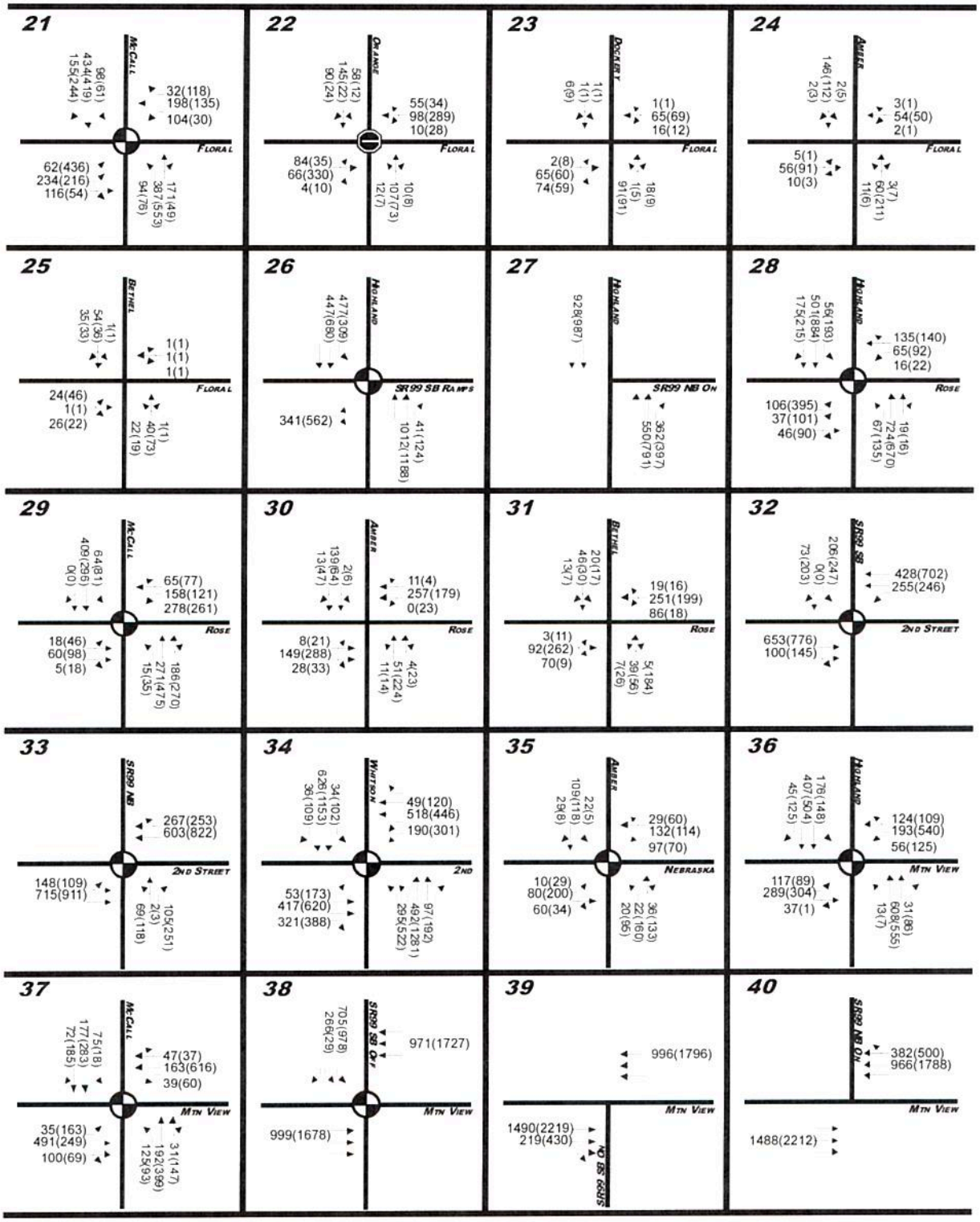
Also shown in the tabulation above is an indication of the significance of the project's traffic impact on each intersection using the impact threshold criteria presented earlier (see page 13). This shows that the project would have a significant traffic impact on five intersections for this scenario.

Figure 9a – 2035 Peak Hour Volumes (No Project) – AM (PM)



Stop sign control All-way Stop sign control Traffic Signal

Figure 9b – 2035 Peak Hour Volumes (No Project) – AM (PM)



Stop sign control All-way Stop sign control Traffic Signal

Figure 9c – 2035 Peak Hour Volumes (No Project) – AM (PM)

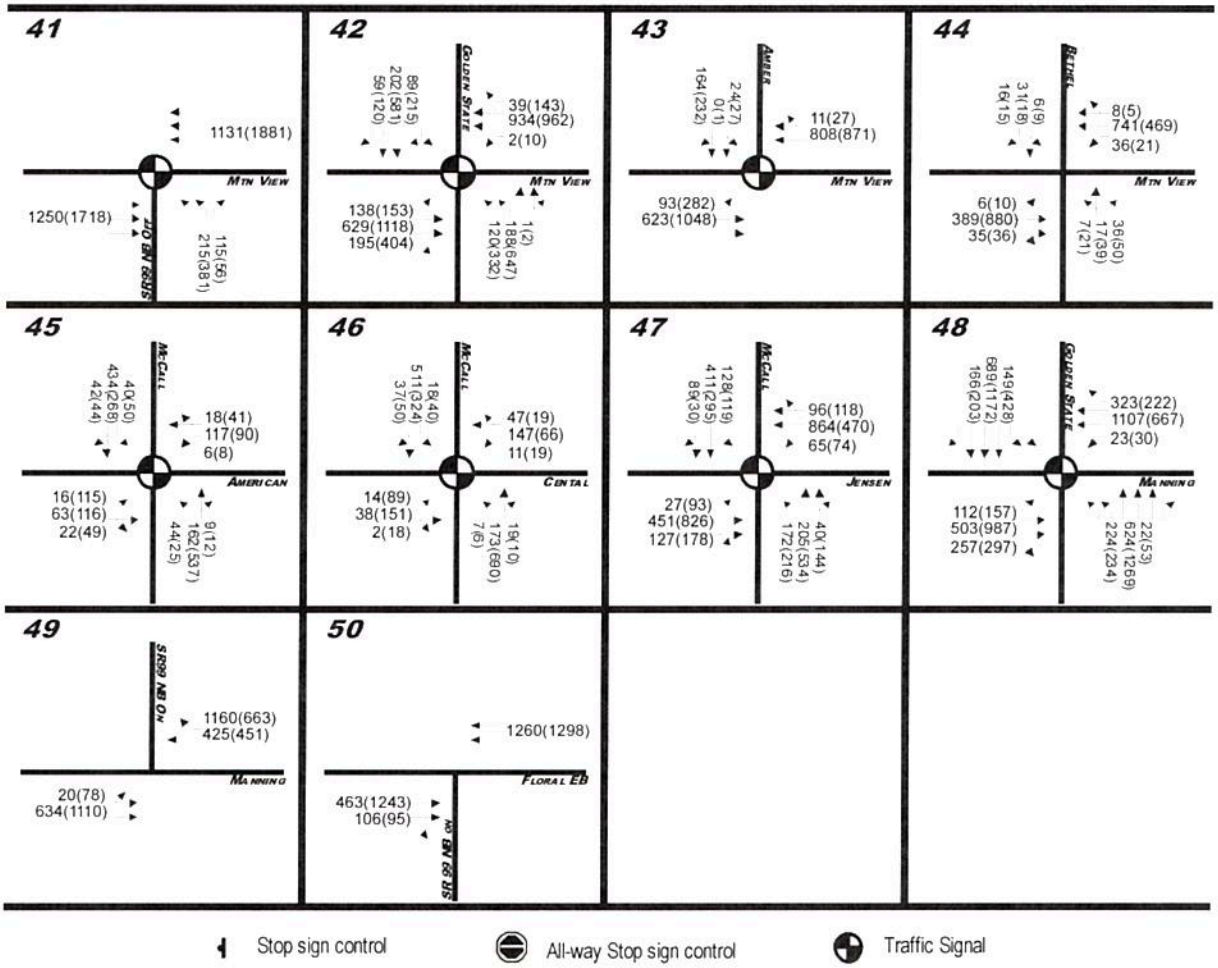
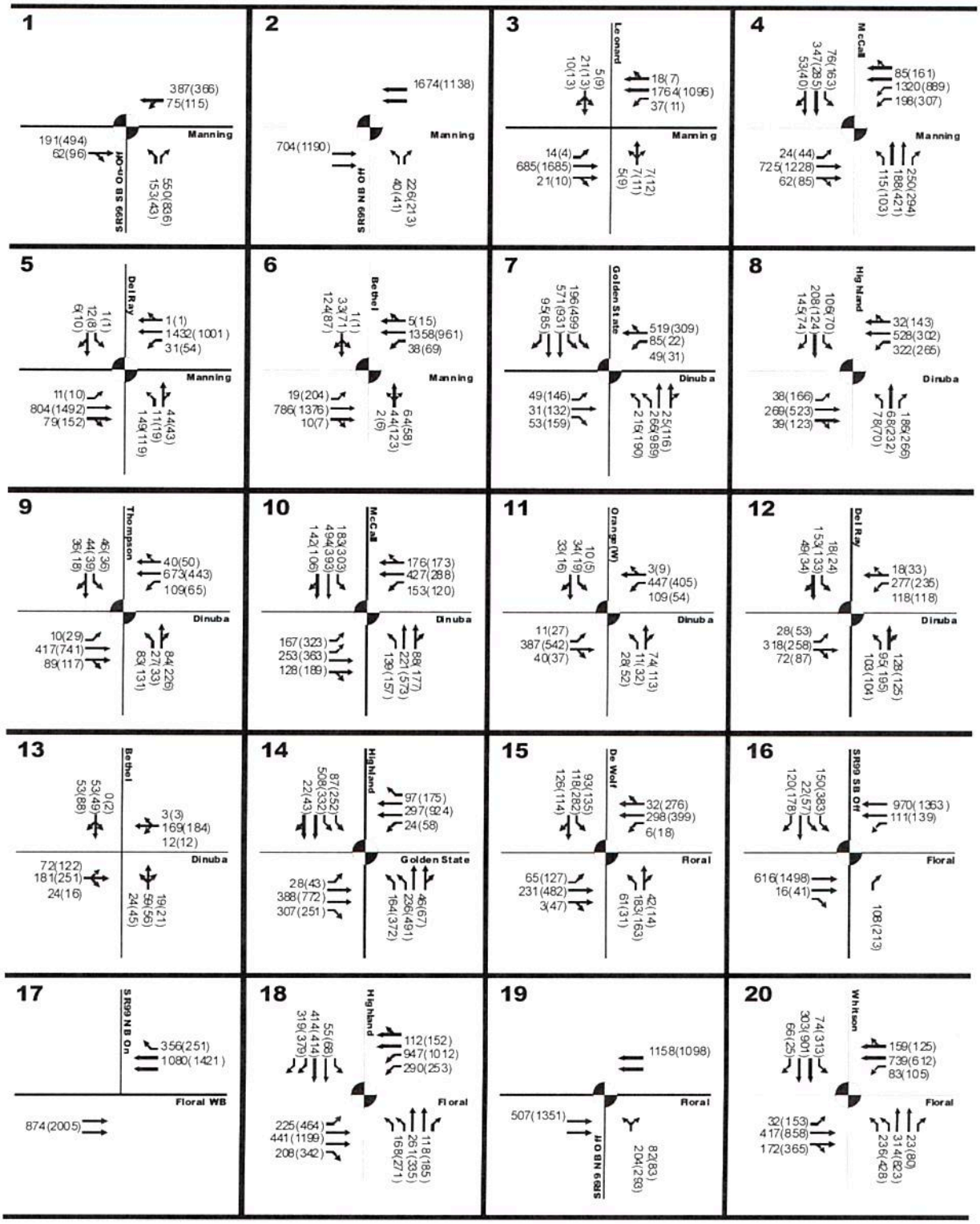
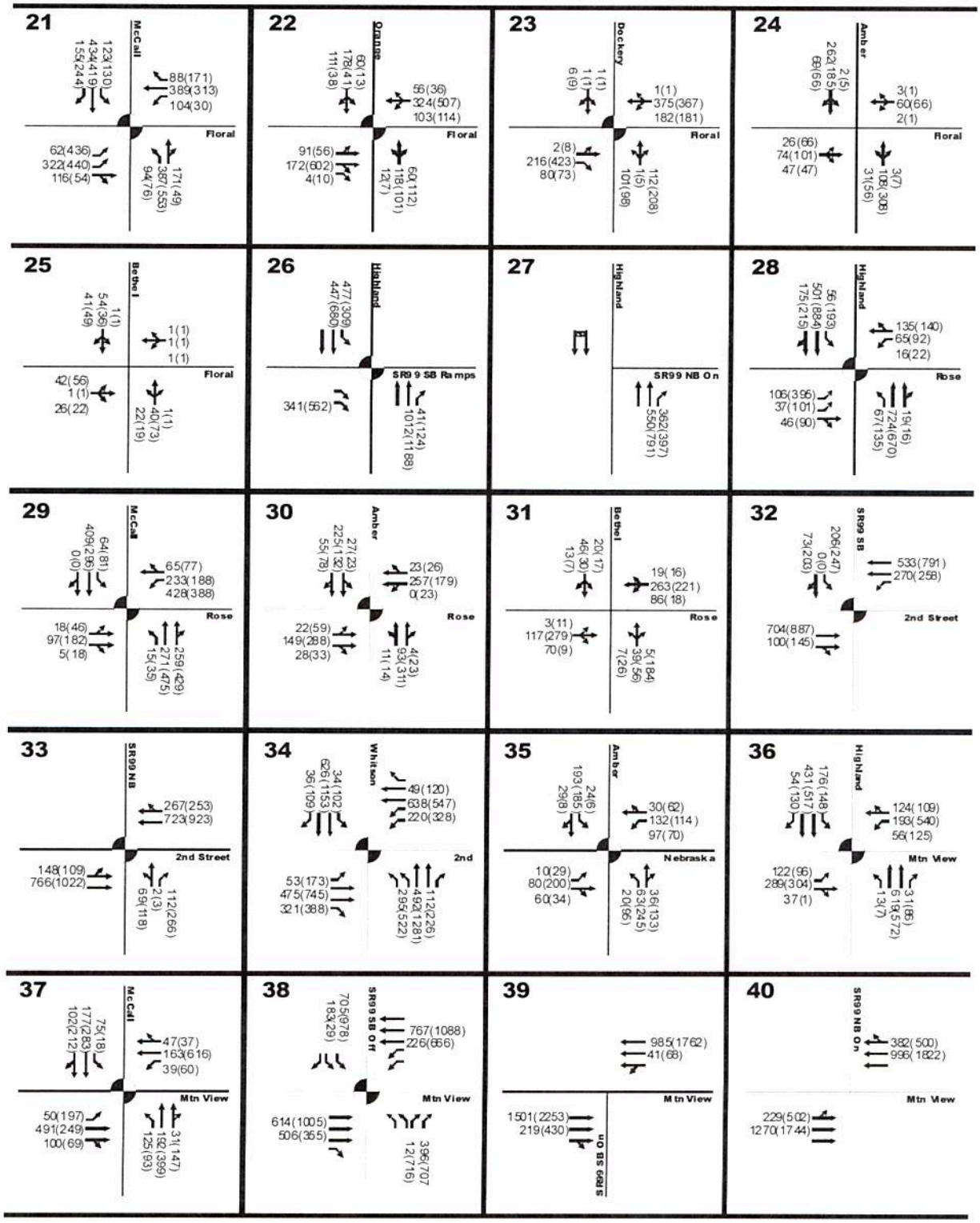


Figure 10a – 2035 + Project Peak Hour Volumes – AM (PM)



Stop sign control All-way Stop sign control Traffic Signal

Figure 10b – 2035 + Project Peak Hour Volumes – AM (PM)



Stop sign control All-way Stop sign control Traffic Signal

Figure 10c – 2035 + Project Peak Hour Volumes – AM (PM)

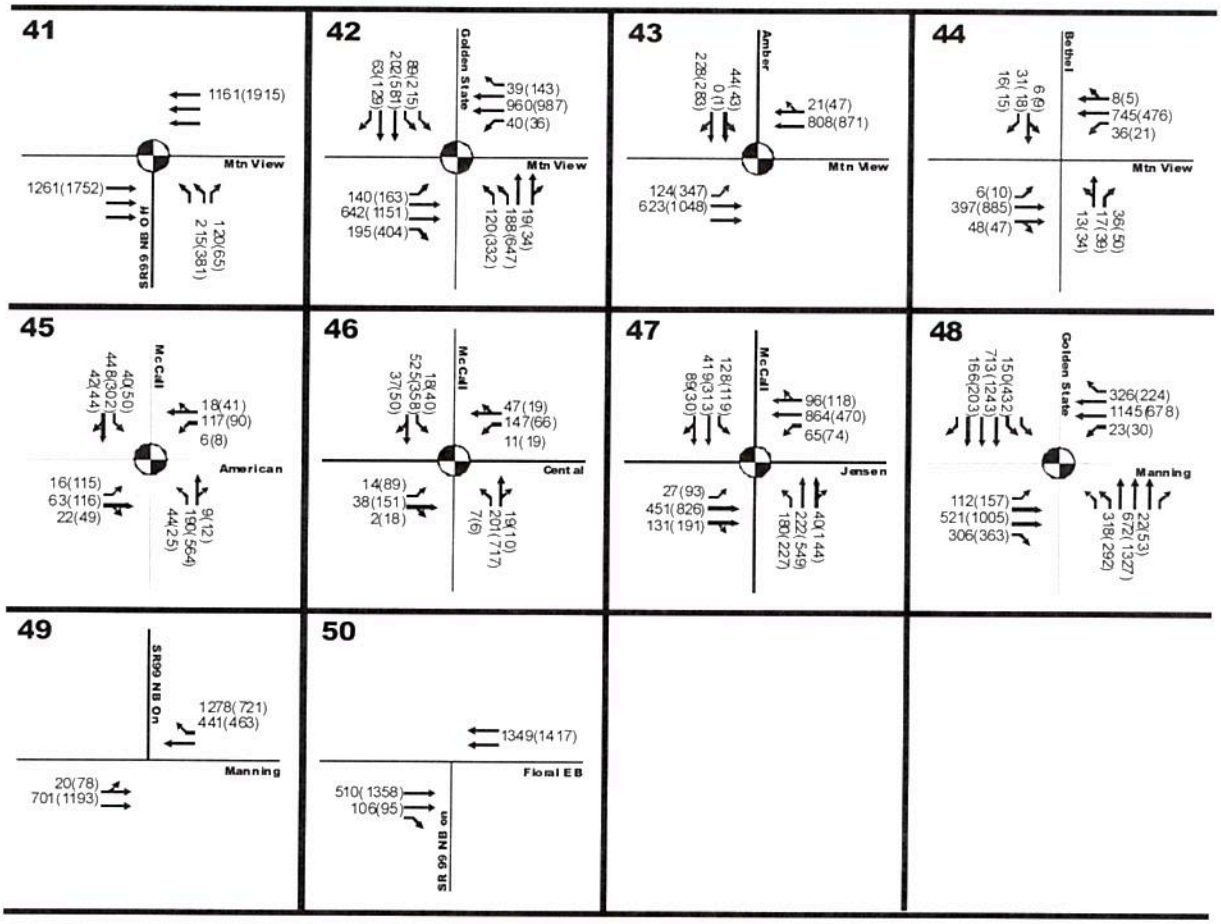


Table 11a – 2035 & 2035+Project Intersection Levels of Service

Scenarios:		2035 AM		2035 PM		2035+Proj AM		2035+Proj PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 SR99 SB On-Off/Manning	Sig	11.8	B	3.9	A	11.6	B	3.8	A
2 SR99 NB Off/Manning	Sig	11.6	B	11.5	B	11.8	B	11.2	B
3 Leonard/Manning	Unsig								
NB approach		long	F	long	F	long	F	long	F
SB approach		long	F	long	F	long	F	long	F
EB left-turn		19.6	C	11.4	B	20.5	C	11.5	B
WB left-turn		9.7	A	16.9	C	9.8	A	17.2	C
4 McCall/Manning	Sig	22.6	C	27.1	C	24.0	C	30.7	C
5 Del Ray/Manning	Sig	7.2	A	7.9	A	12.6	B	12.5	B
6 Bethel/Manning	Sig	9.0	A	14.3	B	12.1	B	19.3	B
7 Golden State/Dinuba	Sig	34.3	C	32.4	C	39.4	D	45.1	D
8 Highland/Dinuba	Sig	23.9	C	26.3	C	23.8	C	26.2	C
9 Thompson/Dinuba	Sig	22.9	C	25.3	C	21.1	C	24.1	C
10 McCall/Dinuba	Sig	32.2	C	33.4	C	33.9	C	39.4	D
11 Orange(W)/Dinuba	Unsig								
NB approach		12.7	B	13.2	B	38.8	E	98.8	F
SB approach		0.0	*	0.0	*	37.0	E	30.5	D
EB left-turn		0.0	*	0.0	*	8.4	A	8.3	A
WB left-turn		8.1	A	8.0	A	8.7	A	9.0	A
12 Del Ray/Dinuba	Unsig								
NB approach		17.5	C	24.2	C	long	F	long	F
SB approach		23.3	C	17.8	C	long	F	long	F
EB left-turn		7.8	A	7.7	A	8.0	A	8.0	A
WB left-turn		8.2	A	7.8	A	8.6	A	8.4	A
13 Bethel/Dinuba	Unsig								
NB approach		12.6	B	15.6	C	18.0	C	26.6	D
SB approach		11.9	B	13.4	B	14.0	B	14.8	B
EB left-turn		7.6	A	7.6	A	7.8	A	7.8	A
WB left-turn		7.6	A	7.7	A	7.7	A	7.8	A
14 Highland/Golden State	Sig	30.5	C	32.4	C	30.6	C	32.4	C
15 De Wolf/Floral	Sig	28.2	C	29.1	C	28.1	C	29.0	C
16 SR99 SB Off/Floral	Sig	20.4	C	28.0	C	19.5	B	29.5	C
17 SR99 NB On/Floral WB	Unsig								
EB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
WB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
18 Highland/Floral	Sig	32.9	C	38.5	D	33.1	C	40.3	D
19 SR99 NB Off/Floral	Sig	15.1	B	17.4	B	14.7	B	17.2	B
20 Whitson/Floral	Sig	25.4	C	38.4	D	27.0	C	46.8	D
21 McCall/Floral	Sig	35.0	C	29.1	C	40.4	D	40.5	D
22 Orange/Floral	AWS	11.1	B	13.9	B	47.7	E	143.0	F
23 Dockery/Floral	Unsig								
NB approach		10.4	B	10.5	B	63.9	F	238.8	F
SB approach		9.1	A	9.0	A	16.3	C	19.2	C
EB left-turn		7.3	A	7.4	A	8.2	A	8.1	A
WB left-turn		7.5	A	7.5	A	8.5	A	9.3	A
24 Amber/Floral	Unsig								
NB approach		10.6	B	12.3	B	14.9	B	37.2	E
SB approach		11.3	B	11.0	B	16.7	C	16.6	C
EB left-turn		7.3	A	7.3	A	7.4	A	7.5	A
WB left-turn		7.3	A	7.4	A	7.5	A	7.5	A
25 Bethel/Floral	Unsig								
NB left-turn		7.4	A	7.4	A	7.5	A	7.4	A
SB left-turn		7.3	A	7.4	A	7.3	A	7.4	A
EB approach		9.5	A	9.8	A	9.8	A	10.0	A
WB approach		9.6	A	9.6	A	9.6	A	9.7	A
26 Highland/SR99 SB Ramps	Sig	31.7	C	30.9	C	31.7	C	30.9	C
27 Highland/SR99 NB On	Unsig								
NB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
SB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
28 Highland/Rose	Sig	24.0	C	34.9	C	24.0	C	34.9	C
29 McCall/Rose	Sig	25.5	C	27.9	C	27.6	C	33.2	C
30 Amber/Rose	Unsig								
NB approach		14.0	B	32.4	D	16.8	C	128.9	F
SB approach		16.7	C	16.1	C	27.1	D	0.0	F
EB left-turn		7.9	A	7.7	A	7.9	A	7.8	A
WB left-turn		0.0	*	8.0	A	0.0	*	8.0	A
31 Bethel/Rose	Unsig								
NB approach		16.4	C	17.4	C	17.2	C	18.5	C
SB approach		17.7	C	18.2	C	18.7	C	19.4	C
EB left-turn		7.9	A	7.7	A	7.9	A	7.8	A
WB left-turn		7.8	A	7.9	A	7.8	A	7.9	A
32 SR99 SB/2nd Street	Sig	21.5	C	21.5	C	21.0	C	21.6	C
33 SR99 NB/2nd Street	Sig	18.6	B	28.6	C	19.6	B	36.8	D

Table 11b – 2035 & 2035+Project Intersection Levels of Service

Scenarios:		2035 AM		2035 PM		2035+Proj AM		2035+Proj PM	
	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
34 Whitson/2nd	Sig	28.7	C	42.2	D	29.2	C	49.3	D
35 Amber/Nebraska	Sig	26.2	C	27.1	C	26.4	C	26.8	C
36 Highland/Mtn View	Sig	31.2	C	35.0	C	31.2	C	35.6	D
37 McCall/Mtn View	Sig	27.6	C	30.2	C	28.3	C	31.2	C
38 SR99 SB Off/Mtn View	Sig	20.4	C	23.7	C	20.8	C	26.5	C
39 SR99 SB On/Mtn View	Unsig								
EB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
WB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
40 SR99 NB On/Mtn View	Unsig								
EB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
WB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
41 SR99 NB Off/Mtn View	Sig	8.9	A	10.1	B	9.0	A	10.1	B
42 Golden State/Mtn View	Sig	20.9	C	30.1	C	22.4	C	31.5	C
43 Amber/Mtn View	Sig	15.4	B	20.9	C	19.3	B	24.6	C
44 Bethel/Mtn View	Unsig								
NB approach		20.8	C	61.5	F	23.7	C	92.3	F
SB approach		35.0	E	40.7	E	36.6	E	42.5	E
EB left-turn		9.5	A	8.5	A	9.6	A	8.5	A
WB left-turn		8.4	A	10.4	B	8.5	A	10.5	B
45 McCall/American	Sig	20.8	C	24.1	C	20.4	C	23.9	C
46 McCall/Cental	Sig	18.7	B	20.2	C	18.5	B	20.2	C
47 McCall/Jensen	Sig	29.8	C	32.4	C	30.1	C	32.8	C
48 Golden State/Manning	Sig	30.3	C	36.4	D	29.8	C	37.7	D
49 SR99 NB On/Manning	Unsig								
EB left-turn		8.4	A	8.7	A	8.5	A	8.8	A
WB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
50 SR 99 NB on/Floral EB	Unsig								
EB left-turn		0.0	*	0.0	*	0.0	*	0.0	*
WB left-turn		0.0	*	0.0	*	0.0	*	0.0	*

Table 12 – 2035 Roadway Segment Levels of Service

	2035				2035 + Project			
	AM		PM		AM		PM	
	Volume*	LOS	Volume*	LOS	Volume*	LOS	Volume*	LOS
McCall Avenue from:								
Manning to American	720	C	1039	D	773	C	1114	D
American to Central	723	C	1067	D	765	C	1128	D
Central to Jensen	1,020	D	1441	E	1057	D	1498	F

** Two-way peak hour volume*

3. IMPACTS AND MITIGATION MEASURES

Existing + Project Traffic Levels

At the Existing + Project traffic levels, the addition of the Project's traffic would have a significant impact on the intersections described below. For each impact one or more mitigation measure is described along with the project's responsibility for the cost of implementing the mitigation measure(s).

Impact #1. At the **SR99 NB Off/Manning** intersection (#2) the project would add traffic to this intersection which already has at LOS E & F conditions on the stop-controlled off-ramp approach. This would increase the delay for the minor street movements and would be a significant impact. This intersection already meets the warrants for signalization.

Mitigation #1. The project should contribute a fair share of the cost to install traffic signals at the SR99 NB Off/Manning intersection. This could be done through the City's development fee program if this improvement is included in the program. Fair share is estimated at 7.3% representing the project's percentage of the PM peak hour entering volume for the Existing+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #2. At the **Del Rey/Manning** intersection (#5) the project would the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #2. The project should contribute a fair share of the cost to install traffic signals at the Del Rey/Manning intersection. See Mitigation #9 for the project's estimated fair share percentage. This would mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #3. At the **Bethel/Manning** intersection (#6) the project would add to the LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #3. The project should contribute a fair share of the cost to install traffic signals at the Bethel/Manning intersection. See Mitigation #10 for the project's estimated fair share percentage. This would

mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #4. At the **Golden State/Dinuba** intersection (#7) the project would worsen the LOS from E to F conditions in the PM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #4. The project should contribute a fair share of the cost to install traffic signals at the Golden State/Dinuba intersection. See Mitigation #11 for the project's estimated fair share percentage. This would mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #5. At the **McCall/Dinuba** intersection (#10) the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #5. The project should contribute a fair share of the cost to install traffic signals at the McCall/Dinuba intersection and to improve all four approaches to the intersection. See Mitigation #12 for the improvements needed and the project's estimated fair share percentage. This would mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #6. At the **Dockery/Floral** intersection (#23) the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #6. The project should contribute the entire cost of installing traffic signals at the Dockery/Floral intersection and improving the Floral approaches to the intersection. See Mitigation #15 for the improvements needed. This would mitigate the project impacts to a less than significant level for the existing + project development conditions.

Impact #7. At the **SR99 SB/2nd Street** intersection (#32) the project would worsen the LOS E conditions to LOS F in the PM peak hour and would cause the signal warrant to be met. This would be a significant impact.

Mitigation #7. The project should contribute a fair share of the cost to install traffic signals at the SR99 SB/2nd Street intersection. See Mitigation #16 for the project's estimated fair share percentage. This would mitigate the project impacts to a less than significant level for the existing + project development conditions. For safety

and consistency, it is Caltrans' policy to install signals at both interchange ramps even though only one meets the warrants. So, signalization of the SR99 NB/2nd Street intersection will probably also need to be included.

Impact #8. At the **SR99 SB Off/Mtn View** intersection (#38) the project would add traffic to this intersection which already has at LOS F conditions on the stop-controlled off-ramp approach. This would increase the delay for the minor street movements and would be a significant impact. This intersection already meets the warrants for signalization.

Mitigation #8. The project should contribute a fair share of the cost to install traffic signals at the SR99 SB Off/Mtn View intersection. This could be done through the City's development fee program if this location is included in the program. Fair share is estimated at 6.6% representing the project's percentage of the PM peak hour entering volume for the Existing+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + project development conditions. A major improvement to the interchange is included in the City's General Plan circulation system, and signalization of this intersection is a part of those improvements.

With these improvement measures, these intersections would operate at LOS D or better as shown in Table 13.

Table 13 – Intersection Operation with Improvements – Existing+Project

Intersection	AM Peak Hour		PM Peak Hour	
	Delay/Veh (secs)	LOS	Delay/Veh (secs)	LOS
2 SR99 NB Off/Manning	35.6	D	9.3	A
5 Del Ray/Manning	9.2	A	7.8	A
6 Bethel/Manning	6.7	A	8.6	A
7 Golden State/Dinuba	28.7	C	25.7	C
10 McCall/Dinuba	30.6	C	31.6	C
23 Dockery/Floral	25.3	C	32.3	C
32 SR99 SB/2nd Street	17.6	B	18.3	B
38 SR99 SB Off/Mtn View	28.2	C	29.8	C

These mitigation measures will reduce the Existing+Project impacts of the project to a less than significant level.

Existing + Approved + Project Traffic Levels

At the Existing + Approved + Project traffic levels the Project's traffic would have a significant impact on nine additional intersections as described below. For each impact one or more mitigation measure is described along with the project's responsibility for the cost of implementing the mitigation measure(s). Where fair share contributions are identified, this could be done through the City's development fee program if the intersection improvement in questions is included in the program.

Impact #9. At the **Del Ray/Manning** intersection (#5) the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #9. The project should contribute the entire cost of installing traffic signals at the Del Ray/Manning intersection. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #10. At the **Bethel/Manning** intersection (#6) the project would add to the LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #10. The project should contribute a fair share of the cost to install traffic signals at the Bethel/Manning intersection. Fair share is estimated at 10.1% representing the project's percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #11. At the **Golden State/Dinuba** intersection (#7) the project would worsen the LOS from E to F conditions in the PM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #11. The project should contribute a fair share of the cost to install traffic signals at the Golden State/Dinuba intersection. Fair share is estimated at 18.3% representing the project's percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #12. At the **McCall/Dinuba** intersection (#10) the project would add to the LOS F conditions in both peak hours. This would be a significant impact. This intersection would already meet the warrants for signalization.

Mitigation #12. The project should contribute a fair share of the cost to install traffic signals at the McCall/Dinuba intersection. All four approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. Fair share is estimated at 27.5% representing the project's percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #13. At the **Del Ray/Dinuba** intersection (#12) the project would cause LOS F conditions in the AM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact. (Note that the project would realign and reconstruct the exiting off-set layout of the Ditch Rd – Del Rey/Dinuba intersection; therefore, it was analyzed as a single four-legged, stop-sign controlled intersection to determine the project's impacts and the necessary improvements.)

Mitigation #13. The project should contribute the entire cost of installing traffic signals at the Del Ray/Dinuba intersection. All four approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #14. At the **Orange/Floral** intersection (#22) the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #14. The project should contribute the entire cost of installing traffic signals at the Orange/Floral intersection. The two Floral approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #15. At the **Dockery/Floral** intersection (#23) the project would cause LOS F conditions in both peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #15. The project should contribute the entire cost of installing traffic signals at the Dockery/Floral intersection. The two Floral approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #16. At the **SR99 SB/2nd Street** intersection (#32) the project would worsen the LOS E conditions to LOS F in the PM peak hour and would cause the signal warrant to be met. This would be a significant impact.

Mitigation #16. The project should contribute a fair share of the cost to install traffic signals at the SR99 SB/2nd Street intersection. Fair share is estimated at 15.1% representing the project's percentage of the PM peak hour entering volume for the Existing+Approved+Project scenario. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions. For safety and consistency, it is Caltrans' policy to install signals at both interchange ramps even though only one meets the warrants. So, signalization of the SR99 NB/2nd Street intersection will probably also need to be included.

With these improvements, these intersections would operate at LOS D or better as shown in Table 14. These mitigation measures will reduce the Existing+Approved+ Project impacts of the project to a less than significant level.

Table 14 – Mitigated Intersection Operation with Improvements – Existing+Approved+Project

Intersection	AM Peak Hour		PM Peak Hour	
	Delay/Veh (secs)	LOS	Delay/Veh (secs)	LOS
2 SR99 NB Off/Manning *	44.4	D	9.6	A
5 Del Ray/Manning	9.2	A	7.8	A
6 Bethel/Manning	6.7	A	8.6	A
7 Golden State/Dinuba	28.7	C	25.7	C
10 McCall/Dinuba	32.5	C	35.1	D
12 Del Ray/Dinuba	25.0	C	23.7	C
22 Orange/Floral	27.9	C	20.7	C
23 Dockery/Floral	25.4	C	32.9	C
32 SR99 SB/2nd Street	17.5	B	18.5	B
38 SR99 SB Off/Mtn View *	28.2	C	29.8	C

* This intersection has the same improvements identified for the Existing+Project scenario

Cumulative 2035 + Project Conditions

At the 2035 + Project traffic levels the Project's traffic would have a significant impact on three additional intersections as described below. For each impact one or

more mitigation measure is described along with the project's responsibility for the cost of implementing the mitigation measure(s). Where fair share contributions are identified, this could be done through the City's development fee program if the intersection improvement in questions is included in the program.

Impact #17. At the **Orange(W)/Dinuba** intersection (#11) the project would cause LOS E and F conditions in the peak hours and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #17. The project should contribute the entire cost of installing traffic signals at the Orange(W)/Dinuba intersection. All four approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

Impact #18. At the **Amber/Rose** intersection (#30) the project would cause LOS F conditions in the PM peak hour and would cause the intersection to meet the signal warrants. This would be a significant impact.

Mitigation #18. The project should contribute the entire cost of installing traffic signals at the Amber/Rose intersection. All four approaches to the intersection should be modified to provide a separate left-turn lane and a combined through+right lane. This would mitigate the project impacts to a less than significant level for the existing + approved + project development conditions.

With these improvement measures, these intersections would operate at LOS C or better as shown in Table 15. These mitigation measures will reduce the 2035+Project impacts of the project to a less than significant level.

Table 15 – Intersection Operation with Improvements – 2035+Project

Intersection	AM Peak Hour		PM Peak Hour	
	Delay/Veh (secs)	LOS	Delay/Veh (secs)	LOS
11 Orange(W)/Dinuba	17.8	B	18.0	B
12 Del Ray/Dinuba *	29.0	C	30.1	C
22 Orange/Floral *	25.5	C	20.1	C
23 Dockery/Floral *	21.8	C	25.3	C
30 Amber/Rose	22.4	C	24.9	C

* This intersection has the same improvements identified for the Existing+Approved+Project scenario

4. RAILROAD CROSSING ANALYSIS

The Project would add traffic to the Floral Avenue crossing of the Union Pacific Railroad that is located just west of the Front Street/Floral Avenue intersection. The Front/Floral intersection has stop sign control for the Front Street approaches, but the Floral Avenue approaches are uncontrolled. The crossing is an at-grade, single-track rail crossing and has Department of Transportation and California Public Utilities Commission designations of DOT #750706S and CPUC #001B-219.90, respectively. According to the CPUC, there are about 17 trains per day using the track at this crossing.

The Project's potential incremental impacts due to added traffic at this crossing have been evaluated for several types of potential impact. These are discussed below along with the degree to which the project's added traffic is likely to result in an impact.

a) Increased housing near rail yards – The proposed Project does not include changes in land use that would permit housing adjacent to existing rail yards.

b) The potential for collisions between trains and vehicles – The project would add traffic at the crossing during the peak hours in the amounts and percentages shown below.

Scenario & Peak Hour	Base Volume	Project Volume	Project as % of Base
Existing+Approved			
AM peak hour	1,119	251	22.4%
PM peak hour	1,539	357	23.2%
2035			
AM peak hour	1,244	251	20.2%
PM peak hour	1,736	357	20.6%

CPUC records of reported collisions show there was one collision with a train in January of 2009, which unfortunately resulted in a fatality. There was also a collision reported in 1973.

The Project's added traffic would incrementally add to the potential for collisions at the crossing, but no threshold of significance available for this impact. Given that the Project would add more than 20% to the peak hour traffic volumes in each scenario, it is presumed by this analysis that the project's impacts would be significant. Measures are recommended below to enhance safety at this crossing, which should substantially mitigate this impact; however, without a quantifiable criterion of significance, the residual impact level cannot be determined.

c) The potential for collisions between trains and pedestrians – Given the location of the Project areas (1 to 2 miles east of this crossing), it is unlikely

that the project would add significantly to the volume of pedestrians at this crossing or the potential for train versus pedestrian collisions.

d) Increases to the traffic queues on the approaches to the crossing – the Project's added traffic would increase the traffic queues on the westbound approach to Whitson Street by the vehicles and equivalent distances shown below.

Scenario & Peak Hour	Base Queue in Vehicles	Project Would Add Vehicles	Project Would Add Distance (ft)
Existing+Approved			
AM peak hour	12	3	75'
PM peak hour	16	3	75'
2035			
AM peak hour	16	5	125'
PM peak hour	14	7	175'

Whitson Street is about 575 feet east of the subject crossing. The longest peak hour queues on the westbound Floral Avenue approach to Whitson Street would be 21 vehicles in 2035 with the project. This is equivalent to a distance of 525 feet. So, even in 2035 with the project, the queues on the peak hour westbound approach to Whitson would not extend back to the subject railroad crossing.

For the near-term scenario, the Project's added traffic would not significantly increase the base queue lengths in the peak hours. For the 2035 scenario, the Project's added traffic would significantly increase the base queue lengths in the peak hours. Even with the mitigation measures recommended elsewhere in this analysis to mitigate the Project's impacts at the Whitson/Floral intersection, the residual impact level would still be significant and unavoidable.

While the queue analysis presented above does not specifically relate to the queues that would exist during activation of the railroad crossing by a train, the Project's impacts on those queuing conditions are likely to be similar in nature. Thus, it is expected that the near-term effects of the Project's added traffic would not be significant, but the long-term effects would be significant and unavoidable even with implementation all feasible mitigation measures.

Rail Crossing Impacts & Mitigation Measures

Impact #13. The Project's added traffic would incrementally add to the potential for traffic collisions at the **Floral Avenue rail crossing**, but no threshold of significance is available to determine the significance of this impact. See the measures presented below to reduce the Project's impacts on rail safety at this location.

Residual impact level: Significance undeterminable, but possibly significant and unavoidable.

Impact #13. For the 2035 scenario, the Project's added traffic would significantly impact on the **Floral Avenue queue lengths** in the peak hours. Even with the mitigation measures recommended herein for the Whitson St/Floral Ave intersection, the Project's impacts would still be significant.

Residual impact level: Significant and unavoidable.

The following measures to reduce the Project's potentially adverse impacts on rail safety at this crossing are recommended:

1. Installation of median separation to prevent vehicles from driving around railroad crossing gates – The available public right-of-way for Floral Avenue is limited adjacent to this crossing, but it may be possible to install a narrow median that would serve this purpose. The Project proponent and the City should investigate the feasibility of this measure and if feasible the Project should contribute a fair share toward the cost of this improvement.
2. Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way – The Project proponent and the City should investigate the feasibility of this measure and if feasible the Project should contribute a fair share toward the cost of this improvement.
3. Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings – The City should consider launching a rail safety awareness program using the City's website and informational media resources. Programs and materials can be obtained from organizations like **Operation Lifesaver**, a non-profit, international continuing public education program established to end collisions, deaths and injuries at places where roadways cross train tracks, and on railroad rights-of-way. Its programs are sponsored cooperatively by federal, state, and local government agencies; highway safety organizations, and the nation's railroads. The project should contribute a fair share toward the cost of implementing this program.
4. The City should consider including rail crossing improvement measures in its development fees program, which would provide a mechanism whereby new developments would pay a fair share of the costs of rail crossing improvement measures like those described above. The City's General Plan Update recommends a grade separated rail crossing improvement at the Mountain View Avenue crossing. If not already included, this improvement should be considered for inclusion in the City's development fee program for transportation capital facilities.

The following measures are believed to be infeasible or not applicable to this crossing location:

1. Installation of grade separations at crossings, i.e., physically separating roads and railroad track by constructing overpasses or *underpasses* – A grade-separated crossing at this location is not feasible or desirable given the existing abutting land use development, which is not expected to change.
2. Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption – The subject crossing is about 575 feet from the Whitson/Floral signalized intersection and the queues on the westbound approach to that intersection are not projected to extend back to the crossing even in 2035 with the Project. Therefore, traffic preemption is not necessary at this location.
3. Improvements to warning devices at existing highway-rail crossings – The subject crossing is currently protected by crossing gate arms and flashing lights, including mast-arm mounted flashing lights over the center of Floral Avenue for each direction of travel. There are standard double bar stop limit lines in each approach lane at the crossing gate locations. Existing warning devices also include R X R advance warning signs and pavement markings on either side of the crossing in both approaching lanes of Floral Avenue. No other specific warning or control devices appear to be needed at this location at this time.
4. Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains – There are already parking prohibitions in place on Floral Avenue on both sides of the crossing for more than 100 feet in each direction.
5. Construction of pull-out lanes for buses and vehicles transporting hazardous materials – The limited available public right-of-way for Floral Avenue adjacent to this crossing would not accommodate pull-out lanes in addition to the required traffic lanes. Floral Avenue is already a four-lane arterial, and buses and vehicles transporting hazardous materials can stop in the outside lanes while other vehicles pass over the crossing using the inside lanes.
6. Elimination of driveways near crossings – There are no functioning existing driveways along Floral Avenue near the subject crossing.
7. Installation of pedestrian-specific warning devices and channelization – On either side of the subject crossing, a sidewalk is provided along the north side of Floral Avenue and a connecting east-west crosswalk is provided at the Front Street/Floral Avenue intersection. No other specific pedestrian devices appear to be needed at this location at this time.
8. Increased enforcement of traffic laws at crossings – This is something that is implemented by the City Police department on an as-needed basis when collision patterns or reports of violations or operational issues are brought to

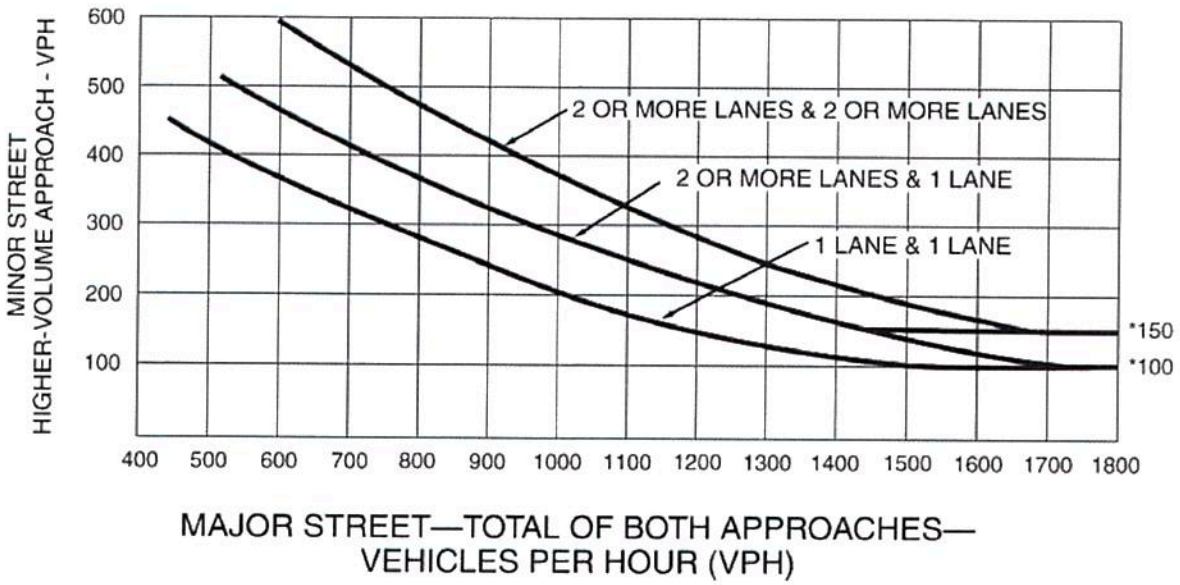
the department's attention. This is an ongoing process that is already in place and no changes are recommended.

9. Where sound walls, landscaping, buildings, etc. would be installed near crossings, maintaining the visibility of warning devices and approaching trains – The Project would not add any sound walls, landscaping, buildings, etc. near the crossing.

APPENDIX A – SIGNAL WARRANT WORKSHEETS

PEAK HOUR SIGNAL WARRANT FOR URBAN CONDITIONS

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: The *Manual on Uniform Traffic Control Devices (MUTCD),* U.S. Department of Transportation, Federal Highway Administration

PEAK HOUR URBAN SIGNAL WARRANT RESULTS

Intersection	Existing AM Del / Vol[1]	Existing PM Del / Vol[1]	Existing + Project AM Del / Vol[1]	Existing + Project PM Del / Vol[1]	Existing+Approved AM Del / Vol[1]	Existing+Approved PM Del / Vol[1]	Ex+Aprvd+Project AM Del / Vol[1]	Ex+Aprvd+Project PM Del / Vol[1]
1 SR99 SB On-Off/Manning	No / No	No / Yes	No / No	No / Yes	No / No	No / Yes	No / Yes	No / Yes
2 SR99 NB Off/Manning	No / Yes	No / Yes	Yes / Yes	No / Yes	Yes / Yes	No / Yes	Yes / Yes	Yes / Yes
3 Leonard/Manning	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
5 Del Ray/Manning	No / No	No / No	No / Yes	No / No	No / No	No / No	No / Yes	No / No
6 Bethel/Manning	No / No	No / No	Yes / Yes	Yes / Yes	No / No	No / No	Yes / Yes	Yes / Yes
7 Golden State/Dinuba	No / No	No / No	No / No	Yes / Yes	No / No	No / No	No / No	Yes / Yes
8 Highland/Dinuba	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
10 McCall/Dinuba	No	No	Yes	Yes	Yes	Yes	Yes	Yes
11 Orange(W)/Dinuba	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
12 Del Ray/Dinuba	No / No	No / No	Yes / No	No / No	No / No	No / No	Yes / No	No / No
13 Bethel/Dinuba	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
15 De Wolf/Floral	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
17 SR99 NB On/Floral WB	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
22 Orange/Floral	No	No	No	No	No	No	No	Yes
23 Dockery/Floral	No / No	No / No	Yes / No	Yes / Yes	No / No	No / No	Yes / No	Yes / Yes
24 Amber/Floral	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
25 Bethel/Floral	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
27 Highland/SR99 NB On	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
28 Highland/Rose	No / No	No / No	No / No	No / No	No / No	Yes / Yes	No / No	Yes / Yes
30 Amber/Rose	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
31 Bethel/Rose	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
32 SR99 SB/2nd Street	No / No	No / No	No / No	Yes / No	No / No	No / No	No / No	Yes / No
33 SR99 NB/2nd Street	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
35 Amber/Nebraska	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
37 McCall/Mtn View	No	No	No	No	No	No	No	No
38 SR99 SB Off/Mtn View	No / No	Yes / No	No / No	Yes / No	No / No	Yes / No	No / No	Yes / No
39 SR99 SB On/Mtn View	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
40 SR99 NB On/Mtn View	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
41 SR99 NB Off/Mtn View	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
43 Amber/Mtn View	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
44 Bethel/Mtn View	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
45 McCall/American	No	No	No	No	No	No	No	No
46 McCall/Cental	No	No	No	No	No	No	No	No
49 SR99 NB On/Manning	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
50 SR 99 NB on/Floral EB	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No
111 Orange(E)/Dinuba	No / No	No / No	No / No	No / No	No / No	No / No	No / No	No / No

[1] Delay / Volume criteria satisfied

PEAK HOUR URBAN SIGNAL WARRANT RESULTS (Continued)

Intersection	2035 No Project AM Del / Vol[1]	2035 No Project PM Del / Vol[1]	2035 + Project AM Del / Vol[1]	2035 + Project PM Del / Vol[1]
1 SR99 SB On-Off/Manning	No / Yes	Yes / Yes	[2]	[2]
2 SR99 NB Off/Manning	Yes / Yes	Yes / Yes	[2]	[2]
3 Leonard/Manning	No / No	No / No	No / No	No / No
5 Del Ray/Manning	No / No	Yes / Yes	[2]	[2]
6 Bethel/Manning	Yes / Yes	Yes / Yes	[2]	[2]
7 Golden State/Dinuba	Yes / Yes	Yes / Yes	[2]	[2]
8 Highland/Dinuba	Yes / Yes	Yes / Yes	[2]	[2]
10 McCall/Dinuba	Yes	Yes	[2]	[2]
11 Orange(W)/Dinuba	No / No	No / No	No / No	Yes / No
12 Del Ray/Dinuba	No / No	No / No	Yes / Yes	Yes / Yes
13 Bethel/Dinuba	No / No	No / No	No / No	No / No
15 De Wolf/Floral	Yes / No	Yes / Yes	[2]	[2]
17 SR99 NB On/Floral WB	No / No	No / No	No / No	No / No
22 Orange/Floral	No	No	No	Yes
23 Dockery/Floral	No / No	No / No	No / No	Yes / Yes
24 Amber/Floral	No / No	No / No	No / No	No / No
25 Bethel/Floral	No / No	No / No	No / No	No / No
27 Highland/SR99 NB On	No / No	No / No	No / No	No / No
28 Highland/Rose	Yes / Yes	Yes / Yes	[2]	[2]
30 Amber/Rose	No / No	No / No	No / No	Yes / No
31 Bethel/Rose	No / No	No / No	No / No	No / No
32 SR99 SB/2nd Street	Yes / Yes	Yes / Yes	[2]	[2]
33 SR99 NB/2nd Street	No / Yes	Yes / Yes	[2]	[2]
35 Amber/Nebraska	No / No	Yes / No	[2]	[2]
37 McCall/Mtn View	Yes	Yes	[2]	[2]
38 SR99 SB Off/Mtn View	Yes / Yes	Yes / Yes	[2]	[2]
39 SR99 SB On/Mtn View	No / No	No / No	No / No	No / No
40 SR99 NB On/Mtn View	No / No	No / No	No / No	No / No
41 SR99 NB Off/Mtn View	Yes / Yes	Yes / Yes	[2]	[2]
43 Amber/Mtn View	No / Yes	Yes / Yes	[2]	[2]
44 Bethel/Mtn View	No / No	No / No	No / No	No / No
45 McCall/American	No	Yes	[2]	[2]
46 McCall/Cental	No	Yes	[2]	[2]
49 SR99 NB On/Manning	No / No	No / No	No / No	No / No
50 SR 99 NB on/Floral EB	No / No	No / No	No / No	No / No

[1] Delay / Volume criteria satisfied

[2] Assummed to be signalized even without the project per 2035 No Project warrant results

APPENDIX B – TRAFFIC COUNT & ADJUSTMENT FACTORS INVENTORY

COUNTS & ADJUSTMENT FACTORS USED IN AMBERWOOD SPECIFIC PLAN TRAFFIC IMPACT ANALYSIS

Intersections	AM Peak Hour		PM Peak Hour		Amberwood#	Rockwell	Gen Plan	NASP
	HV %	PHF (Ex)@	HV %	PHF (Ex)@				
49. Manning Avenue / SR 99 NB On ramp	1.105	0.950	1.060	0.920				Jan-07+
1. Manning Avenue / SR 99 SB ramps	1.105	0.950	1.060	0.920				Jan-07+
2. Manning Avenue / SR 99 NB Off ramp	1.105	0.950	1.060	0.920				Jan-07+
3. Manning Avenue / Leonard Avenue	1.120	0.920	1.050	0.920				Jan-07+
4. Manning Avenue / McCall Avenue	1.120	0.920	1.050	0.920				Jan-07+
5. Manning Avenue / Del Ray Avenue	1.060	0.920	1.030	0.920				Jan-07+
6. Manning Avenue / Bethel Avenue	1.042	0.873	1.031	0.783				Jan-07+
7. Dinuba Avenue / Golden State Blvd	1.100	0.920	1.050	0.920			Jul-07	
8. Dinuba Avenue / Highland Avenue	1.060	0.920	1.030	0.920				Jan-07+
9. Dinuba Avenue / Thompson Avenue	1.060	0.920	1.030	0.920				Jan-07+
10. Dinuba Avenue / McCall Avenue	1.060	0.920	1.030	0.920				Jan-07+
11. Dinuba Avenue / Orange Avenue (West)	1.050	0.920	1.020	0.920			Jul-07 [PM]	Jan-07+ [AM]
111. Dinuba Avenue / Orange Avenue (East)	1.050	0.920	1.020	0.920			Jul-07 [PM]	Jan-07+ [AM]
12. Dinuba Avenue / Del Ray Avenue (**new counts**)	1.050	0.760	1.020	0.920	Sep-09			
13. Dinuba Avenue / Bethel Avenue	1.051	0.855	1.012	0.972	Oct-09			
14. Golden State Blvd / Highland Avenue	1.105	0.950	1.060	0.920		Apr-08*		
15. Floral Avenue / De Wolf Avenue	1.060	0.920	1.030	0.920		Apr-08*		
16. Floral Avenue / SR 99 SB off ramp	1.065	0.920	1.045	0.950				Jan-07+
17. Floral Avenue WB / SR 99 NB on ramp	1.065	0.920	1.045	0.920				Jan-07+
50. Floral Avenue EB / SR 99 NB on ramp	1.065	0.092	1.045	0.930				Jan-07+
18. Floral Avenue / Highland Avenue	1.065	0.968	1.045	0.986				Jan-07+
19. Floral Avenue / SR 99 NB off ramp	1.065	0.900	1.045	0.950				Jan-07+
20. Floral Avenue / Whitson Street	1.065	0.920	1.045	0.964				Jan-07+
21. Floral Avenue / McCall Avenue	1.060	0.920	1.030	0.920				Jan-07+
22. Floral Avenue / Orange Avenue	1.040	0.920	1.020	0.920			Jul-07 [PM]	Jan-07+ [AM]
23. Floral Avenue Dockery Avenue (**new counts**)	1.040	0.760	1.020	0.880	Sep-09			
24. Floral Avenue / Amber Avenue (**new counts**)	1.040	0.830	1.010	0.930	Sep-09			
25. Floral Avenue / Bethel Avenue	1.074	0.920	1.020	0.875	Oct-09			
26. Highland Avenue / SR 99 SB ramps	1.065	0.956	1.045	0.955				Jan-07+
27. Highland Avenue / SR 99 NB ramps	1.065	0.950	1.045	0.950				Jan-07+
28. Rose Avenue / Highland Avenue	1.065	0.960	1.045	0.951			Mar-08 [AM]	Jan-07+ [PM]
29. Rose Avenue / McCall Avenue	1.065	0.960	1.045	0.951				Jan-07+
30. Rose Avenue / Amber Avenue (**new counts**)	1.040	0.760	1.020	0.860	Sep-09			
31. Rose Avenue / Bethel Avenue	1.042	0.873	1.031	0.783	Oct-09			
32. 2nd Street / SR 99 SB ramps	1.065	0.920	1.045	0.920				Jan-07+
33. 2nd Street / SR 99 NB ramps	1.065	0.920	1.045	0.920				Jan-07+
34. 2nd Street / Whitson Street	1.065	0.920	1.045	0.920				Jan-07+
35. Nebraska Avenue / Amber Avenue (**new counts**)	1.110	0.820	1.030	0.920	Sep-09			
36. Mountain View Avenue / Highland Avenue	1.065	0.920	1.045	0.920			Mar-08 [PM]	Jan-07+ [AM]
37. Mountain View Avenue / McCall Avenue	1.065	0.920	1.045	0.920			Mar-08 [PM]	Jan-07+ [AM]
38. Mountain View Avenue / SR 99 SB Off ramp (**new counts**)	1.150	0.920	1.080	0.920	Sep-09 [AM]			Jan-07+ [PM]
39. Mountain View Avenue / SR 99 SB On ramp (**new counts**)	1.150	0.920	1.110	0.920	Sep-09 [AM]			Jan-07+ [PM]
40. Mountain View Avenue / SR 99 NB On ramp (**new counts**)	1.120	0.920	1.100	0.920	Sep-09 [AM]			Jan-07+ [PM]
41. Mountain View Avenue / SR 99 SB Off ramp (**new counts**)	1.160	0.920	1.120	0.920	Sep-09 [AM]			Jan-07+ [PM]
42. Mountain View Avenue / Golden State Blvd ~~(**new counts**)~~	1.107	0.813	1.054	0.966				Jan-07+
43. Mountain View Avenue / Amber Avenue ~~(**new counts**)~~	1.100	0.810	1.050	0.950				Jan-07+
44. Mountain View Avenue / Bethel Avenue	1.042	0.873	1.031	0.783				Jan-07+
45. McCall Avenue & American Avenue (**new counts**)	1.120	0.790	1.050	0.900	Sep-09			
46. McCall Avenue & Central Avenue (**new counts**)	1.080	0.810	1.060	0.960	Sep-09			
47. McCall Avenue & Jensen Avenue (**new counts**)	1.050	0.830	1.040	0.950	Sep-09			
48. Manning Avenue & Golden State Blvd	1.105	0.969	1.060	0.949				Jan-07+

@Used for nearterm scenarios only; for future scenarios minimum PHF of 0.92 was used unless existing is higher.

#Counts taken for Amberwood SP TIS

*VRPA report date; in Rockwell Pond DEIR

+North Area Speecfic Plan date

APPENDIX C – PENDING DEVELOPMENTS INCLUDED IN 2035 SCENARIO

The pending developments list for the 2035 analysis includes the developments listed below at the time this traffic impact analysis was prepared. These are in addition to the approved and recently completed developments included in the Existing+Approved scenario analysis (see page 15).

a. Wal Mart Supercenter located south of Floral and west of Hwy 99.

b. 2006-0020 – Comfort Suites West of Whitson, north of Stillman, Motel, Dining, Conference space; 87 rooms Motel and 2,400 s.f. Restaurant

c. Rock Well Pond Commercial Project located north of Floral and West of Hwy 99.

d. Selma Recycling and Transfer Station located on Dockery between highway 99 and Golden State.

e. Subdivision Tract No. 5521 (Brandywine), 659 single family residential lots located near the southwest corner of McCall Avenue and Manning Avenue.

f. Subdivision Tract No. 5407 (Cambridge Lennar Homes), 288 single family residential lots located immediately east of McCall Avenue between Dinuba Avenue and Manning Avenue.

g. Subdivision Tract No. 5601 (Country Rose Estates Phase II), 33 single family residential lots located immediately north of Rose Avenue between Dockery Avenue and Amber Avenue.

h. Subdivision Tract No. 5563 (Heritage Park), 43 single family residential lots located north of Dinuba Avenue between Dockery and Thompson Avenues.

i. Subdivision Tract No. 5540 (RJ Hill Homes), 103 single family residential lots located immediately north of Dinuba Avenue between Orange and Dockery Avenues.

j. Subdivision Tract No. 5568 (Hinesley), 144 single family residential lots located West of Highway 43 (Highland Avenue) near Nebraska Avenue.

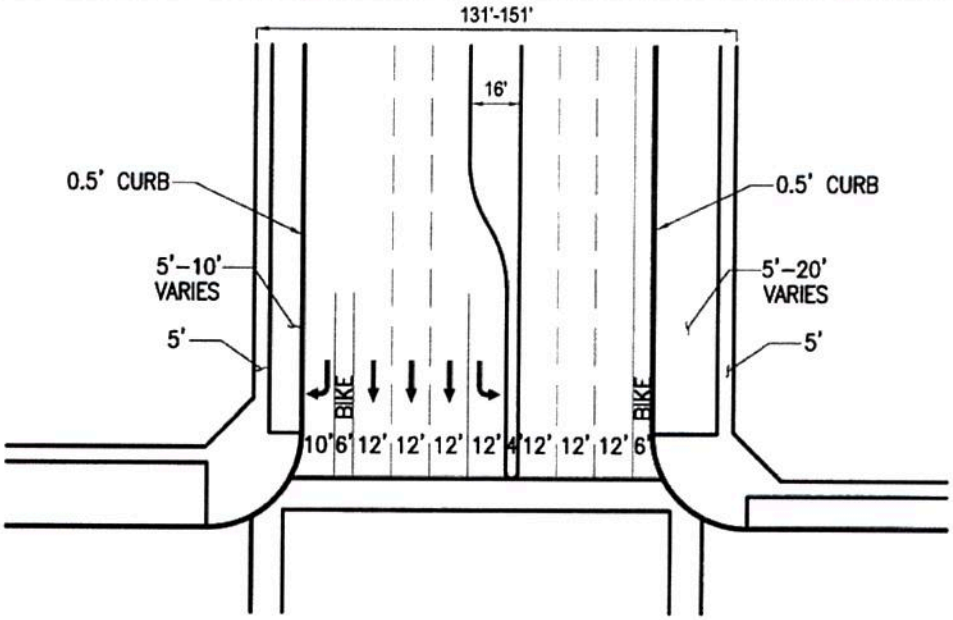
k. Subdivision Tract No. 5799 (Bratton II), 141 single family residential lots located near intersection of Saginaw and Highway 43, west of highway 99.

l. Subdivision Tract No. 5628 (Woodside Homes), 64 single family residential lots located south of Rose Avenue between Dockery and Amber Avenues.

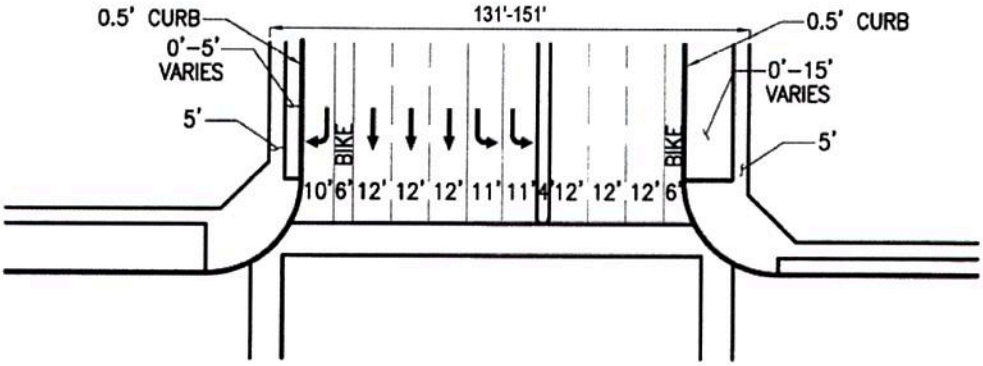
m. Subdivision Tract No. 5651 (Raven Homes), 93 single family residential lots located north of Dinuba between Thompson Avenue and Dockery Avenue.

n. Selma Crossings Commercial project located at Mountain View both east and west of Highway 99 and both north and south of Mountain View.

APPENDIX D – CITY OF SELMA STANDARD LANE CONFIGURATION DIAGRAMS



SINGLE LEFT - TURN LANE

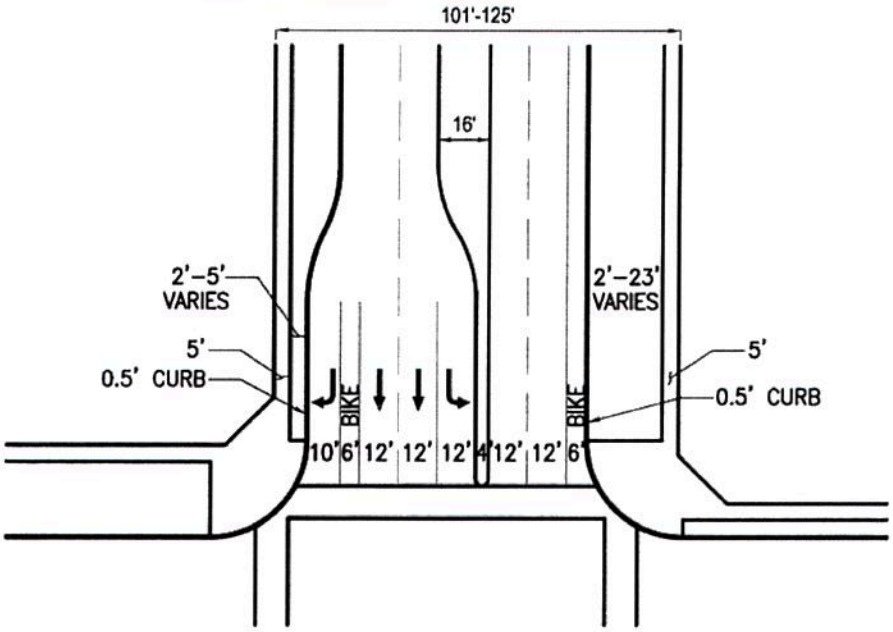


DUAL LEFT - TURN LANE

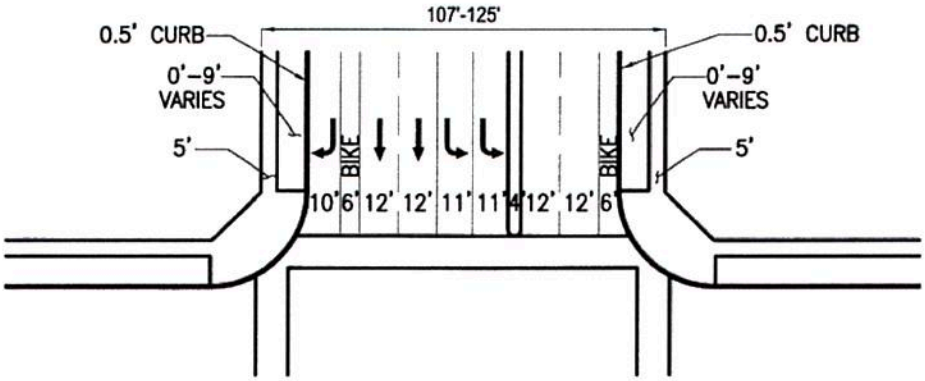
LANE CONFIGURATIONS AT INTERSECTIONS - MAJOR ARTERIALS
GENERAL PLAN UPDATE
Selma, California

Not to Scale

PETERS ENGINEERING GROUP — FIGURE 5.1



SINGLE LEFT - TURN LANE

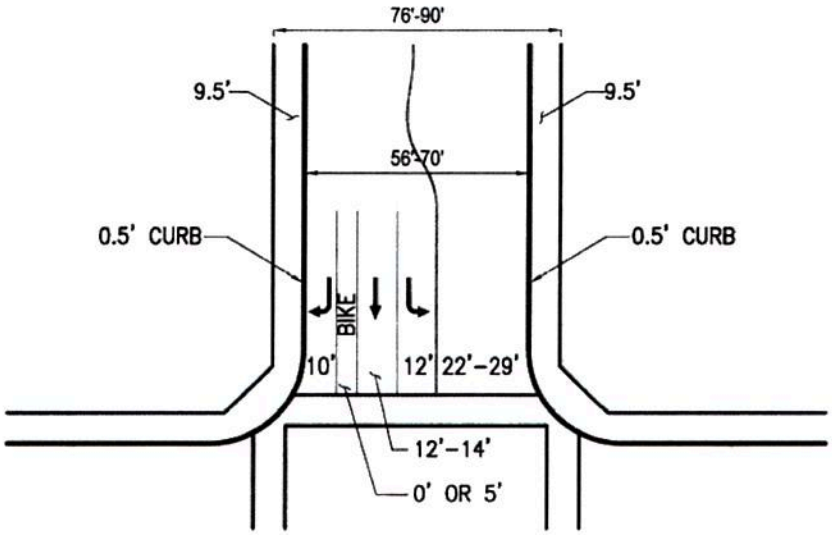


DUAL LEFT - TURN LANE

LANE CONFIGURATIONS AT INTERSECTIONS - ARTERIALS
GENERAL PLAN UPDATE
Selma, California

Not to Scale

PETERS ENGINEERING GROUP — FIGURE 5.2



LANE CONFIGURATIONS AT INTERSECTIONS - COLLECTORS
GENERAL PLAN UPDATE
Selma, California

Not to Scale

PETERS ENGINEERING GROUP — FIGURE 5.3

APPENDIX E – LEVEL OF SERVICE WORKSHEETS

APPENDIX F

TRAFFIC IMPACT STUDY REPORT (SEPARATE DOCUMENT)

APPENDIX G

INITIAL STUDY AND RESPONSES TO THE NOP

E200710000235

FILED

MAY 07 2007

FRESNO COUNTY CLERK
By _____ DEPUTY

CITY OF SELMA

COMMUNITY DEVELOPMENT DEPARTMENT

CITY OF SELMA
MAY 09 2007
RECEIVED

NOTICE OF PREPARATION & INITIAL STUDY

Amberwood Specific Plan Project

PREPARED FOR THE CITY OF SELMA
BY:
VALLEY PLANNING CONSULTANTS, INC.

APRIL 24, 2007

E200710000235

Notice of Completion & Environmental Document Transmittal

For U.S. Mail: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH#

Project Title: Amberwood Specific Plan Project
Lead Agency: City of Selma Contact Person: Mike Gaston
Street Address: 1710 Tucker Street Phone: 559-891-2265
City: Selma Zip: 93662 County: Fresno

Project Location:
County: Fresno City/Nearest Community: Selma
Cross Streets: Del Rey Ave./Dinuba/Floral/Dockery Zip Code: 93662
Assessor's Parcel No. _____ Section: 33 Twp. 12 S Range: 21 E Base: Mt. Diablo
Within 2 miles: State Hwy#: SR 99 Waterways: _____
Airports: none Railways: UPRR Schools: Lincoln Middle School, Indianola Elementary School, James Garfield Elementary, Heartland High, Andrew Jackson Elementary School, Theodore Roosevelt Elementary School, Selma High School,

Document Type:

CEQA:		NEPA:	Other:
☒ NOP	☐ Draft EIR	☐ NOI	☐ Joint Document
☐ Early Cons	☐ Supplement to EIR	☐ EA	☐ Final Document
☐ Neg Dec	☐ Subsequent EIR	☐ Draft EIS	☐ Other: _____
☐ Mit Neg Dec	☐ Other: _____		☐ FONSI

Local Action Type:

☐ General Plan Update	☒ Master Plan	☒ Use Permit
☒ General Plan Amendment	☒ Planned Unit Development	☒ Land Division (Subdivision, etc.)
☐ General Plan Element	☒ Site Plan	☒ Annexation
☐ Community Plan	☐ Rezone	☐ Redevelopment
☒ Specific Plan	☒ Prezone	☐ Coastal Permit
☐ Other_____		

Development Type:

☒ Residential: Units 2,570 Acres 671±		☐ Water Facilities: Type MGD
☐ Office: Sq.ft. _____ Acres _____ Employees _____		☐ Transportation: Type_____
☒ Commercial: Sq.ft. 131,200 Acres 7.5 Employees 264		☐ Mining: Mineral_____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____		☐ Power: Type MW
☒ Educational 10.8 Acres		☐ Waste Treatment: Type MGD
☒ Recreational 76.2 Acres		☐ Hazardous Waste: Type_____
Total Acres: (approx.) 44 ac. addition for a total of 50		☐ Other: _____

Project Issues That May Have A Significant Or Potentially Significant Impact:

☒ Aesthetic/Visual	☐ Flood Plain/Flooding	☐ Septic Systems	☒ Water Supply/ Groundwater
☒ Agricultural Land	☐ Forest Land/Fire Hazard	☒ Sewer Capacity	☐ Wetland/Riparian
☒ Air Quality	☐ Geologic/Seismic	☐ Soil Erosion/ Compaction/Grading	☒ Growth Inducement
☒ Archeological/Historical	☐ Minerals	☒ Solid Waste	☒ Land Use
☒ Biological Resources	☒ Noise	☐ Toxic/Hazardous	☒ Cumulative Effects
☐ Coastal Zone	☒ Population/Housing Balance	☒ Traffic/Circulation	☐ Other_____
☒ Drainage/Absorption	☒ Public Services/Facilities	☒ Vegetation	☒ Fiscal
☒ Economic/Jobs	☒ Recreation/Parks		
☒ Schools/Universities	☒ Water Quality		

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below.

- x Air Resources Board
- ___ Boating & Waterways, Department of
- x California Highway Patrol
- x Caltrans District # 6
- ___ Caltrans Division of Aeronautics
- x Caltrans Planning
- ___ Coachella Valley Mountains Conservancy
- ___ Coastal Commission
- ___ Colorado River Board Commission
- ___ Conservation, Department of
- ___ Corrections, Department of
- ___ Delta Protection Commission
- ___ Education, Department of Office of Public School Construction
- ___ Energy Commission
- x Fish & Game Region # 4
- ___ Food & Agriculture, Department of
- ___ Forestry & Fire Protection
- ___ General Services, Department of
- ___ Health Services, Department of
- ___ Housing & Community Development
- ___ Integrated Waste Management Board
- x Native American Heritage Commission
- ___ Office of Emergency Services
- x Office of Historic Preservation
- ___ Parks & Recreation
- ___ Pesticide Regulation, Department of
- x Public Utilities Commission
- ___ Reclamation Board
- x Regional WQCB #
- ___ Resources Agency
- ___ S.F. Bay Conservation & Development
- ___ San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy
- ___ San Joaquin River Conservancy
- ___ Santa Monica Mountains Conservancy
- ___ State Lands Commission
- ___ SWRCB: Clean Water Grants
- ___ SWRCB: Water Quality
- ___ SWRCB: Water Rights
- ___ Tahoe Regional Planning Agency
- ___ Toxic Substances Control, Department of
- x Water Resources, Department of
- ___ Other:
- ___ Other:

Local Public Review Period

Starting Date April 24, 2007 Ending Date May 25, 2007

Lead Agency:
City of Selma
Consulting Firm: Valley Planning Consultants, Inc
Address: 200 N. Gateway Drive # 101
City/State/Zip: Madera, Ca 93637
Contact: Thomas Skinner
Phone: (559) 675-8724

Applicant:
Amberwood Properties, LLC
Address: 18640 Sutter Blvd., Suite 100
City/State/Zip: Morgan Hill, Ca 95037
Phone: 408.782.1669

Signature of Lead Agency Representative

Date: 4-19-07

Project Description Attachment

The Amberwood Specific Plan Project would permit development of approximately 671.3 acres as a residential, community commercial, elementary school, community center, parks and lakes project. Amberwood proposes 2,570 single family residential homes located in 26 neighborhoods. The proposed project includes the Amberwood Specific Plan which includes a comprehensive development plan for the site including housing, commercial, public facilities and infrastructure; development standards and zoning; design guidelines for community facilities; along with implementation and financing measures. The proposed project also includes amendments to the Selma General Plan Land Use Map and text, Circulation Element, a minor expansion of the Selma sphere of influence and annexation of the entire project area to the City. The City's approval includes Prezoning the Project and amendments to the Selma Zoning Ordinance to reference the Amberwood Project. Approval of the Amberwood Specific Plan is proposed along with adoption of detailed neighborhood specific zoning for the site, development standards, and community design guidelines for development of the Amberwood area. The proposed project also includes a project-level development proposal (i.e., vesting tentative subdivision map) for the project site. A Conditional Use Permit will be requested for domestic water wells and tanks (Cal Water). The City of Selma will succeed to the Williamson Act Contracts and potentially move to cancel those contracts.

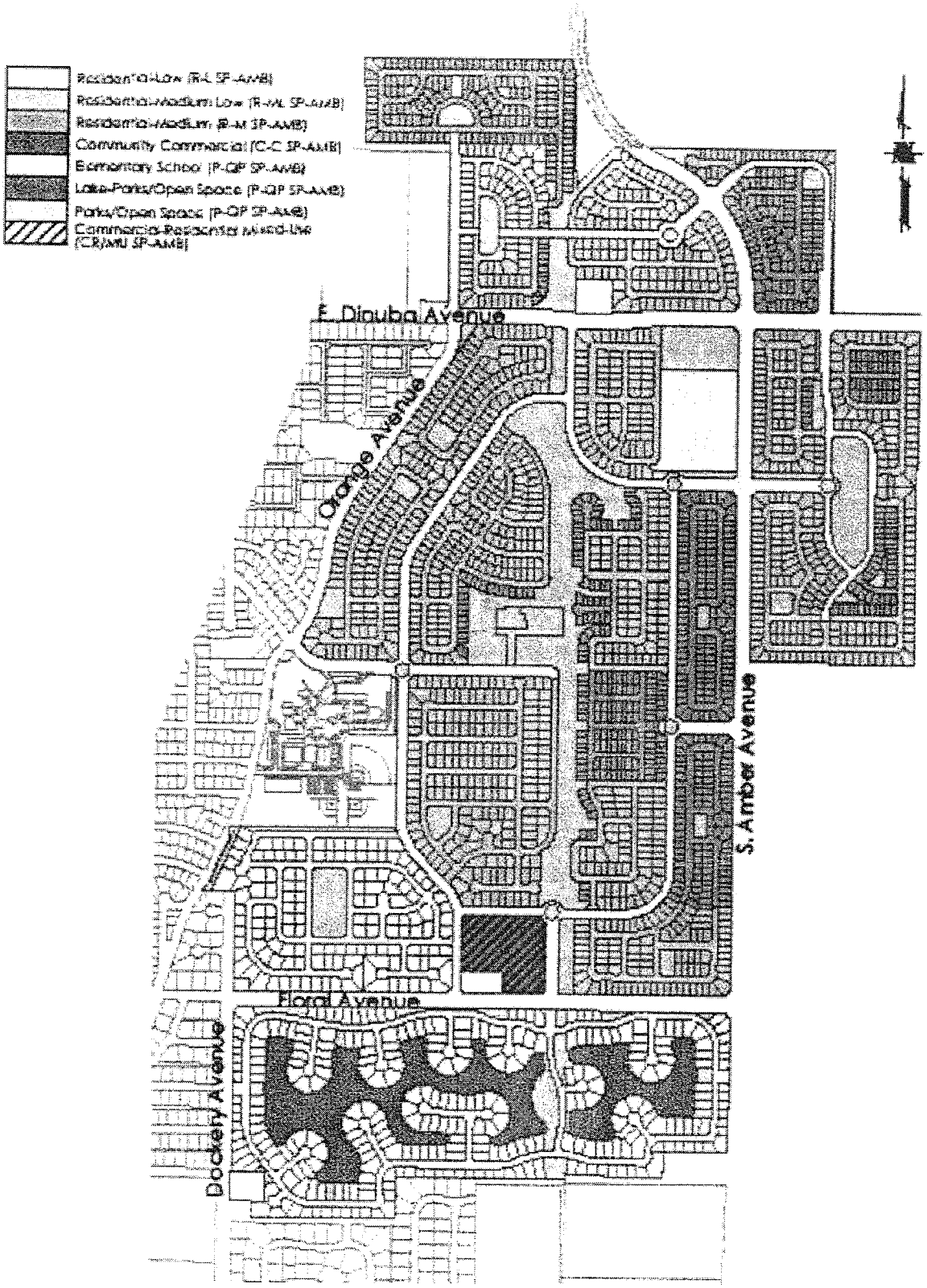
In subsequent actions the City will amend its Storm Water Master Plan and intends to adopt a Plan Line for the South Amber Avenue arterial street. Financing major capital improvements will require the formation of, or annexation to the Selma Community Facilities District and consideration of imposition of a special tax on land within the Project Area for infrastructure improvements. Annexation of the Project to the City Landscape and Lighting Maintenance District is also anticipated.

Other Public Agencies' Proposed Actions

The following actions or permits are required for the Amberwood project, but are the purview of the following responsible agencies rather than the City of Selma.

1. LAFCO – Sphere of Influence Amendment and Annexation and corresponding detachment from special districts
2. National Pollution Discharge Elimination System (NPDES) permit from the Central Valley Regional Water Quality Control Board (CVRWQCB).
3. CID – irrigation canal undegrounding
4. SKF – wastewater trunk line along South Amber Avenue to East Nebraska Avenue then Dockery Avenue to connect to existing SKF main.
5. Section 401 water quality certification from the CVRWQCB.
6. Authority to Construct permits from the San Joaquin Air Pollution Control District.
7. Fresno County encroachment permit for wastewater line along South Amber Avenue.
8. Selma Unified School District acceptance of school site within Amberwood.

Amberwood Project Description Map



NOTICE OF PREPARATION

To: See Attached List

From: Michael Gaston, Community Development Director
1700 Tucker Street
Selma, Ca 93662

Subject: **Notice of Preparation of a Draft Environmental Impact Report**

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. Your agency will possibly need to use the EIR prepared by our agency when considering your permit or other approval for the project.

Based on the size, scope, and complexity of the proposed Amberwood Specific Plan Project, the City of Selma has determined that an Environmental Impact Report (EIR) shall be prepared (§15060(d) CCR). An initial study was not prepared for this Project based on the decision to proceed with an EIR. In the absence of an Initial Study, the City will focus on the significant effects of the project and indicate its reasons for determining that other effects would not be significant or potentially significant. The project description, location, and the potential environmental effects are contained in the attached materials

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. For reasons of clarity, facsimile responses will not be considered.

Please send your response to Mike Gaston at the address shown above. Please provide the name for a contact person in your agency and address for any correspondence regarding this proposed project.

Project Title: **Amberwood Specific Plan Project**

Project Applicant: **Amberwood Properties, LLC**

Project Description: The Amberwood Specific Plan Project would permit development of approximately 671± acres as a residential, community commercial, elementary school, community center, parks and lakes project. Amberwood proposes 2,570 single family detached residential homes located in 26 neighborhoods. Standard lot sizes range from 8,450 square feet on the lake lots to 3,000 square feet for lane and park lots. The planning area is divided into 26 residential neighborhoods of similar lotting types. The Amberwood Specific Plan is a comprehensive development plan for the site including housing, commercial, public facilities and infrastructure; development standards and zoning; design guidelines for community facilities; along with implementation and financing measures. Adoption of the Amberwood Specific Plan will require amendment to land uses designated for the project site in the Selma General Plan, amendments to the circulation plan, a minor expansion of the Selma sphere of influence and annexation of the entire project area to the City. The proposed project also includes a project-level development proposal (i.e., vesting tentative subdivision map) for the project site. This is a multi-faceted Project including single family housing, park facilities (including a community center building), Schools, and approximately 131,200 sq.ft. of commercial space, open space and water features on approximately 791± acres. The existing agricultural processing structure will be renovated by the City to become a community center. This center with the surrounding park lands will serve as a major recreational resource for the community. Facilities adjacent to the community center may include parking lots, sports fields for baseball and soccer, a play field, child play areas and water features, and

passive recreation facilities. The community center could contain conference and multi-purpose rooms. An amphitheater that can be used for concerts and public gatherings could also be provided at the center.

LOT TYPE	TYPICAL LOT SIZE	TYPICAL LOT DIMENSIONS		SETBACKS - minimum					HEIGHT* maximum	ENCROACHMENTS	OFFSTREET PARKING
		Width	Depth	Front	Rear	Side	Corner Side	Garage		Porch/Features	Garage/Other
1	8,450	65 feet	130 feet	20 feet	40 feet	5/10** feet	15 feet	5*** feet	35 feet	5 feet/30 inches**	2 spaces/2 spaces
2	7,280	70 feet	104 feet	15 feet	30 feet	5/10** feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
3	6,080	76 feet	80 feet	15 feet	25 feet	5/10** feet	15 feet	5/5*** feet	24 feet	5 feet/30 inches**	2 spaces/2 spaces
4	6,200	80 feet	100 feet	15 feet	20 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
5	5,500	55 feet	100 feet	15 feet	20 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
6	5,200	65 feet	80 feet	15 feet	15 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
7	5,100	60 feet	85 feet	15 feet	15 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
8	5,000	50 feet	100 feet	15 feet	15 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/2 spaces
9	4,250	50 feet	85 feet	12 feet	15 feet	5 feet	15 feet	5*** feet	26 feet	5 feet/30 inches**	2 spaces/1 space
10	3,900	45 feet	80 feet	12 feet	15 feet	4*** feet	12 feet	5*** feet	26 feet	3 feet/30 inches**	2 spaces/1 space
11 Lane	5,500	50 feet	100 feet	8 feet	14*** feet	4*** feet	10 feet	10*** feet	30 feet	3 feet/30 inches**	2 spaces/1 space
12 Pack	3,000	40 feet	75 feet	8 feet	3 feet	4*** feet	10 feet	37/18*** feet	30 feet	3 feet/30 inches**	2 spaces/1 space

Notes:

* Setback is 5 feet on one side of the lot and 10 feet on the other side.

** Garage front and corner side setbacks are measured from front and corner side of home, not including single story porch.

*** Single story porch may encroach into front or corner side setback as long as a minimum 3 foot setback is maintained from the sidewalk. Architectural features such as bay windows, second story porches, roof overhangs, etc. may encroach 30 inches into front, side, rear and corner side setbacks as long as a minimum 36 inch setback is maintained from the sidewalk and property line.

* A deck may encroach 30 feet into the rear setback as long as a 1 foot rear setback and 5 foot side setback is maintained. A gazebo may encroach 20 feet into the rear setback as long as a 5 foot side setback is maintained.

* Setback is 3 feet from front/rear of home as per Illustrative Zoning and Building Placement diagrams and 5 feet from corner side of home.

* Setback on one side for both sides; setback may not be less than 3 feet for any side.

* Setbacks are measured from centerline of rear lane.

* Garage shall be either 3 feet from right-of-way on rear or 18 feet from right-of-way on corner side street.

Amberwood consists of 26 separate neighborhoods connected by a looped backbone street. The backbone street will contain the majority of the utility mains to service the neighborhoods. The backbone infrastructure provides access to each neighborhood and will be constructed from south to north as it is needed to develop the individual neighborhoods. Each neighborhood is designed so that it may be constructed independently. All of the neighborhoods will connect to the utility mains as well as gain access on the backbone street. Major infrastructure improvements may be financed by a Community Facilities District, Mellow Roos Bond. The timing of construction of each neighborhood will rely on market conditions. The City is assuming that this project will take between 10 to 15 years to completely build-out.

The Amberwood Specific Plan document is bound separately and is available for review by the public at the Selma Community Development Department, 1710 Tucker Street, Selma, California 93662.

Date: 4-19-07
Telephone: 559-585-2579

Signature: Michael Gaston
Title: Michael Gaston, Community Development Director

Mailing List for the Notice of Preparation
Amberwood Specific Plan

Alta Irrigation District
ATTN: Chris Kapheim
P.O. Box 715
Dinuba, CA 93618

Clovis Unified School District
ATTN: Dr. Terry Bradley
1450 Herndon Avenue
Clovis, CA 93611

ComCast
ATTN: Terry Pruett
2441 North Grove Industrial Drive
Fresno, CA 93727-1535

Consolidated Irrigation District
ATTN: General Manager
P.O. Box 209
Selma, CA 93662
(559) 896-1660

Consolidated Mosquito Abatement District
ATTN: Steve Mulligan
2425 Floral Avenue
P.O. Box 278
Selma, CA 93662

Council of Fresno County Governments
ATTN:
2100 Tulare Street, Suite 619
Fresno, CA 93721
(559) 233-4148

County Clerk
County of Fresno
ATTN: VICTOR E. SALAZAR
2221 Kern Street
Fresno, CA 93721

County of Fresno Administrative Officer
ATTN: Bart Bohn
2281 Tulare Street, Room 304
Fresno, CA 93721

County of Fresno Agriculture Department
1730 S. Maple Avenue
Fresno, CA 93702

County of Fresno Airport Land Use Commission
2220 Tulare Street, 6th Floor
Fresno, CA 93721
(559) 453-5055

County of Fresno Assessor's Office
P.O. Box 1146
Fresno, CA 93715-1146

County of Fresno Board of Supervisors
2281 Tulare Street, Suite 619
Fresno, CA 93721

County of Fresno Development Services
ATTN: Principal Staff Analyst
2220 Tulare Street, 6th Floor
Fresno, CA 93721

County of Fresno Environmental Health System
ATTN: Land Development
P.O. Box 11867
Fresno, CA 93775
(559) 445-3357

County of Fresno Fire Protection District
Fred Bachelor, Chief
210 S. Academy Avenue
Sanger CA 92657

County of Fresno Fire Protection District
ATTN: Staff Station 83
11500 E. Mountain View Avenue
Selma, CA 93662

County of Fresno Public Library
ATTN: John Kallenburg
2420 Mariposa Street
Fresno, CA 93721County of Fresno

County of Fresno Public Library
Reedley Branch
ATTN: Librarian
1027 'E' Street
Reedley, CA 93654

County of Fresno Public Library
Selma Branch
ATTN: Librarian
2200 Keith Street
Selma, CA 93662

U.S. EPA Region 9
Attn: John Ungvarsky
75 Hawthorne Street
San Francisco,CA 94105

Public Works & Development Service Department
ATTN: Richard Brogan, Director
2220 Tulare Street, 8th Floor
Fresno, CA 93721

County of Fresno Sheriff's Department
ATTN: Sonia
2200 Fresno St.
P.O. Box 1788
Fresno, C.A. 93717

Federal Aviation Administration
Airport District Office
ATTN: John Pfeiffer
31 Mitten Road
Burlingame, CA 94010

Fresno Irrigation District
2907 South Maple Avenue
Fresno, CA 93725

Fresno Metropolitan Flood Control District
5469 East Olive Avenue
Fresno, CA 93727
(559) 456-3292

Friant Water Users Authority
854 North Harvard Avenue
Lindsay, CA 93247-1715

General Telephone Company
710 South Kaweah
Exeter, CA 93221

Hargrove & Costanzo
City Attorney
6495 North Palm Avenue
Fresno, CA 93704

Kings Canyon Unified School District
675 West Manning Avenue
Reedley, CA 93654

Kings River Conservation District
ATTN: Jeff Taylor, Manager
4886 E. Jensen Avenue
Fresno, CA 93725

Kings River Water Association
ATTN: Tim O'Halloran
4888 East Jensen Avenue
Fresno, CA 93725

LAFCO
ATTN: Executive Director
2115 Kern Street Suite 310
Fresno CA 937212
(559) 495-0604

Pacific Bell
Community Design Center
ATTN: Dale Kilby
5555 E. Olive Street, Room 100 DE
Fresno, CA 93727
(559) 454-3778

Pacific Bell
Engineering Department
2515 South Orange Avenue
Fresno, CA 93762

Pacific Bell
Public Works Coordinator
2515 S. Orange Avenue, Room 1A
Fresno, CA 93762

Pacific Bell, Right-of-Way Division
Right Of Way Admin
Lon Downer
1250 East Ashlan Avenue
Fresno CA 93762

Pacific Gas & Electric Company
ATTN: Ray Yzaguirre
1745 Second Street
Selma, CA 93662

LAND AGENT P.G.&E. FRESNO LAND SERVICES
Kyle Patten
650 "O" ST. Mail Bag 23 CO. 821-7385
FRESNO, CA 93760-0001

Reedley College
ATTN: Thomas A. Crow, President
995 North Reed Avenue
Reedley, CA 93654

San Joaquin Valley Unified Air Pollution Control Board
ATTN: Chrystal L. Meier
1990 E. Gettysburg Avenue
Fresno, CA 93726
(559) 230 -6000

Selma Cemetery District
2950 Thompson Avenue
Selma C.A. 93662

Selma Disposal & Recycling, Inc.
ATTN: Larry Johnson
P.O. Box 708
10600 Mountain View Avenue
Selma, CA 93662

Selma-Kingsburg-Fowler County Sanitation District
ATTN: General Manager
11301 E. Conejo Avenue
Kingsburg, CA 93631

Selma Post Office
ATTN: Howard Ayers, Postmaster
2058 High Street
Selma, CA 93662

Selma District Hospital
ATTN: Rick Rawson
1141 Rose Avenue
Selma, CA 93662

Selma Unified School District
ATTN: Larry Texeira.
3036 Thompson Avenue
Selma, CA 93662

Sierra-Kings District Hospital
ATTN: Dan DeSantis, Administrator
372 West Cypress Avenue
Reedley, CA 93654

Southern California Gas Company
ATTN: Colby Wells
404 North Tipton Street
Visalia, CA 93292

Regional Engineer
Southern Pacific Transportation Company
ATTN: R.A. Bran Tetter
1200 Corporate. Center Drive
Monterrey Park, CA 91754

State Board of Equalization
Compliance, Planning and Evaluation
P.O. Box 1713
Sacramento, C.A. 95808

State Center Community College District
ATTN: Bill Stewart
1525 East Weldon Avenue
Fresno, CA 93704

State Clearinghouse
Office of Planning and Research
ATTN: Brian Grattidge
1400 Tenth St. Room 121
Sacramento C.A. 95808

Department of Housing and Community Development
Division of Codes and Standards
ATTN: Mr. G.L Smart
P.O. Box 952053
Sacramento, C.A. 94252-2053

State of California
Department of Alcoholic Beverage Control
Attn: Paul A. Fuentes
3640 East Ashlan Avenue
Fresno, CA 93726

State of California
Department of Conservation
801 "K" Street
Sacramento, CA 95814-3528

State of California
Department of Fish & Game
1416 Ninth Street
P.O. Box 944209
Sacramento, CA 94244-2090

Department of Fish & Game
ATTN: William Loudermilk
1234 East Shaw Avenue
Fresno, CA 93710

California Highway Patrol
1382 W. Olive Avenue
Fresno C.A 93728-3890

State of California
Department of Transportation District 6
ATTN: Moses Stites
P.O. Box 12616
1352 West Olive Avenue
Fresno, CA 93778

State of California Department of Transportation
ATTN: Frank Ramirez, Aviation Planner
Aeronautics Program
P.O. Box 942873
Sacramento, CA 94273-0001

CAL TRANS
Outdoor Advertising Branch
ATTN: Debra Colette
1120 N Street, Room 3221
Sacramento, C.A. 95814

State Lands Commission
100 Howe Ave. Suite 100-South
Sacramento CA 95825-8202

California Office of Drinking Water
ATTN: Richard Haberman
150 e Herndon Ave.
Fresno, CA 93720

State of California
Regional Water Quality Control Board
Central Valley Region
ATTN: Bert Fan Morris/ Lisa Gymer
1685 E. Street
Fresno, CA 93706
(559) 445-5116

California State Resources Agency
Department of Water Resources
San Joaquin District
3374 East Shields Avenue
Fresno, CA 93726

Union Pacific Railroad
Patrick Terr
Manager Industry & Public Projects
10031 Foothills Boulevard
Roseville, CA 95747

U.S. Army Corps of Engineers
Regulatory Section
650 Capitol Mall
Sacramento CA. 95814

United States Army Corps of Engineering
Central Valley Office
1325 "J" Street
Sacramento, CA 95814-2922

United States Department of the Interior
Bureau of Reclamation
South-Central California Area Office
2666 North Grove Industrial Drive
Suite 106
Fresno, CA 93727-1551

United States Soil Conservation Service
4625 West Jennifer, Suite 125
Fresno, CA 93722

SBC
Attn: Charlette Dreo
217 W. Acequia
Visalia, CA 93291

City of Parlier
Attn: Community Development Director
1100 East Parlier Avenue
Parlier, Ca 93648

Project Issues That May Have A Significant Or Potentially Significant Impact Include the following:

- Aesthetic/Visual
  Conversion of agricultural land into urban development.

- Agricultural Land
  Conversion of approximately 760 acres of agricultural land. Potential cancellation of Williamson Act Contracts. Farmland impact study will be undertaken.

- Air Quality
  Construction and operation of approximately 2,570 residential dwellings and 131,200 sq. ft. of retail space over a 10 to 15 year period. Traffic congestion and the need for additional transportation facilities. Expansion of Public Transit operations. Energy conservation implementation and implementation of air quality regulations. Air quality impact study will be undertaken.

- Archeological/Historical
  Potential for undiscovered buried artifacts. Study of cultural and archeological resources will be included.

- Biological Resources/Vegetation
  Potential loss of habitat and foraging areas for wildlife. Study of biological resources will be included.

- Noise
  Increase in the ambient noise levels due to urban development, noise attenuation for sensitive receptors along transportation corridors. A noise study will be prepared.

- Land Use
  Expansion of the City's Sphere of Influence and expansion to the east toward City of Parlier; introduction of smaller lot development neighborhoods, land use conflicts with agricultural uses to the east.

- Population/Housing Balance
  Potential revisions to City's growth forecast. Provision of adequate low and modern income housing.

- Economic/Jobs
  Additional new population and the need for additional employment within the service area of Selma.

- Water Supply/Groundwater
  Private water supplier expansion of facilities to serve project. Long-term water supply assessment and the potential need for new sources of domestic water. Alternatives for water recycling. A water supply analysis will be provided.

- Water Quality/ Drainage/Absorption
  Impacts on groundwater quality from stormwater discharge and treatment. Undergrounding of CID canal.

- Public Services/Facilities
  Adequacy of existing City facilities to accommodate growth, planned expansion of facilities, financial responsibility of developer to provide for level of service extension.

- Sewer Capacity
  Availability of adequate treatment capacity, improvements to treatment facilities and collection systems of Special District. An alternative tertiary treatment facility and recycling of water operated by the City by the City will be explored for this project and other development on the north and east side of the City. Financial responsibility of developer to provide for level of service extension.

- Solid Waste
  Availability of adequate disposal areas and recycling programs.

- Recreation/Parks
  Adequacy of Community and Neighborhood parks. Maintenance of planned park facilities and developer financial responsibility. Maintenance of open space areas and developer financial responsibility.

- Schools
  Adequacy of existing schools and need for additional schools and classrooms, transportation facilities. A new school is proposed on the Project site. Financial responsibility of developer.

- Traffic/Circulation
  Increased traffic from the project will have impacts to local and state facilities. A traffic study using Caltrans Dist. 6 approved study methods will identify impacts, propose mitigation measures, and identify financial responsibility and timing of developer for improvements.

  The Traffic Study will collect traffic data from the following intersections:

1. Manning Avenue / SR 99 SB ramps
2. Manning Avenue / NB SR 99 ramps
3. Manning Avenue / Leonard Avenue
4. Manning Avenue / McCall Avenue
5. Manning Avenue / Del Ray Avenue
6. Manning Avenue / Bethel Avenue
7. Dinuba Avenue / Golden State Blvd
8. Dinuba Avenue / Highland Avenue
9. Dinuba Avenue / Thompson Avenue
10. Dinuba Avenue / McCall Avenue
11. Dinuba Avenue / Orange Avenue
12. Dinuba Avenue / Del Ray Avenue (new counts)
13. Dinuba Avenue / Bethel Avenue
14. Golden State Blvd / Highland Avenue
15. Floral Avenue / De Wolf Avenue
16. Floral Avenue / SR 99 SB off ramp
17. Floral Avenue / NB SR 99 on ramp
18. Floral Avenue / Highland Avenue
19. Floral Avenue / SR 99 NB off ramp
20. Floral Avenue / Whitson Street
21. Floral Avenue / McCall Avenue
22. Floral Avenue / Orange Avenue
23. Floral Avenue Dockery Avenue (new counts)
24. Floral Avenue / Amber Avenue (new counts)
25. Floral Avenue / Bethel Avenue
26. Highland Avenue / SB SR 99 ramps
27. Highland Avenue / NB SR 99 ramps
28. Rose Avenue / Highland Avenue
29. Rose Avenue / McCall Avenue
30. Rose Avenue / Amber Avenue (new counts)
31. Rose Avenue / Bethel Avenue
32. 2nd Street / SB SR 99 ramps
33. 2nd Street / NB SR 99 ramps
34. 2nd Street / Whitson Street
35. Nebraska Avenue / Amber Avenue (new counts)
36. Mountain View Avenue / Highland Avenue
37. Mountain View Avenue / McCall Avenue
38. Mountain View Avenue / SB SR 99 ramps (new counts)
39. Mountain View Avenue / NB SR 99 ramps (new counts)
40. Mountain View Avenue / Golden State Blvd (new counts)
41. Mountain View Avenue / Amber Avenue (new counts)
42. Mountain View Avenue / Bethel Avenue

The Traffic Study will use the FCOG traffic model as updated for this project. The following study scenarios will be addressed. The long-term evaluation will address impacts to the year 2025.:

1. Existing Plus Amberwood Specific Plan as proposed
2. Existing Plus other Approved Projects
3. Existing Plus Approved Projects Plus Amberwood SP

- Fiscal Impacts. The City will retain MuniFinance to prepare a fiscal study of the project's impact on City services and facilities.

- Cumulative Effects
  Conversion of agricultural land, loss of habitat and foraging areas, traffic, air quality, noise, water consumption, and City growth.

- Growth Inducement
  Eastern growth outside existing Sphere of Influence. Growth to the south toward East Mountain View Avenue.

Figure 1
Regional / Project Location Map

Figure 2
Location In the City of Selma

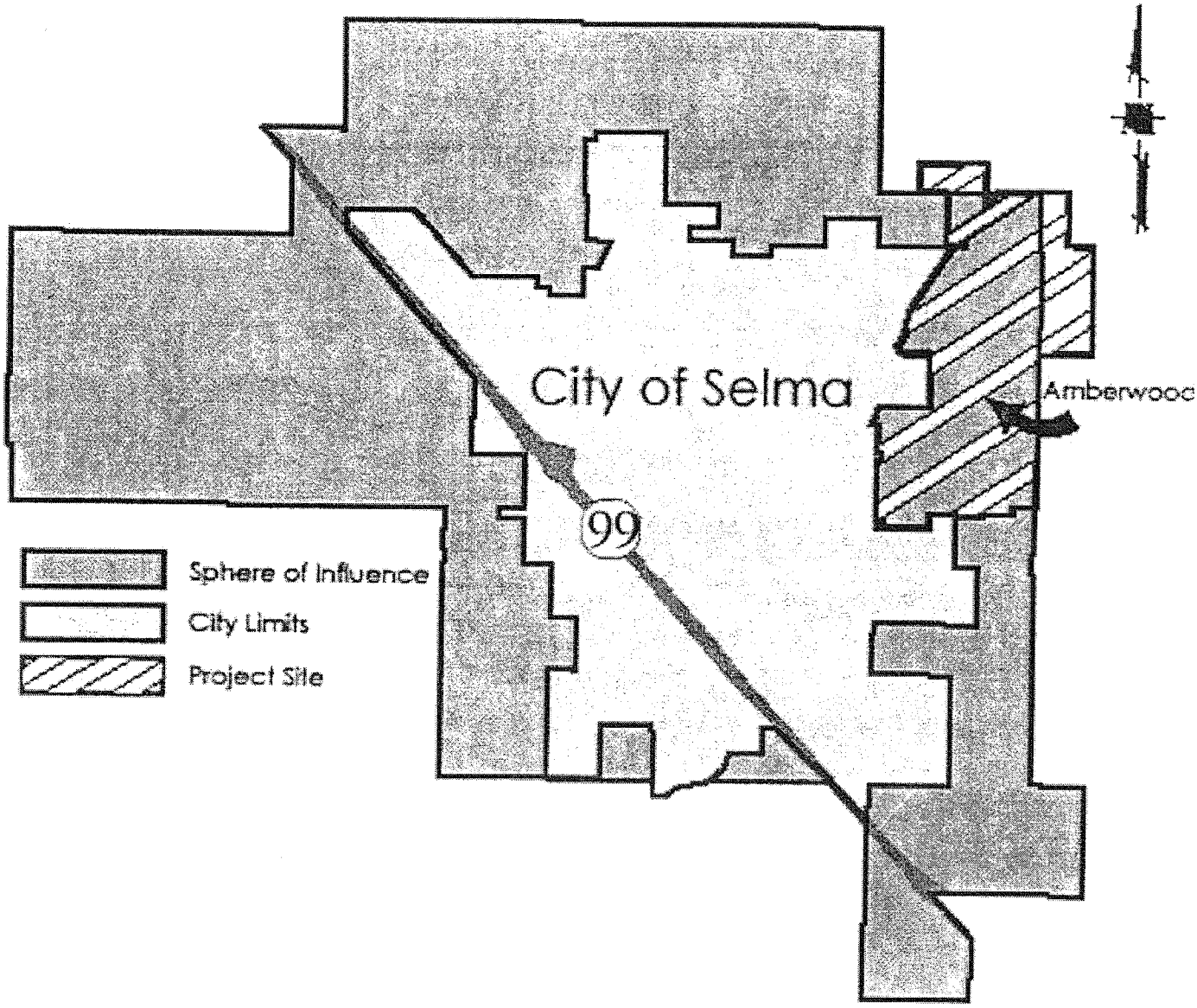


Figure 3
Property Ownership Map of the Proposed Project Area

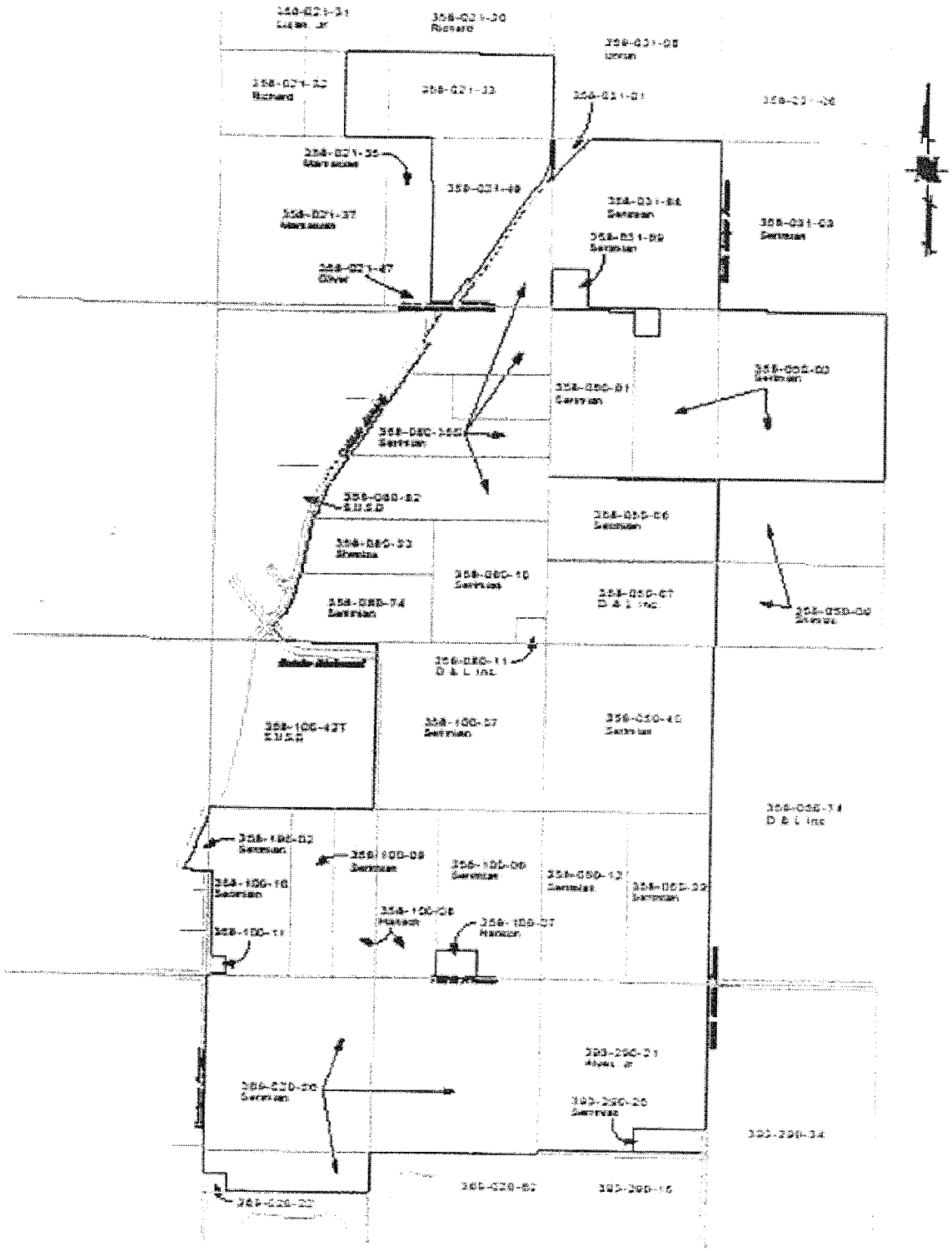


Figure 4

Current General Plan Map

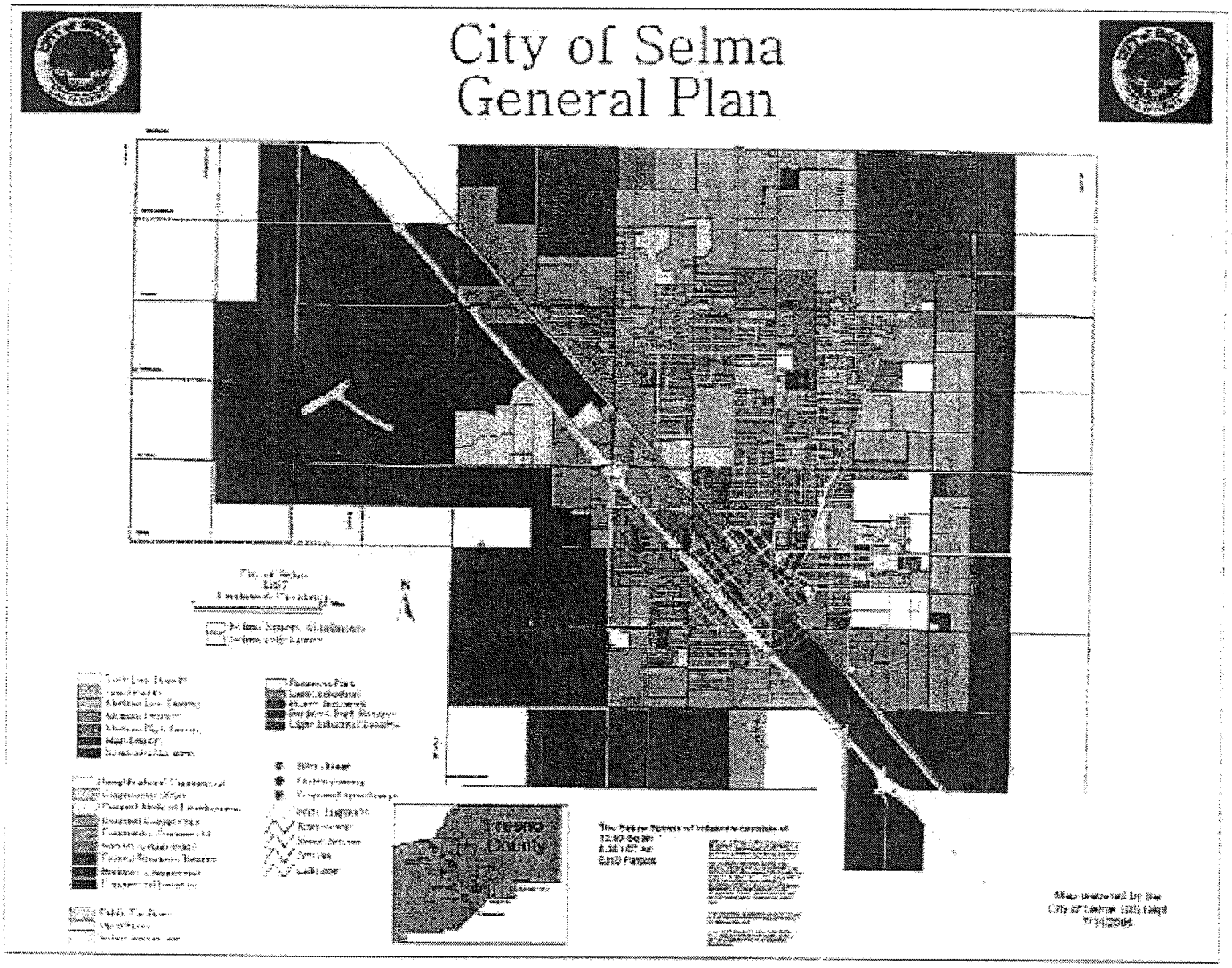


Figure 5
Amberwood Proposed General Plan Map Amendment

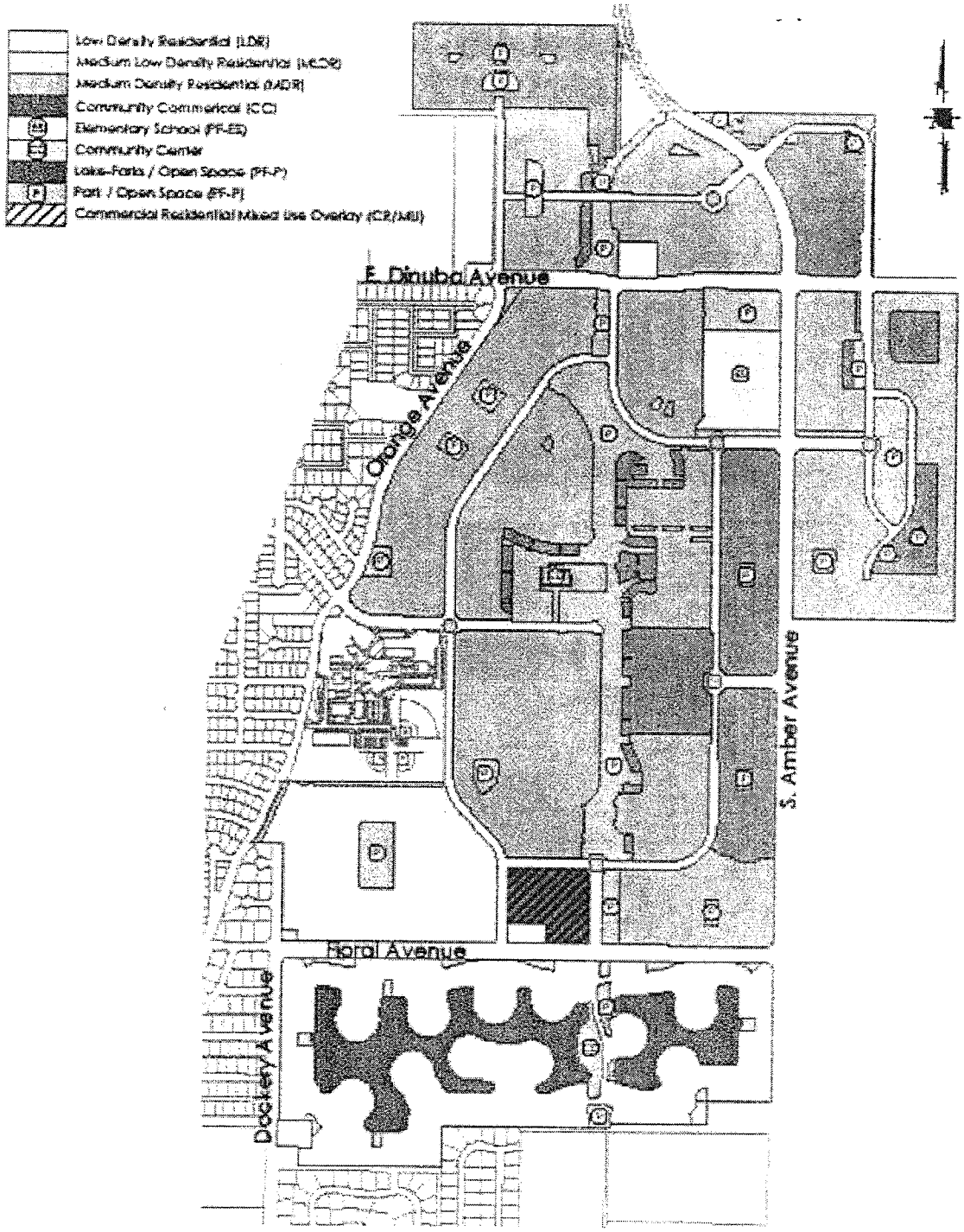
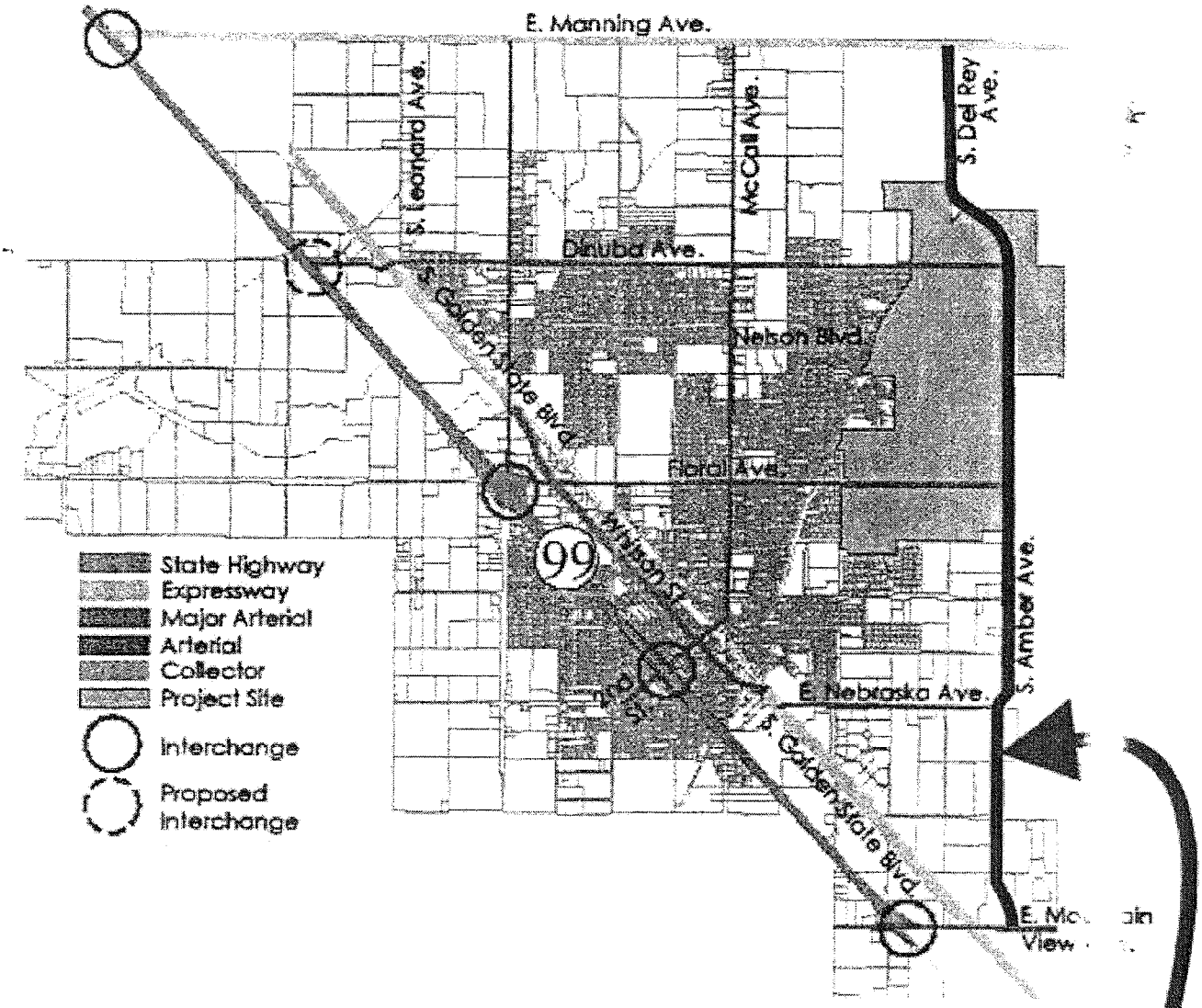


Figure 6
General Plan Circulation Element Proposal (South Amber Avenue)



South Amber Avenue to become an arterial stre
Plan line adopted between East Manning Avent
and East Mountain View Avenue. Ultimate wide ng
of South Amber Avenue to 100 feet right-of-way

Figure 7
Location and Extent of General Plan Amendment

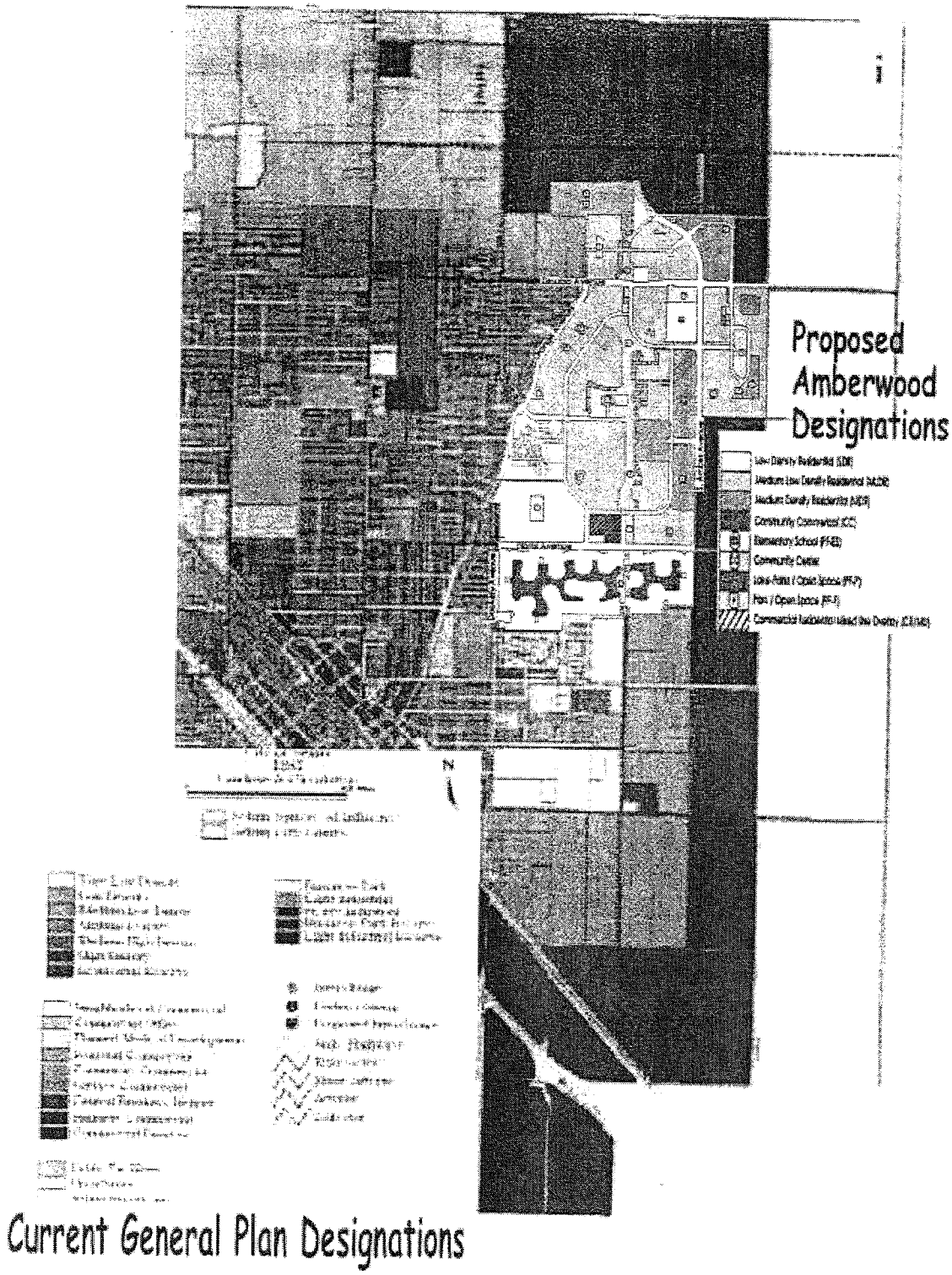


Figure 8
Current Zoning Map

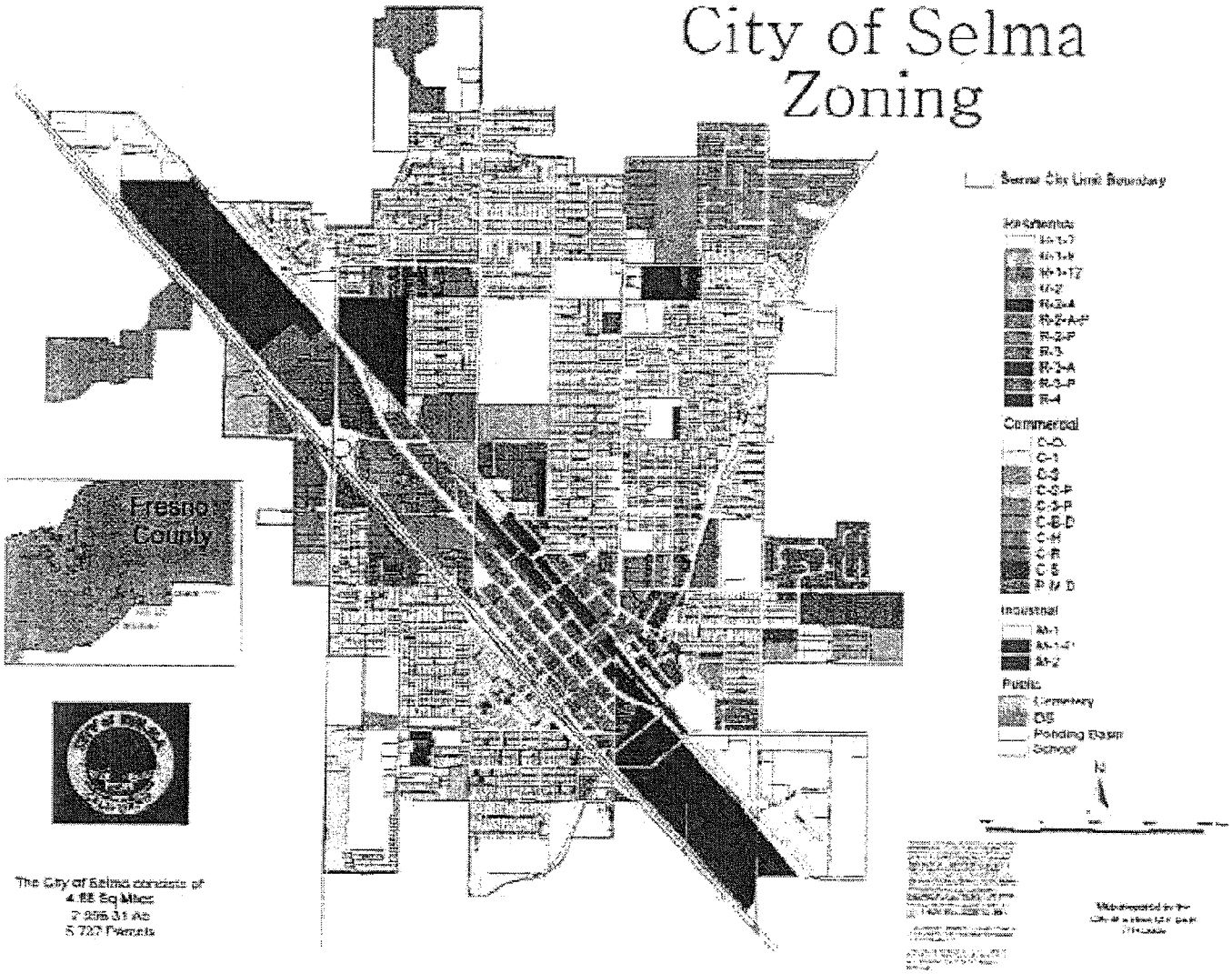


Figure 9
Amberwood Proposed Prezoning Map

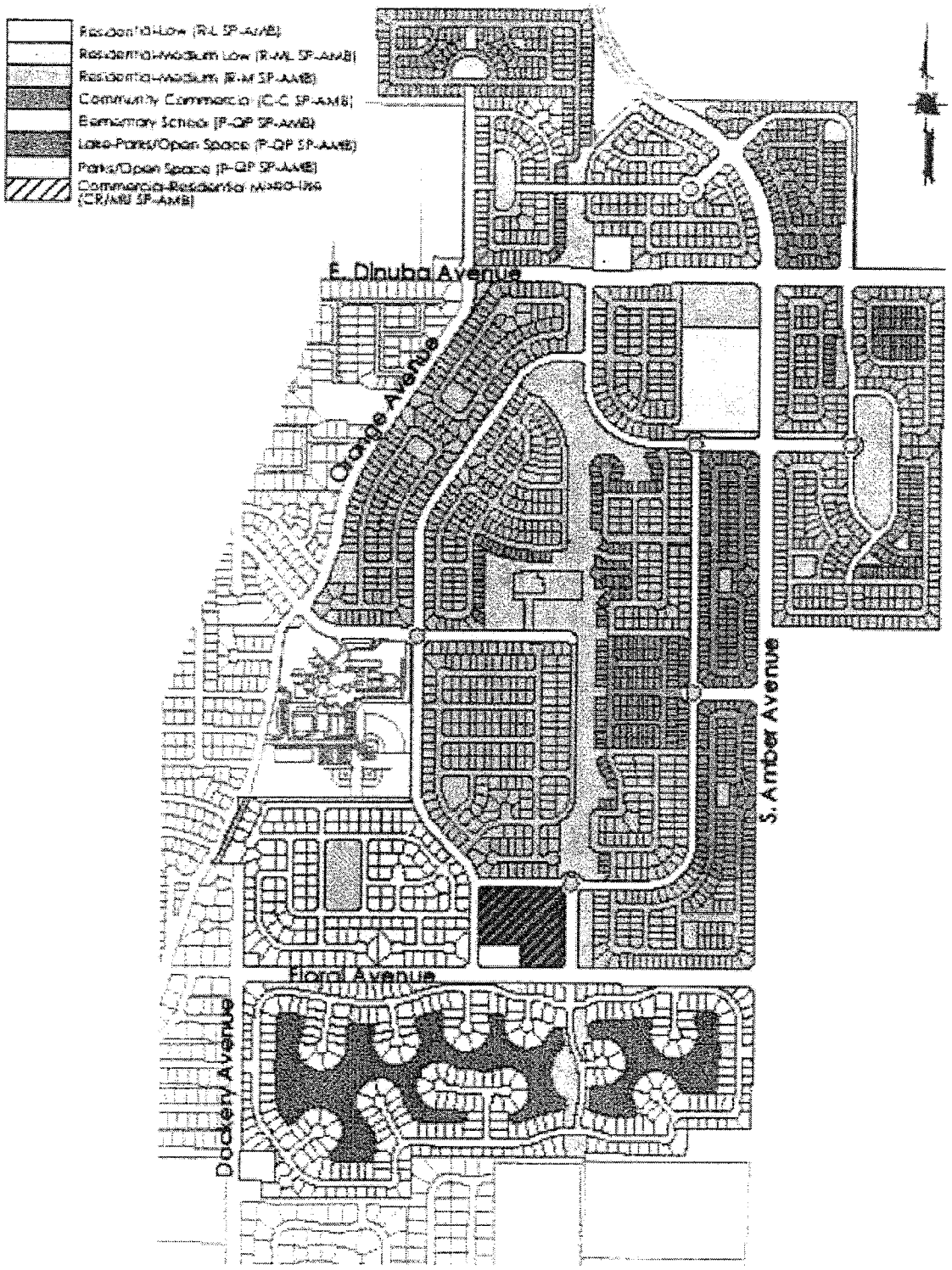
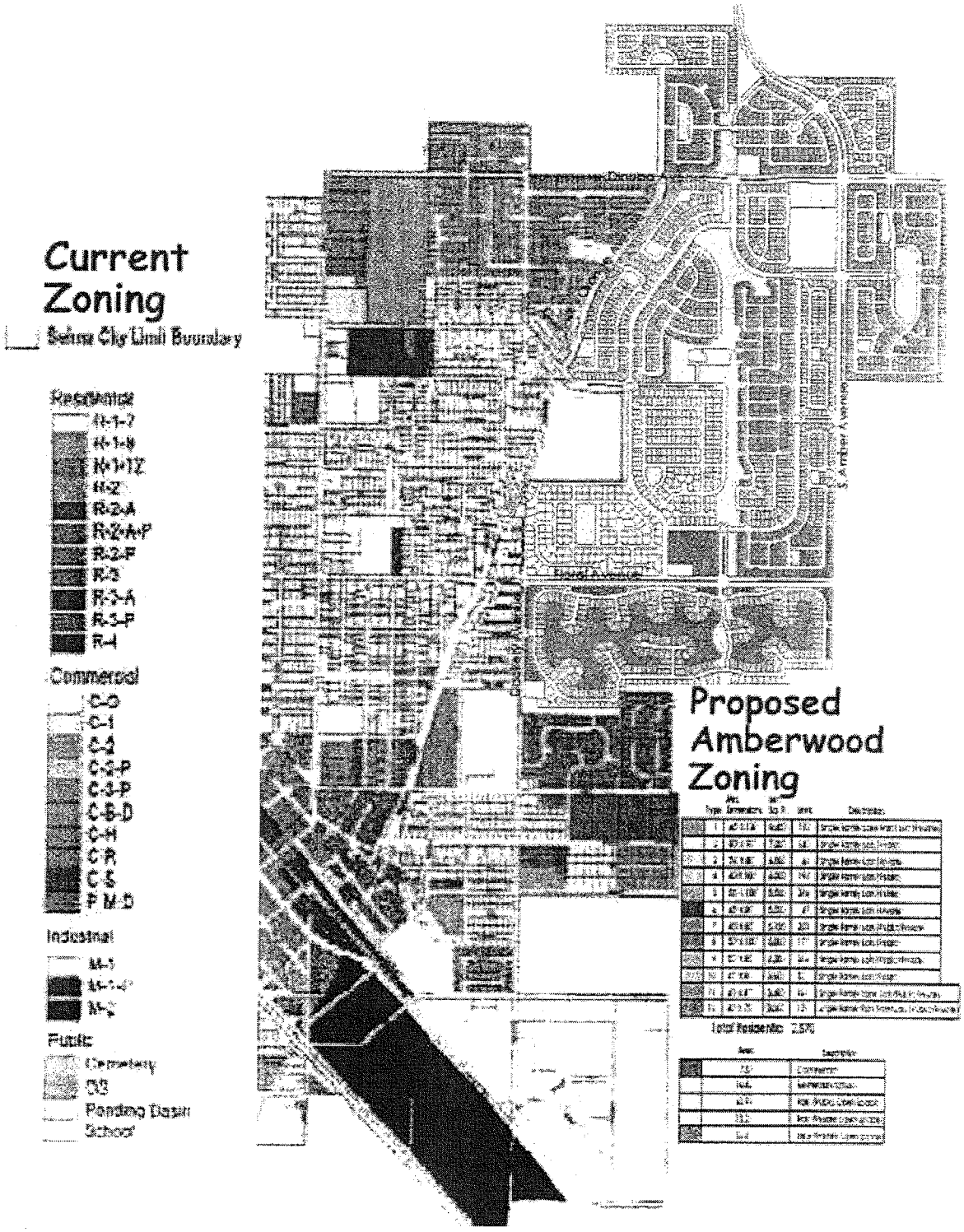


Figure 10
Location and Extent of Prezoning



Master Plan Map

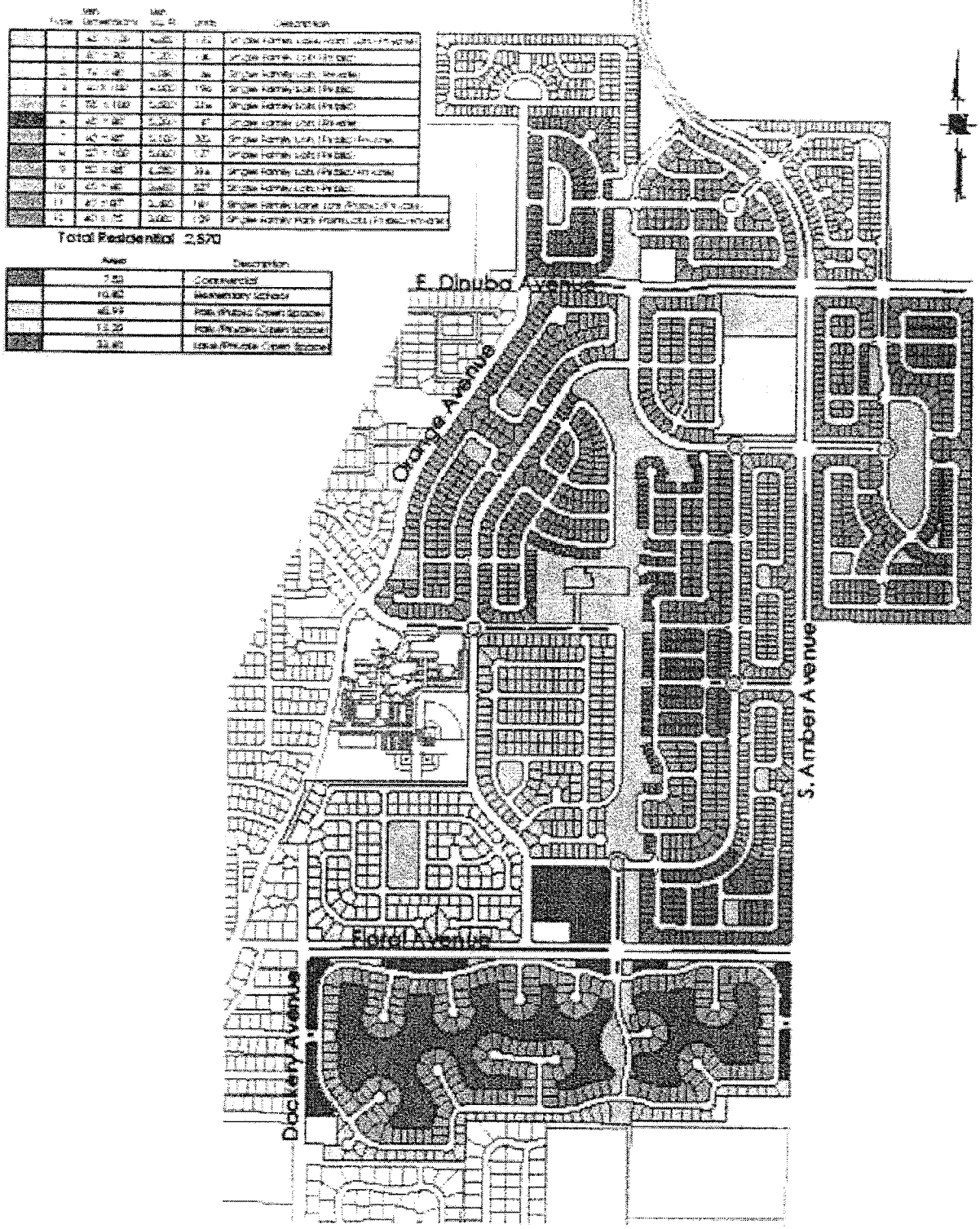


Figure 11

Proposed Sewer Line Construction

The Selma Kingsburg Fowler County Sanitation District (SKF) operates and maintains the wastewater treatment facility that serves Selma. The SKF wastewater treatment facility is located approximately 3.5 miles southeast of Selma, just west of Kingsburg. The City of Selma owns the sanitary sewer system that collects the wastewater generated within the City. SKF maintains and operates the sanitary sewer system for the City.

An alternative tertiary treatment facility and recycling of water operated by the City by the City will be explored for this project and other development on the north and east side of the City.

Should the SKF alternative be selected, an off-site sanitary sewer line will be built with the Amberwood project. This sewer line will service the Amberwood project as well as future development Northeast of the City of Selma. The portion of the line directly serving this project will vary in size from 30 to 42 inches as determined by the "SKF Sewer System Master Plan" dated October 2006. The line will follow the existing alignment of S. Amber Ave. South to the intersection of S. Amber Ave. and E. Nebraska Ave. It will continue West to the intersection of E. Nebraska Ave. and Dockery Ave. From there it will head South along Dockery Ave. until Dockery Ave. ends in a cul-de-sac. The sewer line will then extend beyond the cul-de-sac and cross under the Union Pacific Railroad line to connect with the existing 42 inch interceptor line in S. Golden State Blvd.

The alternative tertiary facility will consider locations for disposal on golf-course, open space, or agricultural irrigation adjacent to the City.

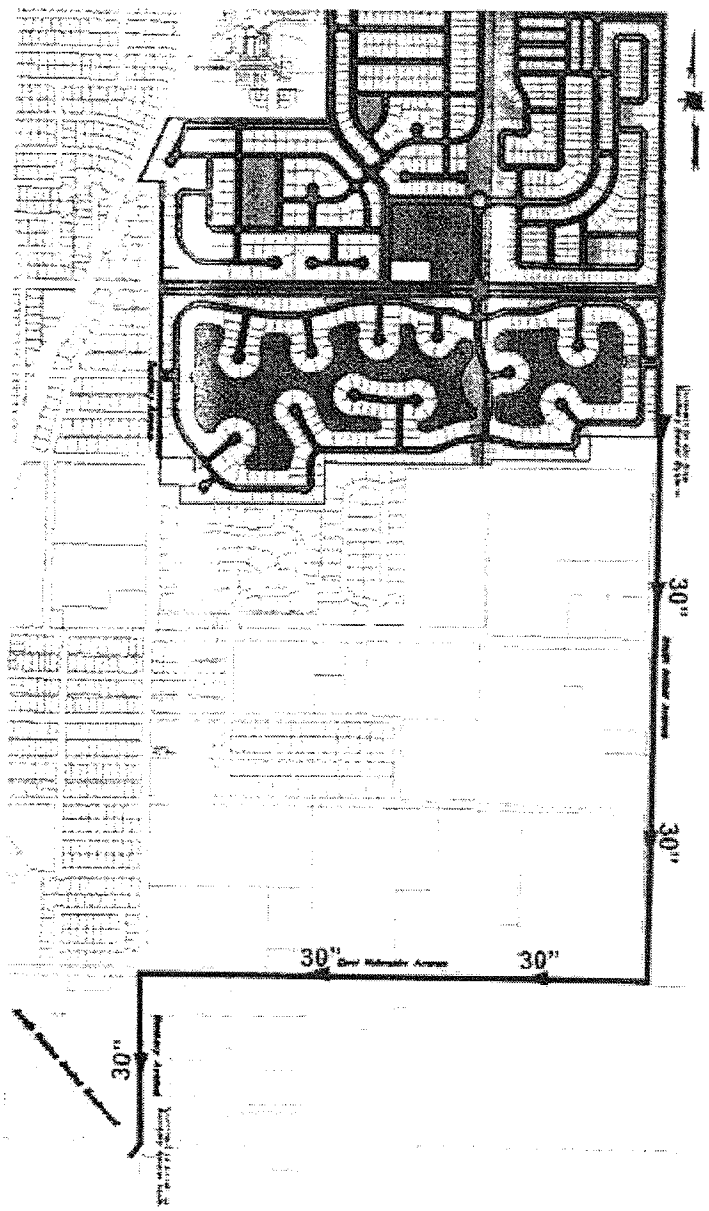


Figure 12

Proposed Water System

Amberwood will use both potable and non-potable water uses. Cal Water will provide domestic water for Amberwood from its wells located throughout the area and its water mains located in Floral Avenue and East Dinuba Avenue. Ground water will be a major source of the domestic water supply for the project. Non-potable water will be used for the lakes, recharge, and to irrigate open spaces, parks, parkways, medians, and landscaping around commercial shopping centers. The primary sources of water for non-domestic use are private wells, water runoff, and municipal water.

The domestic water distribution system will consist of a network of pipelines that run underground within right-of-ways and easements. Water lines will consist of 8-inch pipes within the easements located in the community collector roads. Water will then continue in 8-inch pipes through the easements located in the residential streets.

The distribution system will be designed by Cal Water. Final pipe sizes and alignment will be determined during the detailed design phase. Water pumped from the lakes will be used for irrigation of both public and private open space areas. As a result, a large volume of the water used for irrigation will be reused water. The source of lake water will be a combination of storm drain runoff and well water pumped from shallow aquifers located under the planning area. A separate distribution system will be installed for the irrigation water system. In addition, Amberwood's irrigation system will provide the opportunity for future use of reclaimed water, should it become available, from the City or SKF.

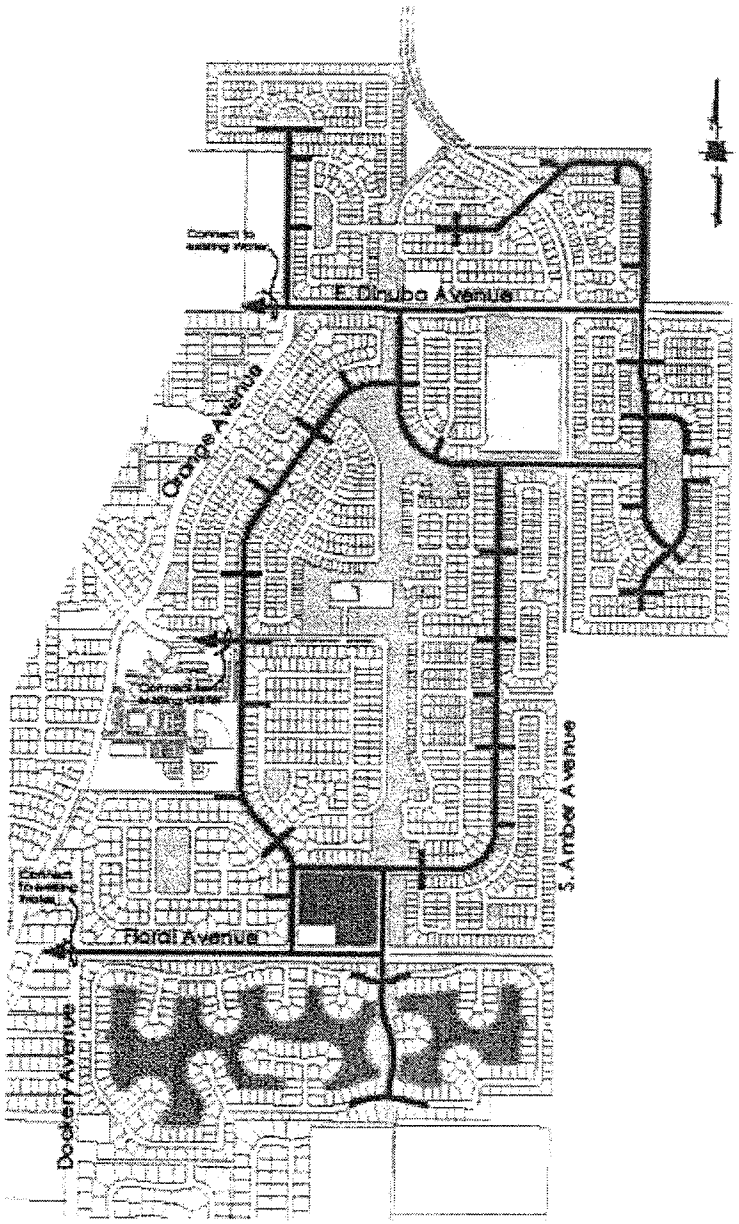
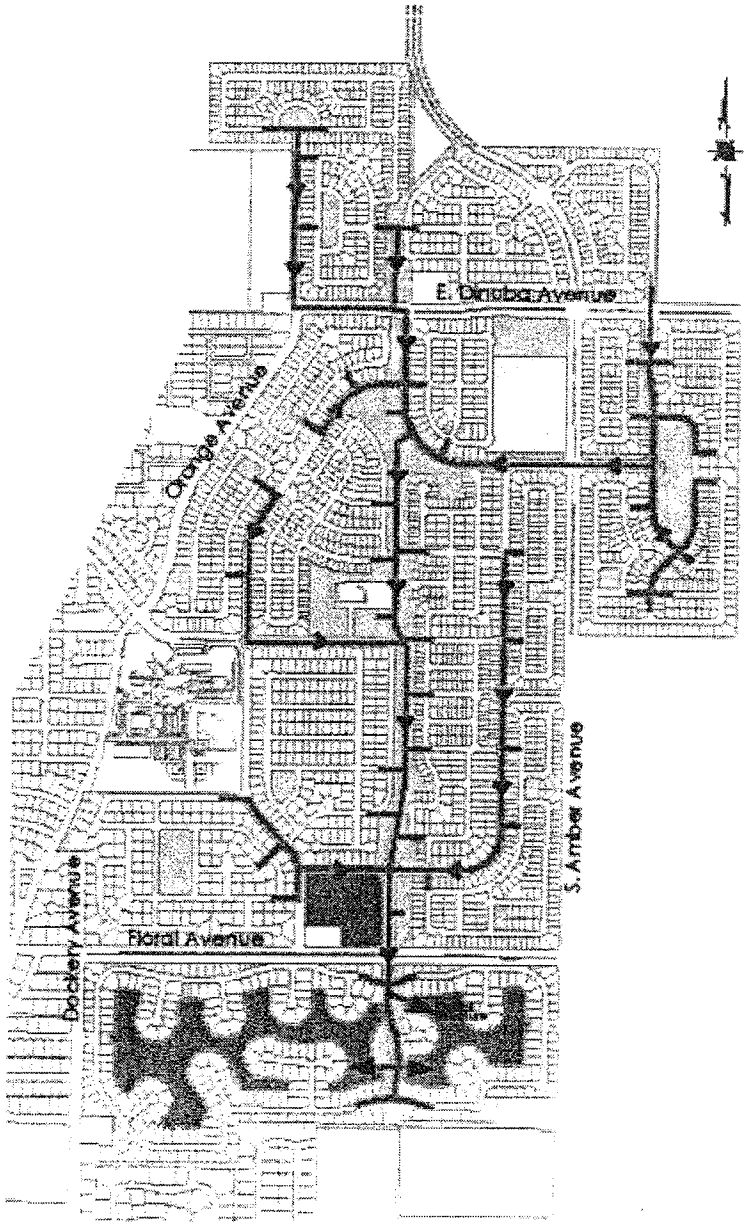


Figure 13

Proposed Storm Drainage System

The City's Storm Drain Master Plan will be amended for the Amberwood project. Storm drainage system will be designed to the City of Selma Standard Specifications. The central water feature will be a small meandering creek running north to south through the linear park to the lake system at the southern end of the development. Stormwater will be collected and disposed of on-site through the storm drainage system. The linear park will act as a dual use facility. The park will provide recreational opportunities, and it will contain creek drainage within a shallow swale. A small lake along the creek will act as a shallow storm drain detention basin during the rainy months. This storm drain detention aspect will be designed so that the pedestrian pathway will be accessible year round. The creek will drain into the lake system through an outfall structure and sediment trap. The lake system will be comprised of two bodies of water connected in multiple places by large diameter equalizer pipes so that they act as one lake. Residential lots that front the lakes will have a portion of their backyards sheet drain directly into the lakes.



Best management practices will be used to protect water quality; these may include filtration, detention of runoff to allow collection of sediments, incorporating sumps into storm drainage basins, installation of sediment collectors at locations, and routing of storm drainage flows through grassy swales to aid filtration of the water.

The amendment to the City's Master Drainage Plan will not allow off site drainage to be transported to this project area.

The project is outside the 100-year flood plain as identified on the Federal Emergency Management Agency (FEMA) map.

RESPONSES TO THE INITIAL STUDY AND NOP

DEPARTMENT OF TRANSPORTATION
1352 WEST OLIVE AVENUE
P. O. BOX 12616
FRESNO, CA 93778-2616
PHONE (559) 445-5868
FAX (559) 488-4088
TTY (559) 488-4066

RECEIVED
MAR 1 9 REC'D
BY_____
CITY OF SELMA

Flex your power!
Be energy efficient!

March 17, 2009

2131-IGR/CEQA
6-FRE-99-6.512+/-
NOP AND IS
AMBERWOOD SPECIFIC PLAN

Mr. D.B. Heusser, City Manager
City of Selma
1710 Tucker Street
Selma, CA 93662

Dear Mr. Heusser:

We have completed our review of the Notice of Preparation (NOP) and Initial Study (IS) for the proposed Amberwood Specific Plan located on the east of State Route (SR) 99 in the city of Selma. The Specific Plan consists of approximately 791 acres and is located south of Manning Avenue, east of Del Rey and Amber Avenues, north of Mountain View Avenue and west of McCall Avenue. The proposed Specific Plan would amend the General Plan in order to include all the project area within the City's sphere of influence (SOI), which will be expanded. The specific plan would also cover the annexation of the project's area into Selma's city limits. It is estimated that this area could accommodate 2,570 single family residential homes located in 26 neighborhoods and approximately 131,200 sq. ft. of commercial development. Caltrans has the following comments:

Given the size of the specific plan area and the existing sphere of influence of Selma, it is projected that a significant number of trips generated from this site would impact various State facilities. Therefore it is recommended that the traffic portion of the EIR be required to identify and analyze the site's impact to all impacted State facilities. Please have the preparer of the traffic study reference the Caltrans Guide for the Preparation of Traffic Impact Studies, dated December 2002, and send the scope of the TIS to Caltrans before the traffic study is conducted. Caltrans Guide, while advisory, contains Best Practices and gives insight into Caltrans' expectations when reviewing a traffic study. If the traffic consultant has any issues or concerns regarding the use of the Guide or its interpretation, please contact us so resolution can be reached.

A review of NOP Figure 6 indicates a proposal for a new interchange at SR 99 and Dinuba Avenue, and a new 4 mile long arterial street adopted between East Manning Avenue and East Mountain View Avenue. The current Supplemental Freeway Agreement Map indicates no plan for an interchange at SR 99 and Dinuba Avenue. Therefore the traffic portion of the EIR should incorporate the trip generation distribution for various future scenarios; one including a new SR

99 interchange at Dinuba Avenue and the new arterial street called Amber Avenue, and another one not including any of the significant changes being proposed. The proposed changes will require full operational analysis in order to determine lane configurations and storage.

In order to accommodate existing and future demand, previous traffic studies have already identified the need for improvements to the SR 99 interchanges at Mountain View Avenue, 2nd Street, Floral Avenue, Manning Avenue, and the SR 43 intersection at Nebraska and Rose Avenues (see table below). Caltrans also projects that the Mountain View over-crossing structure will need to be raised and widened to accommodate eastbound and westbound left turn lanes. The northbound off-ramp might also need to be re-aligned, and there could be a need for loop on-ramps. Therefore the traffic study should confirm the need for these and other improvements.

State Route	Interchange/ Intersection	Improvements
99	NB & SB Off to Mt. View	Signal, Add turn lane
99	NB & SB Off to 2nd Street	Signal
99	NB Off to Floral/SR43	Add two lanes
99	SB On from Floral/SR43	Left turn from SB 43 to SB on-ramp
99	NB & SB Off to Manning	Signal
99	Manning OC	Widen OC, WB left turn at NB ramp
43	Nebraska Intersection	Add dual left turn lanes
43	Rose Intersection	Right Lane and Signal

Please send a response to our comments prior to staff's recommendation to the Planning Commission and/or the City Council. If you have any questions, please contact me at (559) 445-5868.

Sincerely,

MICHAEL NAVARRO
Office of Transportation Planning
District 06

Fresno Local Agency Formation Commission

May 8, 2007

CITY OF SELMA
ANNEX

MAY 10 2007

COMMUNITY DEVELOPMENT
RECEIVED

Michael Gaston, Community Development Director
City of Selma
1700 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

Subject: Notice of Preparation for the Amberwood Specific Plan Project.

We have reviewed the City of Selma's Amberwood Specific Plan Project Notice of Preparation (NOP) and offer the following comments:

1. The NOP properly identifies the required actions to be taken by the Fresno Local Agency Formation Commission in that the 791± acres of land generally located east of Orange Avenue and north of the Stillman Avenue alignment is to be annexed to the City of Selma. The resulting boundary should be logical and should "square off" the City's boundaries. The City, as soon as possible, should meet jointly with the County of Fresno and LAFCo to define the annexation proposal.

2. As indicated in the NOP, a portion of the proposed development is located outside the City's current Sphere of Influence (SOI). The city will be required to submit the appropriate application and other materials and fees to LAFCo to amend its SOI.

3. Also as indicated in the NOP, prezoning the entire affected territory, amending the City's General Plan, and approval of the vesting tentative subdivision map(s) for development will be required prior to submitting an annexation proposal to LAFCo. If approved, the City may be required to succeed to the Williamson Act contracts for those parcels under contract.

4. The Draft EIR should also consider potential impacts of the reorganization on all affected special districts, which would take place upon annexation of the subject properties to the City of Selma.

We appreciate the opportunity to provide comments on the Notice of Preparation 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
DS
G:\LAFCO WORKING FILES\CEQA\Responses\Selma Amberwood Project.doc

LAFCo Office: 2115 Kern Street, Suite 310, Fresno, CA 93721
Phone: (559) 495-0604 • Fax: (559) 495-0655 • E-mail: cfleming@co.fresno.ca.us

SELMA CEMETERY DISTRICT
P.O. BOX 1383/2430 FLORAL AVE. SELMA, CA 93662
(559)896-2412 FAX (559)896-3349

CITY OF SELMA
ANNEX

MAY 10 2007

COMMUNITY DEVELOPMENT
RECEIVED

May 8, 2007

City of Selma
Attn: Mike Gaston
1710 Tucker Street
Selma, Ca 93662

Re: Amberwood Specific Plan Project

Dear Mr. Gaston,

Thank you in advance for requesting Selma Cemetery District's view as to the scope and content of the environmental information which is germane to the District's statutory responsibilities with the proposed Amberwood Specific Plan Project.

Detaching Selma Cemetery District (special district) from the Amberwood Specific Plan Project would be financially detrimental to our District and its' taxpayers. As the District's population grows, income may grow at a minimum rate. The current and anticipated demands for affordable services will require a portion of the tax revenue by the District in order to operate.

If the Board of Trustees concur a Nexus Study will be performed and an Impact Fee may be desired to fund necessary expansions to meet the needs of the growing population within the District's boundaries.
District records indicate an expected internment rate for the City of Selma of between 2.60 to 4.90 internments per 500 people. The existing District's interment capacity is 4,599 sites.

Please do not hesitate to contact me if you have any questions.

Best regards,

Debra L. Quinn
District Manager

Cc: Board of Trustees

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
ALAN WEAVER, DIRECTOR

COPY

December 21, 2007

JAN 02 2008

Michael Gaston AICP, Director
Community Development
City of Selma
1700 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

SUBJECT: Notice of Preparation - Draft Amberwood Specific Plan Project Environmental Impact Report (EIR)

Thank you for the opportunity to review the Trip Distribution Graph provided by the Valley Planning Consultants Inc., on the above-referenced project. In addition to the list on page 8 of the Notice of Preparation dated April 24, 2007, the County requests that the following road segment and intersections be included in the Traffic Impact Study based on the review of the trip distribution document,

Road segment

- McCall Avenue between Manning Avenue and Jensen Avenue.

Intersections

- McCall Avenue at American Avenue;
- McCall Avenue at Central Avenue;
- McCall Avenue at Jensen Avenue.

Sincerely,

Henry Kinuthia, Planner
Development Services Division

HK:dlG:\4360Devs&Pln\EnvPlan\OAR\City of Selma\EIR Amberwood Specific Plan\Trip distribution-Selma Amberwood Specific Plan (5).doc

c: Theresa Acosta-Mena, Development Services Division
Marina Popov, Design Division

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
ALAN WEAVER, DIRECTOR

June 4, 2007

CITY OF SELMA
ANNEX

JUN 11 2007

COMMUNITY DEVELOPMENT
RECEIVED

Michael Gaston AICP, Director
Community Development
City of Selma
1700 Tucker Street
Selma, CA 93662

Dear Mr. Gaston:

SUBJECT: Notice of Preparation - Draft Amberwood Specific Plan Project Environmental Impact Report (EIR)

Thank you for the opportunity to review and comment on the above-referenced Notice of Preparation (NOP). The County looks forward to working with the City of Selma in addressing the issues and impacts identified in the NOP and in this letter.

The NOP was circulated for review within the Fresno County Department of Public Works and Planning and the following has been identified:

Project Description / NOP Graphics:

The Project Description noted on Page 1 of the NOP states in part that, "The Amberwood Specific Plan Project would permit development of approximately 671± acres of residential...", while it states later in the same paragraph that the multi-facet project will include single-family housing, park facilities, schools, commercial space, open space and water features on approximately 791± acres. These figures are contradicting and need to be reconciled.

It is also noted that while the NOP indicates that an Initial Study was not prepared for this project, the cover page and footnotes indicate otherwise. If an Initial Study has been prepared, please forward for the County's review.

Several of the graphics (Figure 4 through Figure 10) used in the NOP are not legible and should need to be improved in order to provide the reader an understanding of what specific land uses, zoning, densities, lot size and circulation modifications are being proposed.

Sewer Capacity and Waste Water:

The NOP indicates that the City of Selma is exploring the concept of developing an alternative tertiary treatment and water recycling facility for the project and "other development" on the north and east side of the City. The NOP does not provide adequate information in regards to where the alternative tertiary treatment facility will be located, who will operate it and what level of development it will serve. Is this facility intended to tie-into the existing Selma Kingsburg Fowler (SKF) County Sanitation District facility? How will the treated waste water be disposed of?

The project description needs to be revised to include a description of this element of the project and a specific location of the proposed facility.

Water Balance / Proposed Lake Feature:

Due to the magnitude of the proposed project, the EIR needs to clearly address CEQA Guideline Section 15083.5 (Consultation with Water Agencies) in order to verify that a sufficient water supply exists.

The NOP does not provide enough information about the proposed lake feature. What is the capacity of the lake and how much water will be needed and were will the water come from to fill the lake (ground or surface water)? Will the lake be filled year-round? Will the lake be lined or unlined?

The NOP needs to include more specific information on the water balance and on features of the proposed lake. Until then, the County is unable to comment on how the project might impact groundwater resources and other secondary impacts associated with water quantity.

Agricultural Land:

The NOP identifies 760 acres of agricultural land that will be converted to non-agricultural uses. Approximately 100 acres of the subject project is currently restricted by a Williamson Act Contract. The EIR needs to address and mitigate 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.

It is also noted that, disposing recycled water on agricultural land will further reduce available agricultural land, since recycled water is limited to irrigating a small range of non-edible crops.

Master Tax Sharing Agreement / Memorandum of Understanding:

A portion of the proposed Specific Plan is located outside the LAFCo-adopted Selma Sphere of Influence. The project would require expansion of the Sphere of Influence and an amendment to the Memorandum of Understanding (MOU) between the County of Fresno, the City of Selma and the Selma Redevelopment Agency.

Traffic / Circulation:

The Draft Environmental Impact Report (DEIR) needs to properly address the impacts from traffic generated by the proposed project to the County's transportation facilities. The County, therefore, requests preparation of a Traffic Impact Study to assess potential impacts to County intersections which may be affected by the project. The scope of the Transportation/Circulation section of the DEIR should include roadways and intersections beyond the immediate boundary of the subject project. County staff is available to participate in any Traffic Impact Study scoping meeting to determine the extent of the study area and locations. After preparation of the Traffic Impact Study, copies should be sent to the County of Fresno, Department of Public Works and Planning, Design Division and the Development Services Division - Development Engineering Section for review. Please note that the level of service (LOS) threshold for the County of Fresno is LOS C.

In the annexation process, any street under the County's jurisdiction and abutting the boundary of the subject project site should be totally annexed by the City of Selma. It is also noted that the areas of proposed construction which are within the County jurisdictions require the issuance of an Encroachment Permit and Grading Permit or Grading Voucher.

Public Services / Facilities:

Given the site and scope of the project, the EIR should also give consideration to any indirect fiscal impacts on the County resulting from the increased service population.

Amberwood Specific Plan:

The NOP notes that the Amberwood Specific Plan is available for review. The County requests a copy of the referenced Specific Plan for its review. In addition, the Specific Plan should be included with the Draft EIR in order to provide opportunity for full review.

Fresno County appreciates the opportunity to provide its comments on the Notice of Preparation and we look forward to receiving the Draft Environmental Impact Report incorporating the issue, impacts and deficiencies noted above. Should you have any questions regarding these comments, please call me at (559) 443-5341.

Sincerely,

Theresa Acosta-Mena

Theresa Acosta-Mena, Senior Planner
Development Services Division

TAM:HK
G:\4360Devs&Pln\EnvPlan\OAR\City of Selma\EIR Amberwood Specific Plan\Comments-Selma Amberwood Specific Plan (5).doc

c: Lynn Gorman, Deputy Director of Planning
Bernard Jimenez, Manager
Margie McHenry, Policy Planning Unit
Daniel Gibbs, Development Engineering Section
Marina Popov, Design Division

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

CITY OF SELMA
ANNEX
JUN 22 2007
COMMUNITY DEVELOPMENT
RECEIVED

June 19, 2007

Michael Gaston
City of Selma
Community Development Department
1700 Tucker Street
Selma, CA 93662

Project: Notice of Preparation: Amberwood Specific Plan Project

Subject: CEQA comments regarding the proposed 671-acre mixed-use development (2,570 single family residential units, approximately 131,200 square feet of commercial space, elementary school, community center, parks and lakes project)

District Reference No: 200700815

Dear Mr. Gaston:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above and offers the following comments:

The entire San Joaquin Valley Air Basin is designated non-attainment for ozone and particulate matter (PM10 and PM2.5). This project would contribute to the overall decline in air quality due to construction activities in preparation of the site, and ongoing traffic and other operational emissions. Preliminary analysis, based on the information provided, indicates the project will exceed the District's Threshold of Significance for ozone precursors of 10 tons per year of reactive organic gases (ROG) and oxides of nitrogen (NOx).

The District recommends that the air quality section of the EIR have four main components:

1. **A description of the regulatory environment and existing air quality conditions impacting the area.** This section should be concise and contain information that is pertinent to analysis of the project. The District has several sources of information available to assist with the existing air quality and regulatory environment section of

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

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the EIR. The District's "*Guide for Assessing and Mitigating Air Quality Impacts, 2002 Revision*" (GAMAQI) contains discussions regarding the existing air quality conditions and trends of the San Joaquin Valley Air Basin (SJVAB), including those pollutants of particular concern: ozone, PM10, and carbon monoxide. In addition, it provides an overview of the regulatory environment governing air quality at the federal, state, and regional levels. The GAMAQI provides air monitoring data and other relevant information for PM-10 and other pollutants. The current GAMAQI can be found at www.valleyair.org/transportation/ceqa_guidance_documents.htm. The most recent air quality data for the District is Available on the California Air Resources Board (ARB) website at http://www.arb.ca.gov/html/aqe&m.htm. The air quality section of EPA's Region 9 (which includes information on the SJVAB) can be found at http://www.epa.gov/ region09/air/index.html. Additionally, this section should also contain a discussion regarding growth projections that the City of Selma provided to the District (through the Fresno COG) for inclusion in the Ozone and PM10 Attainment Plans and any impacts this project will have on Federal Conformity for Fresno County and the SJVAB. Lastly, this section should clearly describe the air pollution regulatory authority of the District and ARB for the various emission sources from the Amberwood Specific Plan Project.

2. **Estimates of existing emissions and projected pollutant emissions related to the increase in project source emissions and vehicle use, along with an analysis of the effects of these increases.** The EIR should include the methodology, model assumptions, inputs and results for pollutant emissions. The cumulative impact analyses should consider current existing and planned development both within the project area and in surrounding areas. The EIR needs to address the short term and long term local and regional adverse air quality impacts associated with the operation of construction equipment (ROG, NOx, carbon monoxide [CO], and PM10) and emission generated from stationary and mobile sources. The EIR should identify the components and phases of the project. The EIR should provide emissions projections for the project at the build out of each phase (including ongoing emissions from each previous phase). The most current URBEMIS program may be used to quantify these emissions.

   Ozone Precursors – The District recommends using the regional transportation model to quantify mobile source emissions, but in some cases it may be possible to use the most current URBEMIS program to calculate project area and operational emissions. Fresno COG may be able to provide assistance with the regional transportation model. The District recommends using the most current URBEMIS program to calculate project area and operational emissions and to identify mitigation measures that reduce impacts. URBEMIS can be downloaded from http://www.urbemis.com/ or the South Coast Air Quality Management District's website at http://www.aqmd.gov/ceqa/urbemis.html. If the analysis reveals that the emissions generated by this project will exceed the District's thresholds, this project may significantly impact the ambient air quality if not sufficiently mitigated. The project applicant or consultant is encouraged to consult with District staff for assistance in determining appropriate methodology and model inputs.

Toxic Air Pollutants – The air analysis should discuss any District or State regulations for identifying and reducing toxic pollutants and should describe how the City of Selma would address future projects with sensitive receptors near existing sources that emit toxic pollutants and the citing of new sources of toxic pollutants in the plan area. Potential sources that emit toxic pollutants include project operations, and vehicles (the ARB has designated diesel particulate emissions as a toxic air contaminant). If the project is near sensitive receptors, or if existing sources are near the project area, the District should be contacted to determine if the project developer should perform a Health Risk Assessment (HRA). An HRA should include a discussion of the toxic risk associated with the proposed project, including project equipment, operations, and vehicles. The GAMAQI defines the significance levels for toxic impacts as a cancer risk greater than 10 in a million and/or a hazard index (HI) of 1.0 or greater for chronic non-carcinogenic or acute risks.

HRA guidelines promulgated by the California Office of Environmental Health Hazard Assessment (OEHHA) and OEHHA toxicity criteria must be used. In addition, the applicant should also refer to the "*Guidance for Air Dispersion Modeling*" document found on the District's web page for additional guidance. This document can be found at http://www.valleyair.org/busind/pto/Tox_Resources/ AirQualityMonitoring.htm.

The project consultant should contact the District to review the proposed modeling approach before modeling begins. For more information on Toxic Air Contaminants (TACs) analysis, please contact Mr. Leland Villalvazo, Supervising Air Quality Specialist, at hramodeler@valleyair.org.

Carbon Monoxide Hotspot Analysis – Results of the traffic study should be used to identify intersections and corridors with high levels of congestion that may result in a CO hot spot. CO hot spots should be screened using a protocol developed by the Institute of Transportation Studies at University of California Davis entitled Transportation Project-Level Carbon Monoxide Protocol. Locations that are predicted by the CO Protocol to experience high levels of CO should be modeled using the most current CALINE dispersion model. The procedure for using the current EMFAC model to calculate emission factors to be used in the CALINE modeling can be downloaded at the Caltrans Division of Environmental Analysis site http://www.dot.ca.gov/hq/env/air/pages/calinesw.htm.

Odor Analysis – The proposed project should be analyzed to see if it is considered near a location of sensitive receptors (including residences) and if odor is a concern. The procedure outlined in the GAMAQI includes the following:

- Identify the location of sensitive receptors (including residences).
- Compare the distance to the nearest sensitive receptor to the distances in Table 4.2 of the GAMAQI. If the sensitive receptors are further away than the distances given in Table 4.2, no further analysis is required. The results should be documented in the EIR.

- Obtain any odor complaints against the facility or similar facilities from the local District office and the county's environmental health department.
- Review the complaints to determine the location of complainants relative to the facility.
- Identify any sensitive receptors at similar distances.
- Determine if emissions of odoriferous compounds will increase or decrease with implementation of the project.
- Draw any reasonable conclusions as to the probability that the project will generate odor complaints based on this analysis of complaint history.

Note that the emission of odiferous compounds should be mitigated as much as feasible if it is anticipated that the project will have a significant impact. For more information on odor impact analyses, please contact Mr. Leland Villalvazo, Supervising Air Quality Specialist, at hramodeler@valleyair.org.

3. **Identify and discuss all existing District regulations that apply to the project.** The EIR should identify and discuss all existing District regulations that apply to the project. It would be appropriate to discuss proposed rules that are being developed that would apply to the proposed project. Current rules and regulations are available on the District's website at http://www.valleyair.org/rules/1ruleslist.htm. District rules and regulations are periodically revised, and new regulations are promulgated. The District strongly advises the City of Selma to contact the District for any rule updates and new rules when the project development begins. Current District rules and regulations applicable to the proposed project are requirements. The project will be subject to the following District rules:

Applicable District Rules

Based on the information provided, the proposed project will be subject to the District rules identified below. These rules have been adopted by the District to reduce emissions throughout the San Joaquin Valley, and are required. This project may be subject to additional District Rules not enumerated below. To identify additional rules or regulations that apply to this project, or for further information, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (559) 230-5888. Current District rules can be found at www.valleyair.org/rules/1ruleslist.htm.

Regulation VIII (Fugitive PM10 Prohibitions) Rules 8011-8081 are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc. The District's compliance assistance bulletin for construction sites can be found at www.valleyair.org/busind/comply/PM10/Reg VIII CAB.pdf.

Rule 4002 (National Emission Standards for Hazardous Air Pollutants) In the event that any portion of an existing building will be renovated, partially demolished or

removed, the project will be subject to District Rule 4002. Prior to any demolition activity, an asbestos survey of existing structures on the project site may be required to identify the presence of any asbestos containing building material (ACBM). In accordance with CAL-OSHA requirements, a certified asbestos contractor must remove any identified ACBM having the potential for disturbance. If you have any questions concerning asbestos related requirements, please contact the District's Compliance Division at (559) 230-6000 or contact CAL-OSHA at (559) 454-1295. The District's Asbestos Requirements Bulletin can be found online at http://valleyair.org/busind/comply/asbestosbultn.htm.

Rule 4102 (Nuisance) This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to District enforcement action.

Rule 4103 (Open Burning) This rule regulates the use of open burning and specifies the types of materials that may be open burned. Agricultural material shall not be burned when the land use is converting from agriculture to non-agricultural purposes (e.g., commercial, industrial, institutional, or residential uses). Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes. In the event that the project applicant burned or burns agricultural material, it would be in violation of Rule 4103 and be subject to District enforcement action.

Rule 4601 (Architectural Coatings) This rule limits volatile organic compounds from architectural coatings by specifying architectural coatings storage, clean up and labeling requirements and applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating.

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations) If asphalt paving will be used, then paving operations of this project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) This rule limits PM10 and PM2.5 emissions from residential development. Construction plans for residential developments may be affected by section 5.3, specifically:

- 5.3.1 – No person shall install a wood burning fireplace in a new residential development with a density greater than two (2) dwelling units per acre.
- 5.3.2 – No person shall install more than two (2) EPA Phase II Certified wood burning heaters per acre in any new residential development with a density equal to or greater than three (3) dwelling units per acre.
- 5.3.3 – No person shall install more than one (1) wood burning fireplace or wood burning heater per dwelling unit in any new residential development with a density equal to or less than two (2) dwelling units per acre.

More information about Rule 4901 can be found on our website at www.valleyair.org. For compliance assistance, please contact Mr. Wayne Clarke, Air Quality Compliance Manager, at (559) 230-5968.

Rule 9510 (Indirect Source Review) This rule was adopted to reduce the impacts of growth in emissions from all new development in the San Joaquin Valley. Rule 9510 requires applicants subject to the rule to provide information that enables the District to quantify construction, area and operational PM10 and NOx emissions, and potentially mitigate a portion of those emissions. Rule 9510 requires construction exhaust emissions to be reduced by 20 percent for NOx and 45 percent for PM10 and operational emissions to be reduced by 33.3% for NOx and 50% for PM10 when compared to the statewide fleet average. Rule 9510 §2.1.1 establishes an applicability threshold of 50 residential units and §2.1.2 establishes an applicability threshold of 2,000 square feet of commercial space. An application must be filed with the District no later than concurrent with application with a local agency for the final discretionary approval. For more information and instruction, please contact the District's ISR staff by phone at (559) 230-6000 or by email at ISR@valleyair.org.

4. **Identify and discuss all feasible measures that will reduce air quality impacts generated by the project.** "Feasible" means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors: (California Code of Regulations (CCR § 15364)). CEQA requires that EIRs "describe measures which could minimize significant adverse impacts" (CCR §15126(c)). Additionally, the CCR requires that "a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures that would substantially lessen any significant effects that the project would have on the environment " (CCR § 15021(a)(2)). For each potential adverse impact, mitigation measures should be identified to reduce impacts below air quality threshold levels of significance. Therefore, the EIR should identify which mitigation measures will be included in the project, and how each mitigation measure will be implemented. The reduction of air quality impacts from implementation of mitigation measures should be quantified to the extent possible. If a measure cannot be quantified a qualitative discussion should be provided explaining the benefits of the proposed mitigation measure. The EIR should discuss how project design modifications could reduce project impacts

   This section should provide an analysis of existing mass transit/bicycle access to or near the site, and discuss if additional infrastructure will be needed. The section should identify which mitigation measures will be included in the project, and how each mitigation measure will be implemented. Site design, equipment alternatives, construction and operational measures that would reduce emissions should be identified. It should also analyze opportunities to mitigate urban heat island effects. The reduction of air quality impacts from implementation of mitigation measures should be quantified when possible. The EIR should discuss how the project design would encourage alternative transportation (including car pool parking), pedestrian and bicycle access/infrastructure, smart growth design, energy efficient project and

building design, reduce urban heat island impacts, and include business programs that further reduce air pollution in the valley (such as carpooling). Mitigation measures must be included in the EIR that reduce the emissions of reactive organic gases, nitrogen oxides, and PM10 to the fullest extent possible. Site design and building construction measures that would reduce air quality impacts should be included. The Districts GAMAQI describes these features. The Local Government Commission (LGC) website, found at www.lgc.org/, contains valuable information and resources on subjects from street design to energy efficiency. The use of the principles of the document Landscape of Choice is encouraged to reduce air quality impacts. The District encourages the following mitigation measures:

Large canopy trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions, and to shade 50% of paved areas within 15 years. For more information see *Tree Guidelines for San Joaquin Valley Communities* at www.lgc.org/bookstore/energy/downloads/sjv_tree_guidelines.pdf.

If transit service is available to the 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.

Multi-story parking facilities should be considered instead of open parking lots to reduce exposed concrete surface. Alternatively, parking may be incorporated into the structure by building parking as the first floor or as a basement level.

Sidewalks and bikeways should be installed throughout as much of the 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. Mid-block paths should be installed to facilitate pedestrian movement through long blocks (over 500' in length) and cul-de-sacs.

As many energy conserving and emission reducing features as possible should be included in the project. Energy conservation measures include both energy conservation through design and operational energy conservation. Examples include (but are not limited to):

- Increased energy efficiency (above California Title 24 Requirements); for more information see www.energy.ca.gov/title24/ and www.energystar.gov/.
- High-albedo (reflecting) roofing material; for more information see http://eetd.lbl.gov/coolroof/.
- Cool Paving; for more information see www.harc.edu/harc/Projects/CoolHouston/ and http://eande.lbl.gov/heatisland/.
- Radiant heat barrier; for more information see www.eere.energy.gov.
- Features to promote energy self-sufficiency; for more information see www.energy.ca.gov/renewables/, www.dsireusa.org/, and http://rredc.nrel.gov/.

- Awnings or other shading mechanism for windows, porches, and patios, and walkway overhangs
- Ceiling fans, whole house fans
- Utilize passive solar cooling and heating designs; for more information see www.eere.energy.gov/RE/solar_passive.html.
- Utilize day lighting (natural lighting) systems; for more information see www.advancedbuildings.org/.
- Electrical outlets around the exterior of the unit(s) to encourage use of electric landscape maintenance equipment
- Natural gas fireplaces (instead of wood-burning fireplaces or heaters)
- Natural gas lines (if available to this area) in backyard or patio areas to encourage the use of gas barbecues
- Construct paths to connect the development to nearby bikeways or sidewalks. For more information see www.vtpi.org/tdm/tdm85.htm and www.bicyclinginfo.org/.
- Reducing the amount of single occupancy vehicle visitor traffic to and from the project (bicycle parking facilities for patrons and employees in a covered secure area, reducing parking spot supply, implementing parking charges)
- Employee shower and locker areas for bicycle and pedestrian commuters
- On-site employee cafeterias or eating areas
- Pre-wire the unit(s) with high speed modem connections/DSL and extra phone lines
- Exits to adjoining streets should be designed to reduce time to re-enter traffic from the project site
- More information can be found at www.ciwmb.ca.gov/GreenBuilding/, www.lgc.org/, www.sustainable.doe.gov/, and www.consumerenergycenter.org/index.html.

Construction activity mitigation measures include:

- Limit area subject to excavation, grading, and other construction activity at any one time
- Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use
- Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set)
- Require that all diesel engines be shut off when not in use
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways, and "Spare the Air Days" declared by the District.
- Implement activity management (e.g. rescheduling activities to reduce short-term impacts)
- During the smog season (May through October), lengthen the construction period to minimize the number of vehicles and equipment operating at the same time.
- Off road trucks should be equipped with on-road engines when possible.
- Minimize obstruction of traffic on adjacent roadways.

The District encourages the applicant and fleet operators using the facility to take advantage of the District's Heavy-Duty Engine program to reduce project emissions. The Heavy Duty program provides incentives for the replacement of older diesel

engines and the re-power of older, heavy-duty trucks with new, cleaner, fuel-efficient diesel engines. New alternative fuel heavy-duty trucks also qualify. For more information regarding this program contact the District at (559) 230-5858 or visit our website at www.valleyair.org/transportation/heavydutyidx.htm.

Heavy equipment powered by alternative diesel fuel blends and equipment that meets current off-road engine emissions standards reduce construction related air impacts. Alternative-fueled equipment may use Compressed Natural Gas (CNG), Liquid Propane Gas (LPG), electricity, or other designated alternative fuels to achieve greater emission reductions than current diesel equipment. Equipment with uncontrolled engines may be repowered with an emissionized engine that meets current standards. Tier I, Tier II, and Tier III engines have significantly less NOx and PM emissions compared to uncontrolled engines. For more information regarding alternative fuels and equipment retrofits, visit the California Air Resources Board (CARB) website at www.arb.ca.gov/diesel/ diesel.htm.

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call Georgia Stewart at (559) 230-5937 and provide the reference number at the top of this letter.

Sincerely,

David Warner
Director of Permits Services

Georgia Stewart

for Arnaud Marjollet
Permit Services Manager

DW: gs

cc: file

STATE OF CALIFORNIA

Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

May 25, 2007

CITY OF SELMA
ANNEX

MAY 29 2007

COMMUNITY DEVELOPMENT
RECEIVED

Mike Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

RE: Amberwood Specific Plan Project, SCH# 2007051003

Dear Mr. Gaston:

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the City be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way. Any project that includes a modification to an exiting crossing or proposes a new crossing is legally required to obtain authority to construct from the Commission. If the project includes a proposed new crossing, the Commission will be a responsible party under CEQA and the impacts of the crossing must be discussed within the environmental documents.

Of specific concern is the impact of increased traffic created by the project on the existing at-grade highway-rail crossings within the City, specifically Floral Avenue crossing.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the City.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Environmental Specialist
Rail Crossings Engineering Section
Consumer Protection and Safety Division

County of Fresno
Department of Community Health
Edward L. Moreno, M.D., M.P.H., Director-Health Officer

CITY OF SELMA
ANNEX

MAY 29 2007

COMMUNITY DEVELOPMENT
RECEIVED

May 22, 2007

999999999
LU0013544
PE 2600

Michael Gatson, Community Development Director
City of Selma Community Development Department
1700 Tucker Street
Selma, CA 93662

Dear Mr. Gatson:

SUBJECT: Selma-Amberwood Specific Plan, Notice of Intent for Preparation of an EIR
LOCATION: 671-acres northeast of the City of Selma

The Fresno County Department of Community Health, Environmental Health Division has reviewed the subject project and offers the following comments:

- The Fresno County Department of Community Health is concerned that abandoned water wells are not being properly destroyed, particularly with respect to new development projects. As city boundaries expand, community services are provided to areas originally served only by individual domestic and agricultural wells. Improper abandonment of such wells presents a significant risk of contaminating the city's community water supply. For this reason, when development occurs, it is extremely important to ensure the safe and proper destruction of all abandoned water wells.

  Prior to destruction of any existing agricultural well(s), a sample of the upper most fluid in the well column should be sampled for lubricating oil. The presence of oil staining around the well may indicate the use of lubricating oil to maintain the well pump. Should lubricating oil be found in the well, the oil should be removed from the well prior to placement of fill material for destruction. The "oily water" removed from the well must be handled in accordance with federal, state and local government requirements. Transportation of these materials on public roadways may require special permits and licensure.

  The Department of Community Health is available to provide consultation in cooperation with your city in order to encourage the proper destruction of wells and safeguard our water quality. City staff may contact Ed Yamamoto, Environmental Health Specialist, Water Surveillance Program, at (559) 445-3357 for more information.

- This Department recommends that any existing rural residential parcel(s) be required to connect to the City of Selma sewer system (SKF) or an alternate system that is proposed for evaluation in the EIR in the event of a failure of the existing sewage system(s), and that no building permits be issued for repair of such a system whether or not the mandatory three (3) year connection requirement has expired.

- Although this Department's records do not indicate the use or storage of hazardous materials on the project site, it appears that the site has been used for agricultural purposes. Therefore this Department recommends that a Phase One site assessment be performed. This is in agreement with Department of Toxic Substances Control recommendations' for additional research to be conducted to determine if and where storage, mixing, rinsing, and disposal of pesticides may have occurred and whether contamination exists.

- This Department concurs with the proposal to conduct an acoustical analysis in order to identify the potential noise impacts and offer mitigation alternatives, consideration should be given to conformance with the applicable standards of the Noise Element of the City of Selma General Plan.

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: Ed Yamamoto, Environmental Health Division
Henry Kinuthia, Development Services Division

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
www.nahc.ca.gov
ds_nahc@pacbell.net

CITY OF SELMA
ANNEX
MAY 31 2007
COMMUNITY DEVELOPMENT
RECEIVED

May 29, 2007

Mr. Mike Gaston
City of Selma
1710 Tucker Street
Selma, CA 93662

Re: SCH# 2007051003; CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for Amberwood Specific Plan Project; City of Selma; Fresno County, CA

Dear Mr. Gaston:

Thank you for the opportunity to comment on the above-referenced document. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE),' and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS). Contact information for the 'Information Center' nearest you is available from the State Office of Historic Preservation in Sacramento (916/653-7278). The record search will determine:

- If a part or the entire (APE) has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in 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 (NAHC) for:

- A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity who may have information on cultural resources in or near the APE. Please provide us site identification as follows: USGS 7.5-minute quadrangle citation with name, township, range and section. This will assist us with the SLF.
- Also, we recommend that you contact the Native American contacts on the attached list to get their input on the effect of potential project (e.g. APE) impact.

√ 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 or unmarked cemeteries in their mitigation plans.

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this

Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: List of Native American Contacts

Native American Contacts
Fresno County
May 29, 2007

Big Sandy Rancheria of Mono Indians
Connie Lewis, Chairperson
P.O. Box 337 / 7302 Rancheria Western Mono
Auberry , CA 93602
cl@bigsandyrancheria.com
(559) 855-4003
(559) 855-4129 Fax

Dumna Tribal Government
Karin Wilson Kirkendal, Chairperson
1003 S. 9th St. Dumna/Foothill
Fresno , CA 93702 Choinumni
559-681-7354

North Fork Mono Tribe
Ron Goode, Chairperson
13396 Tollhouse Road Mono
Clovis , CA 93619
eagleye@cuip.net
(559) 299-3729 Home

Traditional Choinumni Tribe
Angie Osborne
2787 N Piedra Road Choinumni/Foothill
Sanger , CA 93657
(559) 787-2434

Table Mountain Rancheria
Lee Ann Walker Grant, Chairperson
P.O. Box 410 Yokuts
Friant , CA 93626-0177
(559) 822-2587
(559) 822-2693 FAX

Kenneth Woodrow
1179 Rock Haven Ct. Foothill Yokuts
Salinas , CA 93906 Mono
831-443-9702

Dumna Wo-Wah Tribal Goverment
Keith F. Turner, Tribal Contact
P.O. Box 306 Dumna/Foothill
Auberry , CA 93602 Mono
(559) 855-3128 Home
(559) 696-0191 (Cell)

Dumna Tribal Government
Jim Redmoon - Cultural Resources Representative
535 W. Dayton Dumna/Foothill
Fresno , CA 93705 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 American with regard to cultural resources for the proposed SCH#2007051003; CEQA Notice of Preparation; draft Environmental Impact Report (DEIR) for Amberwood Specific Plan Project; City of Selma; Fresno County, California.

Native American Contacts
Fresno County
May 29, 2007

Chaushiha Tribe
Jerry Brown
10553 N. Rice Road
Fresno , CA 93720
559-434-3160

North Valley Yokuts

Carol Bill - Tribal Administrator
Cold Springs Rancheria of Mono Indians
P.O. Box 209
Tollhouse , CA 93667
(559) 855-5043
(559) 855-4445 - FAX
coldsprgstribe@netpt

Mono

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.

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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

CITY OF SELMA
ATTNEY
MAY 29 2007
COMMUNITY DEVELOPMENT
RECEIVED

May 22, 2007

VIA FACSIMILE (559) 898-0338
Michael Gaston
City of Selma
1710 Tucker St
Selma, CA 94561

Subject: Notice of Preparation (NOP) for the Amberwood Specific Plan Project
SCH# 2007051003

Dear Mr. Gaston:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Division has reviewed the above NOP and offers the following comments.

The Amberwood Specific Plan proposes development of 671.3 acres as a residential, community commercial, elementary school, community center, parks, and lakes project. The project would include 2,570 single family homes located in 26 neighborhoods. The project's cross streets are Del Rey Avenue, Dinuba Avenue, Floral Avenue, and Dockery Avenue. The NOP notes that the project would convert 760 acres of agricultural land and potentially cancel multiple Williamson Act contracts. Therefore, the Division recommends that the draft EIR (DEIR) address the following items to provide a comprehensive discussion of potential impacts of the project on agricultural land and activities.

Agricultural Setting of the Project

- Location and extent of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and other types of farmland in and adjacent to the project area.
- Current and past agricultural use of the project area. Please include data on the types of crops grown, and crop yields and farm gate sales values.

To help describe the full agricultural resource value of the soils on the site, the Department recommends the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state economies. Two sources of economic multipliers can be found at the University of California Cooperative Extension Service and the United States Department of Agriculture (USDA).

Project Impacts on Agricultural Land

- Type, amount, and location of farmland conversion resulting directly and indirectly from project implementation and growth inducement, respectively.
- Impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, etc.
- Incremental project impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely projects in the future.

Under California Code of Regulations Section 15064.7, impacts on agricultural resources may also be both quantified and qualified by use of established thresholds of significance. As such, the Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model. The California LESA model is a semi-quantitative rating system for establishing the environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is available on the Division's website at:

http://www.consrv.ca.gov/DLRP/qh_lesa.htm

Mitigation Measures

The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. As such, the Department recommends 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, the Department recommends that this ratio of conservation easements to lost agricultural land be increased. Conservation easements will protect a portion of those remaining land resources and lessen project impacts in accordance with CEQA Guideline §15370. The Department highlights this measure because of its acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation.

Mitigation via 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. Hence the search for replacement lands should be conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

Other forms of mitigation may be appropriate for this project, including:

- Protecting farmland in the project area or elsewhere in the County through the use of less than permanent long-term restrictions on use such as 20-year Farmland Security Zone contracts (Government Code section 51296 et seq.) or 10-year Williamson Act contracts (Government Code section 51200 et seq.).
- 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.

The Department also has available a listing of approximately 30 "conservation tools" that have been used to conserve or mitigate project impacts on agricultural land. This compilation report may be requested from the Division at the address or phone number below. General 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 Division's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered.

Williamson Act Lands

Under California Code of Regulations Section 15206(b)(3), a project is deemed to be of statewide, regional or area-wide significance if it will result in cancellation of a Williamson Act contract for a parcel of 100 or more acres. Since lands under Williamson Act contracts and/or in agricultural preserves exist in the project area, the Department recommends that the following information be provided in the DEIR:

- A map detailing the location of agricultural preserves and contracted land within each preserve. The DEIR should also tabulate the number of Williamson Act acres, according to land type (e.g., prime or non-prime agricultural land), which could be impacted directly or indirectly by the project.

- A discussion of Williamson Act contracts that may be terminated in order to implement the project. The DEIR should discuss the probable impacts on nearby properties resulting from the termination of adjacent Williamson Act contracts. For example, a termination of a Williamson Act contract may have a growth-inducing impact. In other words, a termination may not only lift a barrier to development, but also result in higher property taxes, and thus, an incentive to shift to a more intensive land use, such as urban development.
- As a general rule, land can only be withdrawn from a Williamson Act contract through the nine-year non-renewal process. Immediate termination via cancellation is reserved for "extraordinary circumstances" that could not be anticipated through contract non-renewal (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). Under Government Code section 51282, the city or county must approve a request for cancellation and base that approval on specific findings that are supported by substantial evidence. When cancellation is proposed, the Department recommends that a discussion of the findings be included in the DEIR. Finally, a notice of the hearing to approve the tentative cancellation and a copy of the landowner's petition must be mailed to the Director of the Department ten working days prior to the hearing. (The notice should be mailed to Bridgett Luther, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.)
- Under Government Code section 51243, if a city annexes land under a Williamson Act contract, the city must succeed to all rights, duties, and powers of the county under the contract. However, under section 51243.5, a city may exercise its option not to succeed to the contract if certain conditions are met. LAFCO must notify the Department within 10 days of a city's proposal to annex land under a contract (Government Code section 56753.5). Additionally, LAFCO must not approve a change to a sphere of influence or annexation of contracted land to a city unless certain conditions are met (see Government Code sections 51296.3, 56426, 56426.5, 56749 and 56856.5).
- If portions of the planning area are under Williamson Act contracts and will continue to be under contract after project implementation, the DEIR should discuss the proposed uses for those lands. Uses of contracted land must meet compatibility standards identified in Government Code sections 51238 - 51238.3. Otherwise, contract termination (see paragraph above) must occur prior to the initiation of the land use.
- An agricultural preserve is a zone authorized by the Williamson Act and established by the local government to designate qualified land to be placed under the Williamson Act's 10-year contracts. Preserves are also intended to create a setting for contract-protected lands that is conducive to continuing agricultural use. Under Government Code section 51230,"An agricultural preserve may contain land other than agricultural land, but the use of any land within the preserve and not under contract shall within two years of the effective date of any contract on land within the preserve be restricted by zoning, including

appropriate minimum parcel sizes that are at a minimum consistent with this chapter, in such a way as not to be incompatible with the agricultural use of the land." Therefore, the DEIR should also discuss any proposed general plan designation or zoning within agricultural preserves affected by the project.

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 Elliott Lum, Environmental Planner, at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 324-0869.

Sincerely,

Dennis J. O'Bryant
Program Manager

cc: State Clearinghouse and Planning Unit