



Ecorse and Haggerty Road Corridor Plan

Van Buren Charter Township, Michigan



Ecorse Road & Haggerty Road Corridor Plan

**Van Buren Charter Township
Wayne County, Michigan**

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Approved by the Van Buren Planning
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Printing Date May 30, 2000

ACKNOWLEDGMENTS

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I. Introduction

Growth Corridors

Haggerty and Ecorse roads are the prime non-residential growth corridors of Van Buren Township. Haggerty Road is an established regional industrial corridor within Van Buren Township that extends beyond Township limits into the Charter Township of Canton. On Ecorse Road, the one-million square foot Crossroads Distribution Center was recently completed. A large amount of additional industrial use is currently anticipated by the Master Plan along both corridors.

A significant expansion of Detroit Metro Airport is underway. This expansion, and Wayne County's proposal to connect Detroit Metro with Willow Run Airport via a "Ring Road" using Ecorse Road, and to expand Willow Run's air freight traffic, will create additional demand for industrial development, especially in the distribution sector. The combined influence of these factors creates significant development pressure, as evidenced by current demand and development applications for additional growth along the two corridors.

Need for Residential Protection

Existing and planned residential land uses are "sandwiched" between planned and developed industrial uses along these corridors in the northern part of the Township. Industrial development will dramatically increase traffic volumes, especially truck traffic from the rapid expansion of warehousing and truck distribution uses. Truck traffic has a pronounced impact on the environment. This impact is especially severe on residential uses because of the size of vehicles and related needs for truck access, circulation, storage and service. In addition to standards for non-residential development, measures to protect the long range future of the corridor's residential areas must be addressed.

Premier Community

A related issue is the Township's on-going evaluation of planned and zoned residential development, and the Township's desire to become a premier residential community. The Township's current Master Plan provides general land use guidelines and policies, but lacks focus on specific land use and development issues that now confront the Township, especially along these two road corridors.

This Corridor Plan provides specific recommendations, strategies and an action plan to achieve the Township's goal to become a premiere community. The Corridor Plan is intended to achieve a well functioning corridor with improvements to aesthetics and traffic operations to upgrade the image of the area and accommodate existing and future land uses. The strategy to achieve this goal is expressed in the following elements provided in this document:

- a land use plan;
- a clear vision and image of the area, translated into development strategies, site design standards and improvements to public facilities;
- a transportation and access management plan; and
- consensus on the plan with an action plan and implementation tools.

This Corridor Plan compliments the Single Family Residential update of the Master Plan, adopted in the spring of 1999, and an on-going effort to develop an amenities plan for the Township.

Relationship to the Township's Master Plan

The Township Planning Act (Public Act 168 of 1959, as amended) allows townships to "adopt successive parts of the plan, the parts corresponding with major geographical sections or divisions of the township or with functional subdivisions of the subject matter of the basic plan, and may adopt any amendment or extension thereof or addition hereto as herein provided." Under the Act, the Township Planning Commission can adopt this corridor plan as an amendment to the Township's Master Plan.

II. Existing Conditions

Existing Land Use

Map 1 illustrates existing land uses within the corridor study area. Existing land use categories are described in the following section along with a general assessment of existing use and site conditions:

Vacant: This category includes all undeveloped sites within the corridor (not including developed sites with vacant buildings.) Vacant sites are concentrated in four areas: the west portion of the corridor north of Willow Run Airport; the intersection of Morton-Taylor Road and Ecorse Road; the rear of lots fronting on Haggerty Road north of Ecorse Road; and the southeast portion of the corridor west of Haggerty Road.

Most vacant areas have secondary or invasive, low quality plant growth and were farmed in the past. Several sites, though, are heavily wooded and largely undisturbed. Wooded areas include vacant land east of Haggerty Road and immediately south of Van Born Road. The vacant lots surrounding Wayne County Community College are also heavily wooded. The largest single vacant area, located on the north side of Ecorse Road north of Willow Run Airport, also is heavily wooded.

Agricultural: This category includes land used for farming and agricultural purposes. Agricultural uses include several greenhouse operations with limited sales on Haggerty Road and crop land on the east side of Haggerty Road north of Tyler Road and several lots immediately west of Wayne County Community College. Another agricultural site is located at the corner of Ecorse Road and Morton-Taylor Road which includes a residence, stables, and pasture land.

Single Family Residential: Housing intended for occupancy by single families are included in this category. There are four areas of concentrated single family residential development. One area is located on Ecorse Road between Belleville Road and Morton-Taylor Road; a second is located on Haggerty Road between Ecorse Road and Van Born Road; a third is located west of Haggerty Road south of Tyler Road; and a fourth is located at the corner of Ecorse Road and Belleville Road. Many scattered residential lots along the corridors have residences fronting on Ecorse or Haggerty Road with large undeveloped areas at the rear of the lots.

Multiple Family Residential: These uses include apartment complexes, manufactured housing developments, and residential structures divided into multiple units. There are four multiple family sites: two apartment complexes located west of Haggerty Road immediately north of I-94; a multifamily site on Ecorse Road (Kirkridge Park Condominiums) west of Haggerty Road; and a manufactured housing development near Willow Run Airport.

Local Commercial: Local commercial includes businesses primarily serving an area within one to two miles of the site. Local commercial sites are located at the corner of Ecorse Road and Belleville Road, at the corner of Van Born Road and Haggerty Road, and a small strip mall located on

Haggerty Road south of Tyler Road. A restaurant is located at the southeast corner of Ecorse Road and Belleville Road and further to the west on Ecorse Road is a party store. Montroy's Market is located at the corner of Haggerty Road and Van Born Road. Several of these sites are in poor condition and do not have defined vehicular access points or paved parking or circulation lanes.

General Commercial: This category includes larger businesses serving a trade area up to five miles or more from the site. There is a vacant NBD Bank branch and a plant nursery retail outlet on Haggerty Road south of Tyler Road. Other general commercial uses are concentrated at the intersection of Ecorse Road and Belleville Road. These uses include: Yost Sand and Gravel; Chopper's Towing; Gardener's Choice Nursery; and a landscaping company. Many of these uses have unpaved driveway and parking facilities. There are two abandoned commercial sites near the same area. A vacant structure apparently used for a warehouse is located on Belleville Road north of Ecorse Road. The corner of Ecorse Road and Morton-Taylor Road has a vacant produce market. This structure is in poor condition and the site is overgrown with brush and weeds.

Highway Commercial: Highway commercial businesses offer goods and services targeted to transient motorists traveling interstate highways. There are two such sites in the corridor, both located at the Haggerty Road and Interstate 94 intersection. One is a Mobil gas station with attractive landscaping and sidewalks along both roads. The other site is a vacant restaurant and tavern across Haggerty Road from the Mobil station. The northeast corner of Haggerty Road and Ecorse Road recently approved as a truck stop will be included in this category once developed.

Office: This category includes administrative, professional or medical offices. The NBD Bank maintains an office complex at the northwest corner of Haggerty Road and Tyler Road which is the only significant office use within the study area. This brick and masonry structure is built to the west edge of the site and the north and east sides are left as open space with landscaping, greenbelts, a pond, and a sidewalk along Haggerty Road.

Light Industrial/Manufacturing: This category includes industries involving production or manufacturing that has little or no adverse impact upon surrounding properties. Sites are typically less than ten acres, contain one story buildings that entirely enclose the manufacturing process, and employ fewer than one-hundred people. Light industry is concentrated along Haggerty Road, north and south of Ecorse Road and along a service road north of Old Tyler Road.

Sites on Haggerty Road north of Ecorse Road include L & W Engineering, with landscaping, a sidewalk along Haggerty Road, and a greenbelt along Interstate 275. Also in this area is an older block building with an accessory pole barn, and Statewide Boring & Machine, a newly constructed building with landscaping and a sidewalk along Haggerty Road.

South of Ecorse Road on Haggerty Road is another concentration of light-industrial uses including: Airflow Research & Manufacturing; ADVO; Splane Electric Supply Company; Professional Pump, Inc.; Metal Improvement Company; and Darkin Clutch. Several of these sites have been recently developed, and consist of mostly masonry buildings with landscaping and sidewalks along Haggerty Road. North of Old Tyler Road light industrial uses include Carlisle Engineered Products; Goodyear Commercial Services; VSA of Michigan; and Ricardo, Inc. (Detroit Technical Center).

Light Industrial - Warehousing: This category includes uses similar to light industrial-manufacturing; however, its primary purpose is to store or warehouse materials. There is one such site in the corridor, the Murray's Auto Parts distribution center and warehouse on Haggerty Road south of Ecorse Road. The site includes a greenbelt and sidewalk along Haggerty Road.

General Industrial - Transportation: Uses in this category involve the transportation of goods and materials rather than their manufacture. Their primary characteristic is a nearly continual flow of trucks to and from the facility. There are two such uses along the corridor: the Coca-Cola Distribution Center at the north end of an access drive north of Old Tyler Road, and the recently developed one-million square foot Crossroads Distribution Center on Ecorse Road west of Haggerty Road, which is occupied by a wide variety of tenants including some light manufacturing.

Major Industrial - Manufacturing: These uses are larger in scale than light industrial and involve the production of end use products instead of the manufacturing of items that are then transported elsewhere and assembled into other products. There is one such use in the study area: the General Motors Service Parts Operation on Ecorse Road, north of Willow Run Airport. There is an attractive entrance drive to the facility lined with mature trees and a large amount of vacant land surrounding the facility.

Utilities: This category includes sites dedicated for public utilities, including electric, cable television, natural gas, water and wastewater treatment, telephone, and others. The major above ground utility along the corridor is the Detroit Edison transmission utility line with high-tension towers. This utility bisects the corridor between Morton-Taylor and Haggerty Roads.

Public / Semi-public: Schools, churches, government facilities, and other public uses are included in this category. The most prominent of these is the Wayne County Community College Western Campus, located east of Haggerty Road directly adjacent to Interstate 275. The area surrounding the site is heavily wooded and the portion of the site fronting on Haggerty Road is vacant. Tyler Elementary School is located on Tyler Road west of Haggerty Road and a church is located on Haggerty Road south of Van Born Road. Jehovah's Witnesses maintains a site on Ecorse Road west of Morton-Taylor Road, which has an attractive landscaped boulevard entrance. The Township's Fire Station #2 is located on Ecorse Road west of Belleville Road.

Airport: Willow Run Airport, the only airport use, dominates the western end of the corridor south of Ecorse Road.

Utilities and Storm Water Drainage

Water and Sewer Lines: Map 2 illustrates the extent of major water and sewer utility lines along and adjacent to the study area. Major water and sewer lines have been extended along almost all portions of both the Ecorse Road and Haggerty Road corridors. Lateral extensions into adjacent development sites will be needed in most cases to serve new development. Because water and sewer lines are not complete, the extension of utility lines to complete continuous loops may be needed in individual cases.

Sewer Capacity: Because of Van Buren's location, the Township is the terminal system user in the three sewer districts serving the Township. The portion of the Haggerty Road corridor from one-half mile south of Ecorse Road to the Township's northern border, and most of the Ecorse Road corridor, lie within the Rouge Valley Sewer District. This Rouge Valley Sewer District, administered by the City of Detroit, is not expected to exceed its present purchased capacity within the Township of 5.0 cubic feet per second (cfs). There may, however, be localized sewer pipe capacity deficiencies that require main line improvements.

The South Huron Valley sewer system, operated by South Huron Valley Authority, serves the Willow Run Airport and the balance of the Haggerty Road corridor to I-94. This system is currently undergoing improvements to increase the capacity of the system.

Storm Drainage: Storm water drainage in the Township is divided into two major basins separated along a ridge that runs roughly parallel with Tyler Road. Land south of Tyler Road, which includes the southern segment of the Haggerty Road corridor, drains into Belleville Lake and the Huron River. The northern portion of the Township, which includes all of Ecorse Road, drains into the Rouge River. A Rouge Storm Water Management Program is just being initiated. This program is aimed at controlling illicit discharges into the drainage system.

Several areas of the Township experience flooding after heavy storms. These flooding problems are suspected to result from undersized pipes that are causing system back-ups. One such area is the intersection of Haggerty Road and Ecorse Road. In the past, the Township has restricted outflows to two-tenths (0.2) cfs but is considering adopting the more stringent standard of one-tenth (0.1) cfs which may result in significantly larger on-site detention requirements. A possible solution for the drainage problem at the Haggerty and Ecorse intersection is a drainage retention/detention basin that would also serve as an entry feature.

Road Conditions

Basic data regarding the existing conditions of Ecorse Road and Haggerty Road within the study area are summarized below (see Map 3). Section V of the plan includes additional information concerning existing and projected traffic levels.

Ecorse Road

- **Jurisdiction:** Wayne County
- **Lane Width:** Two lanes along most of the segment from the eastern Township border to Belleville Road, where it converts to a four-lane divided road to Michigan Avenue. The I-275 overpass is five lanes wide and extends to the Haggerty Road intersection.

- **Signalized Intersections:**
 - Haggerty Road
 - I-275 ramps (west side only)
 - Belleville Road
- **Wayne County Traffic Counts (1998)**
 - Haggerty to Belleville: 11,000 to 11,550 ADT¹
 - Belleville to Beck: 10,000 ADT
 - Beck to Michigan Ave. 3,971 ADT
- **Right-of-way Width²:**
 - 1/4 mile east of I-275 to Michigan Ave.: 250-260 feet
 - 1/4 mile east of I-275 to eastern Twp. border: 120 feet

Haggerty Road

- **Jurisdiction:** Wayne County
- **Lanes:** Lane width is predominately two lanes with frequent passing and deceleration/acceleration lane improvements for site access that increase the width to three lanes along much of the road within the study area.
- **Signalized Intersections:**
 - Ecorse Road
 - Tyler Road
- **Wayne County Traffic Counts (1998):** 12,000 to 13,500 ADT
- **Right-of-way Width:** 120 feet

¹ Average daily traffic volume, includes the average volume of traffic in both directions over a 24 hour period.

² The Ecorse Road right-of-way is owned by the State of Michigan because it was once a state road. Recently, the state has sold some of the right-of-way to adjacent land owners based on Wayne County's planned right-of-way width of 120 feet. Efforts to encourage the state and Wayne County to retain the existing right-of-way width to permit a divided road with a boulevard are recommended by this Plan and are being undertaken as of the preparation of this document.

Natural Features

Significant natural features include two large wooded wetlands. The largest wetland is located near the Haggerty Road and I-94 interchange south of the Wayne County Community College site and is over 100 acres in area (see Map 2). The second large wooded wetland, approximately 80 acres in area, is located between Beck and Belleville Road north of Ecorse Road. These areas are large enough to fall within Michigan Department of Environmental Quality jurisdiction and any development of these areas would require a mitigation plan and MDEQ permit. Other less significant wetlands are scattered within vacant lands throughout the two corridors; many would not fall under MDEQ jurisdiction because of their small area (less than 5 acres).

A number of the deep lots along the corridor that are developed with residences on the frontage have second growth woodlands on the rear of the parcel. Most other vacant lands are currently in low intensity agricultural use or fallow land that has been disturbed by past agricultural activity. These lands have low quality invasive and/or immature vegetation. Most agricultural uses are not expected to continue because of increasing land values and the marginal economic feasibility of continuing agricultural uses in an urbanizing area.

III. Opportunities and Constraints

Map 5 summarizes conditions that will influence the future development of the study area. This section summarizes existing conditions, trends, and opportunities, and recommends a strategy that is developed further in subsequent sections of the plan which recommend changes to future land uses, zoning and design standards.

Haggerty Road North: Transitional Use Area

Existing Conditions and Trends: This area extends from Ecorse Road to the northern Township border and is characterized by the following conditions:

- large vacant land available for industrial, warehousing and distribution uses;
- close to the regional Haggerty Road industrial corridor which extends to the north into Canton Township;
- residential uses fronting on Haggerty Road and existing and future industrial uses that will negatively impact residential uses as the corridor converts to non-residential use;
- high levels of both car and truck traffic, and little available road capacity to accommodate additional traffic;
- prominent location at an entry point to the balance of the Haggerty Road corridor and the Ecorse Road corridor; and
- localized drainage problem that results in flooding of the road during heavy rains.

Strategy: Because of the above conditions, there is strong pressure for additional uses that will generate high levels of truck traffic and future development that will substantially affect the development and character of the balance of the corridor. Development of this area will have a strong influence on the balance of the corridor because of its prominent location at a key entry point (to the corridor). Measures to protect and enhance the character and appearance of this area are especially important for these reasons. The following measures are recommended:

- **Restrict Distribution Uses:** Restrict the amount of warehousing and distribution uses to limit the impact of truck traffic on the character and conditions of the balance of the corridor.
- **Reserve Road Frontage:** Where heavy truck generating uses are permitted, land along the road frontage should be reserved for higher quality light industrial and office uses.
- **Transition of Residential:** Encourage the transition of residential areas to minimize land use conflicts as the area converts to non-residential use.
- **Road Improvements:** Encourage improvements to the road to increase its capacity and improve its appearance and character.
- **Interim Road Improvements:** Road improvements should include interim measures, such as turning and passing lanes, deceleration/acceleration lanes, shared access and other circulation improvements provided by developers as sites are proposed for development.

- **Long-Term Road Improvements:** Long-term improvements should be pursued to ultimately widen the road to a full five lanes. Additionally, a boulevard with indirect left turn movements at key intersections may be needed. Long-term improvements also should include gateway features such as signage and landscaping. Additionally, site and road drainage improvements should be consolidated and designed as an attractive water feature to further enhance the gateway status of the Haggerty and Ecorse Road intersection.

Haggerty Road Central: Infill Area

Existing Conditions and Trends: This area includes the central segment of the corridor from Ecorse Road south to Tyler Road. This area is more fully developed compared to the northern section of the Haggerty corridor and future "infill" development will occur on a fewer number of smaller sites. Other conditions, trends and opportunities include:

- office and light industrial uses with higher quality site improvements and landscaping;
- an office industrial park character; and
- an opportunity to maintain the higher quality of development and character that has been established.

Strategy: Because of the higher quality of existing development, the strategy for this area focuses on continuing and fostering this trend. Higher quality land uses will improve the overall character and value of the corridor and will contribute to goals of the Township to become a premier community. Recommended strategy includes the following:

- Uphold higher standards for architecture and site improvements to preserve and continue the trend of higher quality development.
- Discourage/prohibit uses that will generate high levels of trucking and encourage office development and combined office/light industrial facilities.
- Continue and compliment road and gateway enhancements recommended above for the northern section of the corridor.

Haggerty Road South: Residential Protection and Gateway

Existing Conditions and Trends: This area runs from Tyler Road south to I-94. Conditions, trends and opportunities include:

- a large, established neighborhood with backyards facing Haggerty Road on the corridor;
- larger vacant parcels compared to the central section of the corridor;
- an important I-94 gateway entrance;
- a large institutional use (Wayne County Community College); and
- potential for transition in land use including office, light industrial and commercial uses, and potential impacts to existing and future residential neighborhoods.

Strategy: The strategy for this area focuses on continuing conditions and recommendations established above for the central portion of the corridor, but with special emphasis on protecting existing residential areas:

- Continue higher standards for architecture and site improvements established along the central section of the corridor.
- Discourage/prohibit uses that will generate high levels of trucking and encourage office development and combined office/light industrial facilities.
- Continue and compliment road and gateway improvements as recommended above for the northern section of the corridor and the Ecorse/I-275 entry.
- Provide other site development measures to reduce and mitigate impacts on residential areas such as increased setbacks and screening, and improvements to create a more pedestrian friendly environment.

Ecorse Road Central: Mixed Use Area

Existing Conditions and Trends: This area extends from the western edge of the Detroit Edison high tension line easement to Beck Road. Important conditions and trends include:

- a mixture of uses: commercial, residential and industrial;
- large developing residential subdivisions with homes priced in the \$180,000 range;
- and larger lot residential uses fronting directly on Ecorse Road;
- very large vacant parcels with residential development potential north and south of the corridor; and
- heavy truck generating uses being developed to the east of this area and the potential for additional truck traffic generating uses on large industrial areas to the west of this area around Willow Run Airport.

Strategy: Because of the potential negative impact resulting from this area being “sandwiched” between industrial development to the east and west, the recommended strategy emphasizes the protection of residential areas to ensure their long-term viability:

- Encourage road and site improvements that separate and buffer adjacent residential land from non-residential traffic on Ecorse Road including:
 - The extension of service drives parallel to Ecorse Road to separate neighborhoods from the main roadway and provide residents with a lower volume and lower speed, means of access and circulation;
 - heavier landscaping and entry features at key intersections;
 - access management to better control, buffer and accommodate non-residential traffic.

- pathways to link neighborhoods to regional park and recreation facilities (e.g., the existing I-275 pathway and the Lower Huron Metropark via Hannan Road.)

Ecorse Road West: Airport Influence Area

Existing Conditions and Trends: This area extends from Beck Road west to Michigan Avenue near the Township's western border. The Willow Run airport and large vacant parcels are among the most important features of this area. Other important considerations in this area include:

- **Denton Neighborhood:** The Denton Neighborhood is an established residential area in the northwest corner of the Township. While it does not directly front on the corridor, it will be heavily influenced by the future development of large industrial parcels at the western end of the corridor.
- **Ring Road Concept:** Wayne County, which owns and operates Willow Run, has identified a "Ring Road" concept to link Detroit Metropolitan Airport with Willow Run via Ecorse Road. This concept emphasizes road improvements to encourage development around and between the two airports. Another aspect of the Ring Road plan is the expansion of air freight operations at Willow Run, including the development of private freight distribution facilities on unused airport property. These developments would greatly increase trucking activity along Ecorse Road.

Strategy: The recommended strategy focuses on coordinating with the County's Ring Road plan and identifying larger parcels that can be reserved for higher-quality development to mitigate trucking impacts:

- Pursue coordination with the County's Ring Road project to obtain funding for road improvements that are consistent with the Township's goal to reduce negative impacts from increased truck traffic on Ecorse Road.
- Where possible, reduce the amount of area planned for heavy industrial use to reduce impacts to residential areas within the central portion of the corridor and the Denton Road neighborhood.
- Identify areas with long term potential for higher quality land uses, such as office and technology uses, that do not generate heavy truck traffic.

IV. Future Land Use

This section includes a description and justification of future land uses for the corridor shown on Map 6. Major changes to future land uses compared to the current Master Plan are also summarized, along with recommended changes to zoning to conform with the Corridor Plan.

Industrial Transportation

Industrial Transportation designated on the south side of Ecorse Road includes the existing Ashley Capital Crossroads distribution center. The designation on the north side corresponds to an area also proposed for development of a similar distribution center. These areas were previously planned and zoned Light Industrial. This new category corresponds to the MT, Industrial Transportation zoning district.

Industrial Transportation, a new future land use category, is shown on the north and south sides of Ecorse Road near Haggerty Road.

As a guiding principle, the land use plan for the Ecorse and Haggerty road corridors is intended to avoid the proliferation of strip commercial development. The proliferation of strip commercial results in hazardous traffic conditions, an unattractive streetscape and long-term re-use issues associated with obsolete strip commercial buildings. To avoid these problems commercial uses are concentrated at major intersections. Residential (with residential protection), industrial, research office, and mixed-use are proposed to avoid a continuous strip commercial pattern.

Industrial Transportation designations reserve 400 feet of the road frontage for Light Industrial use. The reservation of the frontage is done to achieve the design objective to locate larger buildings away from the road frontage and to encourage smaller, higher quality buildings on the frontage. This approach is taken to upgrade

the image and quality of development in the long term, while allowing large scale development which meets a current market demand. The location of Industrial Transportation uses in this part of the corridor, close to the Ecorse/I-275 interchange, also is desirable because truck traffic is less likely to impact residential areas to the west, another objective of the corridor plan.

Office/Light Industrial

This category is intended to encourage industrial and office development consistent with the higher quality character of this area. This category is intended for office or light industrial development. Light industrial in this area should include a front office space in addition to a rear light manufacturing or warehouse space. Office or Light Industrial zoning is appropriate. Warehousing classified as a distribution or transportation use according to the MT zoning district is not intended for this area.

Office/Light Industrial is applied along the central segment of Haggerty Road and to areas east of the Ecorse & I-275 interchange.

Commercial Land Area Needs

The overall objective of commercial future land use designations is to provide adequate commercial services for the future population of the Township while avoiding excessive strip commercial.

Business, located primarily along Belleville Road, the Township's principal commercial corridor. Additionally, there are several hundred acres zoned C-1, General Business, within the Ecorse and Haggerty corridor study area. C-1 zoned parcels in the corridor study area include approximately 100 acres southeast of the intersection of Belleville Road and Ecorse Road and approximately 78 acres north of the Haggerty Road/I-94 interchange.

Given the Township's objective to encourage higher quality development, it is recommended that the Corridor Plan be re-evaluated, if, and when, a specific proposal for a regional retail center is presented that requires a larger land area or different location than currently planned.

The Township currently has a more than ample supply of commercially zoned land to meet the needs of its projected population. Approximately 222 acres of land devoted to retail use will be needed to serve the Township's year 2030 projected population of 60,000³. Currently, 393 acres are zoned C-2, Extensive Highway

Based on this evaluation, additional land for retail commercial use is not needed, except as may be desired in the future to serve a potential regional market outside the Township.

The current trend in mass retailing is away from traditional regional malls and toward large discount centers in stand-alone buildings or large outlet or discount malls.

Traditional quality retail centers are becoming increasingly rare and typically cater to a smaller specialized and/or well established retail market. Because of the trend toward large discount retailing, it is often difficult for retail developments to meet higher appearance and design standards.

Based on this evaluation, the future land use plan for commercial land uses within the corridor area are intended to encourage more focused development consistent with actual land use needs. Large areas of commercial use, which would rely on a regional market area, are not needed to the extent indicated by the current Master Plan and current zoning. Regional commercial may not be compatible with appearance objectives of the corridor plan, especially at gateways. Regionally oriented commercial is more appropriate for the Belleville Road corridor, which is the established retail center of the Township.

The amount of land planned for commercial use by this corridor plan is more than sufficient to meet current retail needs. If necessary, commercial land area needs can be re-evaluated if proposals for retail targeted to a specific regional market are presented to the Township. This approach will encourage higher quality retail development as the regional retail market matures.

³ The estimate of retail acreage need is based on SEMCOG's population projection of 60,000 (year 2030) and the Township's per capita income and expected retail expenditures, including convenience and comparison retail. The build-out population of 68,000 in the Single Family Residential Master Plan update adopted February 1999 would result in a slightly greater commercial land area need, but would not change the conclusions of this analysis.

Commercial Land Use Categories and Corresponding Zoning

For the purposes of this Corridor Plan, commercial future land use categories and corresponding zoning districts are indicated in the table below. Future land use and zoning are associated in this way to provide a direct and logical correspondence between the Corridor Plan and zoning districts. The association of future land use and zoning indicated below is slightly different than the current interpretation based on the current Master Plan.

Corridor Land Use Category	Corresponding Zoning District
Local Commercial	C, Local Business
General Commercial	C-1, General Business
Highway Commercial	C-2, Highway Business
Freeway Service	FS, Freeway Service
Mixed-Use	MXD, Mixed-Use (recommended)

The **General Commercial** land use category is intended to correspond to the **C-1, General Business** district. In the current Master Plan, this category has been interpreted to be associated with both the C-1, General Business district and the C, Local Business district. The C-1 district permits a wide range of commercial uses appropriate for interchange locations, but excludes very intense commercial uses, such as truck stops. A new Local Commercial future land use category would correspond to the C, Local Business District.

A **Freeway Service** land use category is created to correspond to the **FS, Freeway Service** zoning district. This addition also clarifies the fact that the Highway Commercial land use category corresponds to the C-2, Highway Business District. A new Mixed Use category (discussed later in this section) will correspond to a proposed Mixed-use zoning district.

Commercial Land Use

General Commercial: Based on the evaluation of commercial land area needs, and objectives of the Corridor Plan, several commercial designations are maintained, but reduced in area and/or modified. These include locations in the Belleville Road and Ecorse Road area, the southeast quadrant of the Ecorse and I-275 interchange and the southwest corner of Tyler Road and Haggerty Road. The large area designated Highway Commercial north of the Haggerty and I-94 interchange is reduced in area and planned General Commercial, which is consistent with the C-1, General Business zoning of this area.

Belleville and Ecorse Area: Approximately 90 acres in the Belleville Road and Ecorse Road area is zoned C-1, General Business which has been scaled back to a General Commercial land use plan designation of approximately 20 acres at the northeast and northwest corners of the intersection.

The section of land northwest of the Belleville Road and Tyler Road intersection, which extends to the western end of the Ecorse Road frontage, is currently planned with a mix of CBD, Commercial/Office, and Office/Research. This area currently has a mix of zoning, including C-2, Extensive Highway Business; C-1, General Business; O-1, Office and M-1, Light Industrial which does not correspond to the current future land use plan. The Corridor Plan future land use designations in this area are as follows:

- Approximately 40 acres immediately northwest of the intersection is designated CBD and General Commercial by this plan. This reduced commercial designation corresponds more closely to expected commercial land area needs (see evaluation below). This area is currently zoned C-2, Extensive Highway Business.
- The large area zoned C-1, General Business (approximately 90 acres) southwest of the intersection of Belleville and Ecorse roads is not reflected on the corridor plan future land use map. A smaller General Commercial designation is shown at this location to serve the more limited needs of the surrounding future population. The balance of the area outside of the General Commercial designation is shown as Office/Research. The larger area of commercial use as currently planned and zoned is not needed based on the evaluation of commercial land area needs discussed below.
- The 1/2 section of land across from Willow Run Airport, designated Office by the current Master Plan, is placed under the Office/Research category.

WCCC Area: The large area around Wayne County Community College is designated Office/Research. This area was previously designated Commercial/Office and the change to Office/Research reflects the objective to reduce commercial land area designations to more closely match community needs.

Northwest of Belleville and Tyler Road Intersection: Because of the Extensive Highway Business zoning in this area, which does not conform to the current Master Plan or Corridor Plan, consideration should be given to C-1, General Business zoning to correspond to the Corridor Plan.

90 acres Southwest of Belleville and Ecorse Intersection: Consideration also should be given to zoning a portion of this area from C-1, General Business to O-T, Office Technology to match the Corridor Plan.

1/2 Section opposite Willow Run Airport: This area has long term potential for high quality office and research development. The O-T, Office Technology zoning conforms to the Corridor Plan.

WCCC Area: This area is presently zoned M-1, Light Industrial and consideration should be given to rezoning this area to the O-T, Office Technology district to correspond to the Corridor Plan.

Highway Commercial: The existing Highway Commercial future land use at the northwest corner of Haggerty and Ecorse Road is changed to the General Commercial category. A Highway Commercial site on the northeast corner of this intersection recently received site plan approval for a truck stop.

Northwest of Haggerty and Ecorse:
Highway commercial at this intersection is not needed and would not contribute to establishing a high quality image at this important gateway. The current C-1, General Business zoning conforms to the future land use designation.

Light Industrial and Residential Protection

Light Industrial: Light Industrial is designated along Ecorse Road west of Belleville Road, north of Ecorse Road along Belleville Road, and south of the Penn Central Railroad, including the frontage of Denton Road. The previous Master Plan designated these areas Heavy Industrial, with the exception of the frontage of Ecorse Road between Belleville Road and Beck Road, which was designated Office.

Western Ecorse Road Area: ***This entire area is zoned M-2, General Industrial. Rezoning to M-1, Light Industrial to be consistent with the Light Industrial designation of the Corridor Plan is recommended.***

The amount of Heavy Industrial land area has been reduced to limit potential negative impacts to residential areas within the central part of the corridor and to the Denton neighborhood. Also, these changes are intended to encourage higher quality land uses along the frontages of both Ecorse Road and Denton Road. The Office designation is removed from the frontage of Ecorse Road because of the low potential for a large amount of office development in this location, and the availability of more desirable office locations elsewhere. Also, this area is currently zoned industrial.

Residential Protection: The Residential Protection designation is intended to require expanded setbacks, special screening measures and higher appearance standards during site plan review to protect existing residences. Specific needs for expanded setbacks or screening measures in residential protection areas would be determined based on the specific nature of uses proposed at the time of site plan review. The Residential Protection designation shown on the future land use map is generalized and not intended to imply a specific setback dimension. For example, if the office facade of a light industrial use faces on the road, additional screening or setbacks may not be necessary. Conversely, a large industrial building with a poor appearance would require a larger setback and landscape screening. This approach is especially encouraged along Denton Road which serves to link the Denton neighborhood with the larger Van Buren community.

Residential Protection is designated along Denton Road and around the perimeter of the Denton area. This designation is also applied to the frontage of the Van Buren Estates subdivision on Haggerty Road.

Eastern Ecorse Road and Mixed-Use

During the review of the Corridor Plan, a number of specific land use issues were identified along the eastern end of Ecorse Road, between I-275 and the Township's eastern border at Hannan Road. A summary of these issues is provided below:

Eastern Ecorse Road Issues:

- *There is a need to provide sufficient commercial services at intersections and the interchange to meet needs and uses likely to be proposed at these locations, however, strip commercial development should be controlled.*
- *A large portion of the eastern end of the corridor is now Planned Commercial/Office for which there is no clear corresponding zoning district.*
- *Because of the shallow depth of parcels on the south side of Ecorse Road, the McClaughry Drain which prevents these parcels from being easily combined with adjacent land, and commercial zoning on the opposing corner in Romulus, residential as currently planned may not be realistic.*
- *The future right-of-way of the eastern segment of Ecorse Road must be considered if the boulevard concept is to be extended to the eastern end of the corridor.*

City of Romulus Land Use and Zoning: The southeast corner of Hannan Road and Ecorse Road is occupied by a small convenience store. The northeast corner is vacant and both corners in Romulus are zoned commercial. These adjacent planned and zoned uses have influenced recommendations for the eastern Ecorse Road area in the Township.

Future Land Uses: The following summarizes future land uses designated along the eastern segment of Ecorse Road:

- **General Commercial:** The area of planned and zoned commercial use at the I-275 interchange is more than sufficient to meet commercial needs at this location.
- **Mixed Use:** Mixed-Use, described in more detail later, is intended to:
 - Prevent strip commercial.
 - Provide an incentive for shallow frontage parcels on the south side of Ecorse Road to be combined with adjacent land to create deeper development sites.
 - Mixed-use along the Woodland Hills golf course on the north side of Ecorse Road allows moderate density housing to take advantage of golf course views.

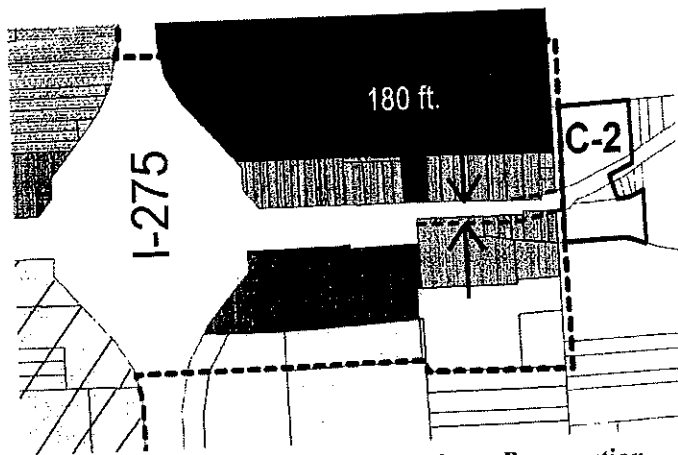
***General Commercial** is shown at three of the four quadrants of the interchange to provide necessary commercial services, including gas stations and hotels.*

***Mixed Use** is designated along the entire north side of eastern Ecorse corridor and the south side from Hannan Road to the planned General Commercial at I-275.*

Eastern Ecorse Future Right-of-Way: The Ecorse Road right-of-way alignment shifts to the north at the Van Buren/Romulus border. Consequently, future right-of-way at the easternmost end of Ecorse Road in Van Buren would be taken more from the north side of the road than from the south side. A 230 foot

wide right-of-way is not needed along this segment of the corridor to provide a boulevard. The 230 foot wide right-of-way for the corridor west of I-275 is necessary because of the need to extend parallel service drives to protect single family residential areas. A 170-180 foot wide right-of-way is sufficient to provide a central boulevard with four lanes of traffic and associated turning lanes.

Eastern Ecorse Right-of-way: A 170-180 foot wide right-of-way can be reserved at the eastern end of Ecorse Road to provide a boulevard.



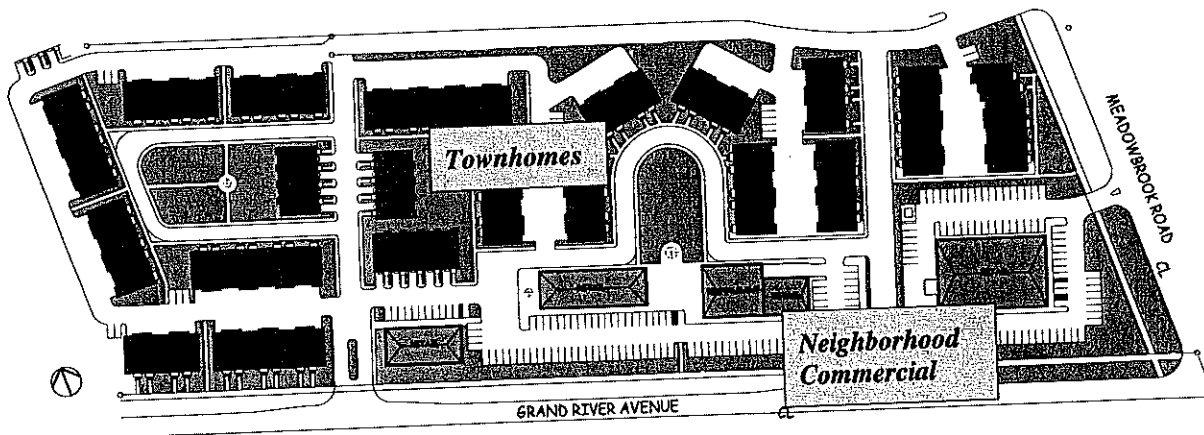
Eastern End of Ecorse Road Right-of-way Preservation

A 170-180 foot right-of-way also preserves a greater development area of the shallower parcels at the eastern end of the corridor which is desirable for the land owner and the Township. The attached plan detail of the eastern end of the corridor illustrates a 180 foot right-of-way which would require taking only a small part of the frontage of the parcels on the south side of Ecorse Road. If these parcels remain developable, the owner is allowed a viable use and the Township can reserve or obtain dedication of the right-of-way at the time that development is proposed.

Mixed Use Zoning Category: Residential uses in a mixed use district could include single family or moderate density housing. Commercial uses would be compatible with a residential neighborhood and would be pedestrian friendly. Commercial use also can be limited to a maximum percentage of the project to prevent strip commercial development. Moderate density town home developments are appropriate for shallow parcels with large frontage exposure and higher volumes of traffic. When mixed appropriately with limited office, restaurant, and retail use, such developments become vital and attractive communities. Town homes also add a moderately price housing option that is not currently available in the Township.

Mixed Use: The recommended Mixed Use zoning district to match the Mixed-use land use category would allow residential, office and commercial uses.

Below is an illustration of a prototype mixed use development that can be accommodated on shallow frontage parcels such as those along the eastern end of Ecorse Road. Because the frontage land has a higher value, the mixed-use layout creates a strong economic incentive to combine the shallower frontage land on the south side of Ecorse Road together with the land behind the frontage. This economic incentive is important in overcoming the obstacle created by the McClaughry drain and any costs associated with crossing or enclosing the drain.



Prototypical Mixed-Use Development on Shallow Frontage Parcel

Because of the excessive amount of planned and zoned commercial area revealed by the analysis earlier in this section, the mixed-use category also will be desirable for other locations in the Township currently planned Commercial Office.

Permitted Mixed Uses: Retail uses intended within the Mixed-use district would serve the neighborhood or surrounding community, as opposed to having a highway or regional orientation. Also included in the intent of this district are offices or an office park that is compatible with residential use and that would prevent strip retail development. Commercial uses would include:

- offices and office parks,
- limited retail uses (speciality markets, retail shops, personal services, etc.)
- sit-down restaurants and taverns, sidewalk cafes, etc.
- some types of limited commercial recreational uses,
- daycare centers, etc.

Mixed-Use Commercial: Retail uses that are not compatible with a residential environment, such as uses with drive-through facilities, or that have a regional orientation, such as "big box" retail, are not consistent with the intent of the proposed Mixed-use land use category.

Gas stations or other auto service uses and fast food restaurants with drive through facilities are not appropriate for the mixed-use district because such uses are not neighborhood oriented and pedestrian friendly. Residential uses in the proposed Mixed-use area could include single family and a variety of attached residential. Attached units, designed to have the appearance of separate, individualized units, such as town homes, are preferred. Residential densities may range between six to 12 units per acre, depending on the characteristics of the site and types of residential units proposed.

V. Transportation Analysis and Recommendations

Summary of Recommendations

The analysis and recommendations of this section were prepared by McNamee, Porter & Seeley (MPS). MPS completed an analysis of projected traffic volumes along the Ecorse Road and Haggerty Road corridors in the northern portion of the Township. A summary of recommendations based on their analysis follows. Recommendations address both immediate needs as well as actions aimed at projected traffic levels. After the summary of recommendations, a full description of the data and analysis used to develop these recommendations is provided.

Recommendations for Existing Deficiencies

These recommendations are based on existing traffic volume data collected by MPS.

- ***A second southbound left turn lane should be added to relieve existing traffic at the intersection of Ecorse Road and the southbound I-275 ramps.*** This improvement will require coordination with the Michigan Department of Transportation (MDOT).
- ***The unsignalized intersection of Ecorse Road and the northbound I-275 ramp should be monitored for signal installation.*** Existing traffic volumes do not warrant the installation of a traffic control signal, per the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)*; however, the traffic volumes appear to be near the thresholds for requiring signals. A method for monitoring traffic volumes could be through the use of traffic impact studies associated with new developments in the area. These traffic impact studies should identify the current and projected traffic volumes at this intersection. This information would be used to help determine if a signal is warranted. Improvements at this intersection would require coordination with MDOT.

Recommendations for Future Deficiencies

Future recommendations are based on traffic projections developed by MPS from land use information provided by McKenna Associates (MKA).

- ***A free-flow ramp directly from eastbound Ecorse Road to northbound I-275 will be required to handle projected traffic volumes.*** Intersection modification and geometric changes will not be sufficient to handle the projected traffic volumes at the intersection of Ecorse Road and the northbound I-275 ramps. Major geometric improvements to the interchange are likely to be needed to bring this section of Ecorse Road to an acceptable operating level of service. Any improvements at this location will require coordination with MDOT. Major modifications to interstate interchanges require significant coordination between local, state, and federal officials, and would likely require a several-year process. Discussions with MDOT on making these modifications should be started as soon as possible, to facilitate any improvements that would be necessary to handle future traffic volumes.

- ***The intersection of Haggerty Road and Ecorse Road should prohibit all direct left turns. Indirect left turns should be provided through median openings on all four intersection approaches.*** Both roadways should have three through lanes in each direction through the intersection. The appropriate configuration of auxiliary lanes (right turn lanes, left turn lanes, and median lanes) should be determined as current traffic conditions warrant. These conditions can be monitored through the use of traffic impact studies, or current and projected volumes at the time of roadway design. Although future volumes may not warrant these improvements, provisions should be made to accommodate two right turn lanes on all four approaches of the intersection.
- ***The intersection of Belleville Road and Ecorse Road should be modified to operate as one intersection, with the appropriate signal coordination.*** Traffic should not be allowed to queue between the eastbound and westbound legs of Ecorse Road. Belleville Road should have two through lanes in each direction through the intersection. Direct left turns should not be permitted at this intersection; indirect left turns should be provided through median openings on Ecorse Road. The appropriate configuration of auxiliary lanes (right turn lanes, median lanes, etc.) should be determined as current traffic conditions warrant. These conditions can be monitored through the use of traffic impact studies, or current and projected volumes at the time of roadway design. Although future volumes may not warrant these improvements, provisions should be made to accommodate two northbound right turn lanes, and one right turn lane on the southbound, eastbound, and westbound approaches.
- ***The Ecorse Road service drives should not be permitted to intersect Belleville Road at their present location.*** Their close proximity to the Ecorse Road and Belleville Road intersection is a current safety concern, and will present additional operational problems as traffic volumes in the area increase. A possible reconfiguration would include providing access from the service drive to Ecorse Road a minimum of 500 feet from the intersection of Ecorse Road and Belleville Road.
- ***Direct left turns should also be prohibited at the intersection of Haggerty Road and Tyler Road; indirect left turns should be provided through a boulevard-type configuration of the intersection with median breaks.*** The number of through lanes on each approach should not change (one lane each direction on Tyler, and two lanes each direction on Haggerty). The auxiliary lane configurations should be determined as current traffic conditions warrant. Although future volumes may not warrant these improvements, provisions should be made to accommodate two right turn lanes on the southbound, eastbound, and westbound approaches, and one right turn lane on the northbound approach.
- ***Two through lanes should be provided on Ecorse Road at the intersection of Ecorse Road and Hannan Road.*** The configuration of auxiliary lanes should be determined as current traffic conditions warrant. Although future volumes may not warrant these improvements, provisions should be made to accommodate a right turn lane on all four approaches of the intersection, and a second left turn lane on the northbound approach.

- ***Modification of the intersection of Haggerty Road and Van Born Road is not expected to be necessary.*** However, the traffic conditions should continue to be monitored through the use of traffic impact studies.

Recommendations to Address Truck Traffic

- ***All new sites should be designed to encourage truck traffic to use the main access drive only.*** Truck loading and unloading areas on site should have easy access to the main access drive.
- ***Active enforcement of seasonal weight limits on side streets should be undertaken.***
- ***Truck prohibitions on local residential streets (except for local deliveries) should be investigated, with a feasible enforcement plan.***
- ***A guide sign program (possibly decorative, to be in line with the design features of the corridor) to direct traffic to the sites determined to be heavy truck generators should be considered.*** These signs could help discourage truck traffic from using local/residential roads.
- ***The feasibility of designating Ecorse Road and Haggerty Road as truck routes to I-275 and I-94 should be investigated.*** This may include participation of local developments to encourage truck drivers to use the designated routes.

Traffic Impact Studies Recommended

- ***Traffic impact studies should be used as a tool for evaluating and updating traffic conditions throughout the study area, and can also be used to identify when roadway improvements should be implemented.*** Consideration should be given to establishing a traffic impact ordinance, which would set thresholds as to when traffic impact studies would be required, and what information would be required in a study. A copy of a model ordinance is attached as Appendix B.

Description of Traffic Analysis

The methodology, results, and recommendations of the corridor study performed for the Ecorse and Haggerty Road corridors in Van Buren Charter Township are presented in this report. The analysis is based on projected land use information provided by McKenna Associates in developing an overall corridor plan.

It is expected that this corridor analysis will serve as a planning tool by the Township to help guide development along the Ecorse Road and Haggerty Road corridors. This study can be used as a point of reference for future traffic impact studies, as a comparison for determining changes in traffic patterns, for determining traffic growth rates, and for planning future roadway improvements.

Ecorse Road is an east/west arterial road accessing US-12 (Michigan Avenue) to the west, and other Metro Detroit suburbs to the east. From the west Township border to Sheldon Road, Ecorse Road is a four-lane boulevard-type facility. East of Sheldon, Ecorse Road is an undivided facility with full access at all intersections. A full interchange is provided at I-275 on Ecorse Road in the eastern portion of the township.

Haggerty Road is a north/south arterial facility that accesses Metro Detroit suburbs from southern Oakland County to southern Wayne County. Within the study area, Haggerty Road varies between a two-lane and five-lane cross-section. Haggerty Road provides direct access to an I-94 interchange south of the study area.

The following procedures were used to evaluate corridor access:

- Turning movement traffic counts (including truck data) were collected during the p.m. peak period (4:00 p.m. to 6:00 p.m.) at the following intersections: Ecorse Road and Belleville Road, Ecorse Road and Haggerty Road, Ecorse Road and SB I-275 ramps, Ecorse Road and NB I-275 ramps, Ecorse Road and Hannan Road, Haggerty Road and Van Born Road, and Haggerty Road and Tyler Road.
- Existing level of service analyses were performed for the study area intersections, using the procedures outlined in the *Highway Capacity Manual (third edition, updated 1997)*.
- Based on land use information provided by McKenna Associates (MKA), future traffic volumes within the study area were projected. Land use trip forecast factors published in *Trip Generation (sixth edition)* by the Institute of Transportation Engineers were used to forecast traffic.
- The generated trips were assigned to the roadway network based on expected travel patterns.
- Level of service analyses were completed for the study area intersections using the projected traffic volumes.
- The results of the level of service analyses were evaluated to identify recommendations for improving future traffic operation on the study area roadways.
- The truck data were reviewed to identify expected future truck traffic patterns. Recommendations were developed to manage the truck traffic through the study area.

Existing Traffic Data

MPS collected turning movement traffic counts (including truck data) at the intersections of Ecorse Road and Belleville Road, Ecorse Road and Haggerty Road, Ecorse Road and the southbound I-275 ramps, Ecorse Road and the northbound I-275 ramps, Ecorse Road and Hannan Road, Haggerty Road and Van Born Road, and Haggerty Road and Tyler Road on Tuesday, January 19, 1999 and Wednesday, January 20, 1999.

The turning movements were recorded in fifteen-minute intervals during the p.m. peak period (4:00 p.m. to 6:00 p.m.) at all seven intersections. Table 1 summarizes the p.m. peak hours of the intersections.

Table 1: Intersection Peak Hours	
Intersection	Peak Hour
Ecorse Road and Belleville Road	4:30 p.m. to 5:30 p.m.
Ecorse Road and Haggerty Road	4:30 p.m. to 5:30 p.m.
Ecorse Road and SB I-275 Ramps	4:00 p.m. to 5:00 p.m.
Ecorse Road and NB I-275 Ramps	4:00 p.m. to 5:00 p.m.
Haggerty Road and Van Born Road	4:15 p.m. to 5:15 p.m.
Haggerty Road and Tyler Road	4:00 p.m. to 5:00 p.m.

Figure 1 illustrates the existing peak hour traffic volumes.

Trip Forecasting

A land use plan based on the current future land use plan for the corridor and adjacent lands, and including approved development was developed by MKA. This plan generally reflected the forecasted total build-out expected for lands along the corridors. This plan estimated the developable land area, making adjustments for large areas of wetlands or areas constrained by the Willow Run Airport clear zone. The volume of trips associated with this future development was forecast based on information contained in *Trip Generation (sixth edition)*. The traffic generated by the future land uses is summarized in Table 2.

With full build-out of the land uses as shown in Table 2, all roadway facilities would exhibit very poor operating characteristics. It was estimated that approximately half of the developments projected in the land use plan could be expected to be completed within 15 years. To develop a realistic traffic analysis scenario, the traffic volumes shown in Table 2 were divided in half to approximately represent 15-year build-out conditions.

Trip Distribution and Trip Assignment

The existing traffic volumes collected by MPS were used to determine the general travel patterns of motorists within the study area. Table 2 summarizes the directional distribution of this traffic.

Table 2
Directional Distribution of Corridor Traffic

Inbound

- 6% from west Ecorse
- 20% from east Ecorse
- 3% from west Van Born
- 5% from east Van Born
- 11% from north Belleville
- 11% from south Belleville
- 5% from north Haggerty
- 11% from south Haggerty
- 19% from SB I-275
- 4% from NB I-275
- 3% from north Hannan
- 2% from south Hannan

Outbound

- 6% to west Ecorse
- 10% to east Ecorse
- 4% to west Van Born
- 3% to east Van Born
- 1% to east Tyler
- 6% to north Belleville
- 12% to south Belleville
- 4% to north Haggerty
- 19% to south Haggerty
- 8% to SB I-275
- 23% to NB I-275
- 2% to north Hannan
- 2% to south Hannan

The traffic generated by the projected land uses was assigned to the study area road network using the above trip distribution models. The distributed projected traffic is summarized in Figure 2.

Capacity Analysis Results

The operation of study area intersections under existing and projected traffic conditions are described with a Level of Service designation. According to the *Highway Capacity Manual (third edition, updated 1997)*, Level of Service is a qualitative measure describing operational conditions of a traffic stream or intersection. Levels of service range from A to F, with A being the best. Level of Service D is generally considered to be acceptable. Tables 3 and 4 present the criteria for defining the various levels of service.

Table 3: Level of Service Criteria (Signalized Intersection)		
Level of Service	Stopped Delay/Vehicle (Sec.)	Description
A	< 10	Little or no delay
B	10 – 20	Short traffic delays
C	20 – 35	Average traffic delays
D	35 – 55	Long traffic delays
E	55 – 80	Very long traffic delays
F	> 80	Extreme traffic delays

Note: Level of Service "D" is considered acceptable in urban/suburban areas

Table 4: Level of Service Criteria (Unsignalized Intersection)		
Level of Service	Average Stopped Vehicle Delay (seconds)	Description
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delays
C	> 15 and ≤ 25	Average traffic delays
D	> 25 and ≤ 35	Long traffic delays
E	> 35 and ≤ 50	Very long traffic delays
F	> 50	Extreme traffic delays

Note: Level of Service "D" is considered acceptable in urban/suburban areas

Existing Conditions

Existing traffic conditions at study area intersections were analyzed using the traffic volume data collected by MPS, the existing lane configurations at the intersection, and signal timing information provided by the Wayne County Road Commission. The results of the capacity analyses for the study area intersections are summarized in Tables 6 through 12.

Most of the study area intersections exhibit acceptable operating characteristics under existing traffic conditions. The intersections of Ecorse Road and Belleville Road, Ecorse Road and Haggerty Road, Ecorse Road and Hannan Road, Haggerty Road and Van Born Road, and Haggerty Road and Tyler Road all operate with a Level of Service C or better.

The intersections of Ecorse Road and the I-275 access ramps have movements which operate at Level of Service F. With a second southbound left turn lane added at the intersection of Ecorse Road and the southbound I-275 ramp, the intersection would operate with an overall Level of Service B under existing traffic conditions.

The unsignalized intersection of Ecorse Road and the northbound I-275 ramps does not currently warrant the installation of a traffic control signal, according to information published in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)*. However, volumes are near the threshold limits for two MMUTCD warrants, and should be closely monitored to determine if a traffic signal should be installed. With the installation of a traffic signal, operation at the intersection should improve.

Any improvements to Ecorse Road at the I-275 ramps would need to be coordinated with the Michigan Department of Transportation (MDOT).

Projected Conditions

With the exception of the intersection of Haggerty Road and Van Born Road, all study area intersections would require modifications to handle the projected traffic volumes. The results of the capacity analyses and recommended improvements for each intersection under projected traffic conditions are summarized below. In the analysis of the intersections under the projected traffic conditions, certain auxiliary lane configurations were assumed. Auxiliary lanes include right-turn, left-turn lanes and median turn lanes that are only present at the intersection, and do not extend completely between intersections. These auxiliary lanes should only be provided when future traffic conditions warrant.

Ecorse Road and Belleville Road

This intersection should operate as one coordinated intersection. The signals controlling both the eastbound and westbound legs of Ecorse Road should be coordinated to minimize queuing between intersections. Belleville Road should have two through lanes in each direction through the intersection. Direct left turn movements at the intersection should be prohibited; all left turns, from each direction, should only be permitted through directional crossovers on Ecorse Road. Directional median crossovers should be provided on Ecorse Road to the east and to the west of the intersection. Assumed auxiliary lanes at this intersection include two northbound right turn lanes, and one right turn lane on the southbound, eastbound, and westbound approaches.

The existing service drives on either side of Ecorse Road are located very close to the intersection of Ecorse Road and Belleville Road. The location of these roads presents a safety problem to vehicles using the intersection, and will likely be compounded by the additional projected traffic volumes. These roads should be modified to prevent direct access onto Belleville Road. Access between Ecorse Road and the frontage roads should be provided approximately 500 feet from Belleville Road, and the frontage roads closed at Belleville Road.

Ecorse Road and Haggerty Road

This intersection is expected to handle a large amount of the projected traffic. All direct left turns should be prohibited at this intersection. All four approaches should be of a "boulevard"-type design, including a median and directional crossovers to allow indirect left turn movements in all directions. Both roadways should have three through lanes in each direction. Assumed auxiliary lanes at this intersection include two right turn lanes on all four approaches.

Ecorse Road and Southbound I-275 Ramps

Without extensive modification to the intersection of Ecorse Road and the northbound I-275 ramps, this intersection is also likely to exhibit poor operating characteristics with the projected traffic volumes. However, these problems would be caused by the operation of the adjacent intersection, and any measures to improve the northbound ramps would have a beneficial effect on this intersection.

Ecorse Road and Northbound I-275 Ramps

A significant portion of the projected traffic volumes is expected to travel north on I-275. Within the study area, the easiest access to the interstate would be on Ecorse Road. As a signalized intersection, Ecorse Road and the northbound I-275 access ramps are expected to exhibit very poor operating characteristics. The interstate overpass limits the number of smaller-scale improvements, such as auxiliary lane additions, that could be implemented at this location. The best possible solution to this problem will likely be a directional access ramp for eastbound Ecorse Road traffic to northbound I-275. This improvement would require detailed studies and coordination with MDOT and the Federal Highway Administration. The process required for modifying an interstate interchange ramp will likely span over a couple of years, and preliminary discussions with MDOT should be started as soon as practically possible.

Ecorse Road and Hannan Road

At the intersection of Ecorse Road and Hannan Road, two through lanes in each direction on Ecorse Road should be provided. The assumed auxiliary lanes at the intersection include a right turn lane on all four approaches, and a second left turn lane on the northbound approach.

Haggerty Road and Tyler Road

Direct left turns should also be prohibited at the intersection of Haggerty Road and Tyler Road. Indirect left turns should be provided through a boulevard-type configuration of Haggerty Road at the intersection with median breaks. One through lane in each direction for Tyler Road and two through lanes in each direction for Haggerty Road should be adequate to handle the projected traffic volumes. Assumed auxiliary lanes at this intersection include one right turn lane on the northbound approach, and two right turn lanes on the southbound, eastbound, and westbound approaches.

The study area intersections were prioritized in order of the most congestion, and relative to the impact changes would have on overall traffic operation of the corridor. This priority list can be used by the Township to determine the priorities in implementing roadway improvements. Please note that this list is based on traffic operations only; it does not incorporate any economic or feasibility factors.

- Ecorse Road/I-275 Ramps.
- Ecorse Road/Haggerty Road intersection, including Haggerty Road immediately north and south of Ecorse Road.
- Ecorse Road/Belleville Road intersection, including modification to frontage roads.
- Haggerty Road/Tyler Road intersection, including Haggerty Road immediately north and south of Tyler Road.

- Ecorse Road/Hannan Road intersection.
- Haggerty Road/Van Born Road intersection.

Truck Analysis

Many of the projected land uses in the study area are expected to generate a significant amount of truck traffic. Table 1 summarizes the amount of trucks generated by land use. Figure 3 illustrates the general travel patterns of the generated truck traffic.

While trucks obviously cannot be prohibited in the study area, steps can be taken to help manage truck traffic. All new sites should be designed to encourage truck traffic to use the main access drive only. Truck loading and unloading areas on site should have easy access to the main access drive. These steps would help ensure trucks use the main roads in the area only, and do not divert to local and residential streets.

Active enforcement of seasonal weight limits on side streets should be undertaken. In addition to reinforcing standing regulations, active enforcement could serve as a deterrent to trucks using local and residential streets. In addition, residential areas that experience a high portion of truck traffic could consider truck prohibitions. For truck prohibitions to be effective, care must be taken to ensure continued local deliveries and the presence of adequate enforcement resources.

Another possible means of managing truck traffic could be through a guide sign program. Near any defined entry points to the Ecorse and Haggerty Road corridors, guide signs providing directions (arrows) to the location of sites with heavy truck generators could help guide trucks to their destinations without using local and residential streets. These signs could be decorative to be in line with the design features of the corridor. While this type of program is not commonly found in Michigan, it could be an alternative means of managing truck traffic.

Formally designating Haggerty Road and Ecorse Road as truck routes to I-94 and I-275, in conjunction with the participation of local developments, may help deter truck traffic from local and residential streets. Restricted hours on deliveries for new developments can also be considered as a possibility for managing truck traffic.

These items could be pursued individually, or may be individual parts of a general truck management plan. Additional research, analysis, and public input should be conducted before formalizing a truck management plan.

Traffic Impact Studies

In order to effectively monitor traffic conditions and determine the necessity for future roadway improvements, a means of periodically evaluating road conditions should be made available. The most convenient way of monitoring roadway conditions would be through the use of traffic impact studies. The Township already requires most developers to submit traffic impact studies with their site plans, and this practice should be continued. To formalize this process, consideration should be given to enact a traffic impact ordinance. An ordinance of this type would state under what conditions a traffic impact study would have to be completed, what the limits of these studies should be, and what kind of results the township is seeking. A formal procedure for preparing traffic impact studies that all developers would have to use would also be included as a portion of a traffic impact ordinance. This ordinance could be applied Township-wide, or could be applied to specific boundaries of a corridor or area. A model traffic impact ordinance is attached (Appendix B).

Table 5: Level of Service for Ecorse Road and Belleville Road				
	Existing		Projected *	
Movement	Delay	LOS	Delay	LOS
Overall	12.0	B	38.9	D
SB Right	8.9	A	61.5	E
SB Through	12.7	B	48.9	D
SB Left	11.9	B		
NB Right	10.6	B	41.8	D
NB Through	13.9	B	26.5	C
NB Left	10.5	B		
WB Left	11.1	B		
WB Right	11.1	B	18.6	B
WB Through	11.1	B	16.3	B
EB Left	10.8	B		
EB Right	10.8	B	56.0	E
EB Through	10.8	B	46.3	D

* - with recommended improvements

Table 6: Level of Service for Ecorse Road and Haggerty Road				
Movement	Existing		Projected *	
	Delay	LOS	Delay	LOS
Overall	23.6	C	23.6	C
SB Through	21.9	C	20.4	C
SB Left	21.9	C		
SB Right	21.9	C	19.5	B
NB Through	29.1	C	19.0	B
NB Left	14.1	B		
NB Right	29.1	C	113.1	F
WB Right	19.8	B	26.1	C
WB Through	19.8	B	59.4	E
WB Left	25.5	C		
EB Right	20.1	C	117.5	F
EB Through	20.1	C	85.8	F
EB Left	12.4	B		

* - with recommended improvements

Table 7: Level of Service for Ecorse Road and SB I-275 Ramps				
Movement	Existing		Projected *	
	Delay	LOS	Delay	LOS
Overall	37.4	D	131.4	F
SB Right	80.4	F	215.5	F
SB Left	107.7	F	101.2	F
WB Through	5.5	A	12.1	B
WB Left	8.5	A	256.7	F
EB Right	0.1	A	1.8	A
EB Through	6.2	A	186.1	F

* - with recommended improvements

Table 8: Level of Service for Ecorse Road and NB I-275 Ramps

Movement	Existing		Projected *	
	Delay	LOS	Delay	LOS
EB Left	41.4	E	**	**
NB Left	**	F	**	**
NB Right	11.7	B	**	**

* - assumes directional ramp is not provided.

** - indicates excessive delay

Table 9: Level of Service for Ecorse Road and Hannan Road

Movement	Existing		Projected *	
	Delay	LOS	Delay	LOS
Overall	20.6	C	44.6	D
SB Right	33.2	C	41.4	D
SB Through	33.2	C	70.8	E
SB Left	23.9	C	36.3	D
NB Right	26.7	C	25.1	C
NB Through	26.7	C	41.6	D
NB Left	39.6	D	52.4	D
WB Right	20.2	C	10.2	B
WB Through	20.2	C	64.6	E
WB Left	5.3	A	11.9	B
EB Right	7.6	A	10.0	A
EB Through	7.6	A	13.7	B
EB Left	24.2	C	47.8	D

* - with recommended improvements

Table 10: Level of Service for Haggerty Road and Van Born Road

Movement	Existing		Projected *	
	Delay	LOS	Delay	LOS
Overall	13.8	B	27.3	C
SB Through/Right	13.9	B	27.4	C
SB Left	14.5	B	33.5	C
NB Through/Right	13.8	B	19.5	B
NB Left	12.9	B	32.3	C
WB Through/Right	13.8	B	23.4	C
WB Left	13.6	B	33.0	C
EB Through/Right	13.2	B	33.8	C
EB Left	14.0	B	33.9	C

* - with recommended improvements

Table 11: Level of Service for Haggerty Road and Tyler Road				
	Existing		Projected *	
Movement	Delay	LOS	Delay	LOS
Overall	10.4	B	40.3	D
SB Right	5.5	A	16.5	B
SB Through	5.5	A	65.7	E
SB Left	5.5	A		
NB Right	4.9	A	14.6	B
NB Through	4.9	A	19.5	B
NB Left	4.9	A		
WB Right	26.9	C	66.7	E
WB Through	26.9	C	29.1	C
WB Left	26.4	C		
EB Right	33.8	C	24.1	C
EB Through	33.8	C	24.0	C
EB Left	31.3	C		

* - with recommended improvements

VI. Design Guidelines

"Every year in this country we spend more money on roads than anything else that affects the landscape. We perceive the landscape from the roadway more than in any other way. And we spend more time driving through the landscape: even avid outdoorsmen spend more time driving in the landscape than they do walking in the landscape. It's hard to imagine something that has more impact on our environment and more impact on how we see the world around us....." William D. Rieley, University of Virginia professor

Introduction

A high quality image is desired by the Township for the Ecorse and Haggerty road corridors. These corridors are among the most visible in the community and together account for two of the three major interchange entrances into the Township. High standards for road design, landscaping, parking, architecture, and other design elements are one way to achieve the desired quality. Recommended corridor design standards are organized into two sections as outline below. A summary of recommended dimensional standards is provided in Table 1:

Elements of Ecorse and Haggerty Road Design Guidelines

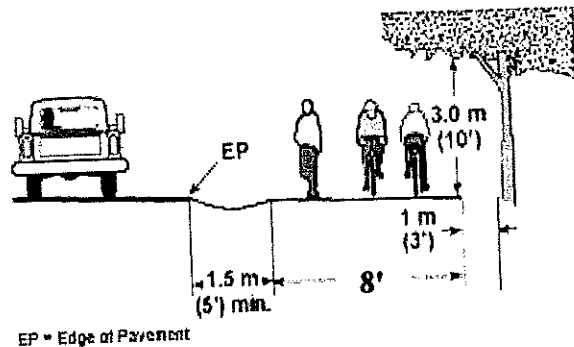
- 1. Road Design and Streetscape**
 - Boulevard concept
 - Entry features
 - Sidewalks and bikeways
 - Access management
- 2. Site Design, Layout and Architectural Standards**
 - Access management and driveway and service road design
 - Building setbacks, design and materials
 - Parking lot placement and circulation
 - Truck access and circulation
 - Signs
 - Lighting
 - Landscaping and drainage basin design

Table 12: Summary of Ecorse and Haggerty Corridor Design Standards	
Road Design and Access Management	
Ecorse Road	Boulevard w/service drives within existing 260 foot r-o-w; Boulevard without service drive within planned 170-80' r-o-w
Haggerty Road	Conventional 5-lane within 120 foot right-of-way (some segments may have boulevard w/in planned 170-80 foot r-o-w and indirect left turns)
Walkway and Pathways	5 foot wide sidewalk one side, and 8 foot wide multi-purpose path one side
Driveway Spacing	175-300 feet
Shared Access Easement Width	60', 40' if parallel to a public road; 26 ft. pavement width
Setback, Architecture, Signs and Lighting	
Front Building Setback	50 feet
Building Facade and Materials:	<ul style="list-style-type: none"> • minimum 50% brick, stone or decorative masonry • no more than 50% glass, 1st floor at least 25% glass • vinyl, aluminum, steel or EIFS no more than 25% • architectural feature required every 200 feet
Light Pole Height	35 feet
Signs	6 foot height for office or industrial; 10 feet for retail, hotels, etc. Maximum area 64 sq. ft.
Parking and Circulation	
Parking Lots	maximum of 50 percent of the proposed (not required) front yard area devoted to parking and circulation.
Truck Turning Radius	outside turning radius 45 to 55 feet
Truck Dock Approach	100 to 120 feet deep
Landscaping	
Frontage Landscaping	one tree and four (4) shrubs for every 30 ft. of frontage; additional screening required if parking lot on frontage
Parking Lot	15 sq. ft. landscaped per parking space: one tree and 2 shrubs for every 10 parking spaces

1. Road Design and Streetscape

Recommended road design and streetscape features for both corridors are provided below:

- **Ecorse Road Boulevard:** Figures 1 and 2 illustrates a conceptual boulevard design recommended for Ecorse Road. The boulevard is recommended for the entire length of Ecorse Road, from the eastern Township boundary to the intersection with Michigan Avenue. The current 260 foot right-of-way width of Ecorse Road provides ample room for a median sufficient to accommodate the turning movements of large vehicles. The 260 foot right-of-way width also provides area for service drives along both sides of the boulevard.
- **Streetscape Features:**
 - **Landscaping:** Canopy trees in the shoulder area of the road at orderly and regular intervals (40 feet on center) are recommended. Median planting should consist of an informal arrangement of plant materials with a greater variety of species.
 - **Lighting:** Street lighting at regular intervals (to be determined at the time of road design) along the side of the road is recommended. High level median lighting should be avoided because it detracts from the appearance of the median.
 - **Pathways:** A five (5) foot wide sidewalk on one side of the road and an eight (8) foot wide multi-purpose path on one side are recommended. The multi-purpose path should be located on the south side of Ecorse Road and the west side of Haggerty Road to provide accessibility to nearby residential areas. An eight foot width is necessary to meet national design standards (AASHTO).
- **Conventional Five-lane For Haggerty Road:** Multi-purpose path must be at least 8 feet wide



Landscaping, lighting and pathways within the conventional five-lane road would be comparable to the boulevard, with the exception of median planting. Setbacks should be measured from the planned right-of-way so that future development does not encroach into the right-of-way. Flexible zoning, such as the Township's Planned Residential District can be used to provide the additional setback to preserve and/or dedicate the additional right-of-way as a trade-off for density or other flexibility.

Road Design Guidelines - Highlights

Boulevard has many advantages:

- Establishes a unique and distinctive image and attracts higher quality land uses
- Provides better access management, safety and increases road capacity
- Existing 260+ foot r-o-w width is ample to continue existing boulevard and service drives.
- Major gateway at Haggerty and Ecorse with pond as a design feature and to improve drainage. Provide lower maintenance plant materials along balance of corridor
- Sidewalks and bikeway required.



Boulevard creates distinctive image and better traffic flow

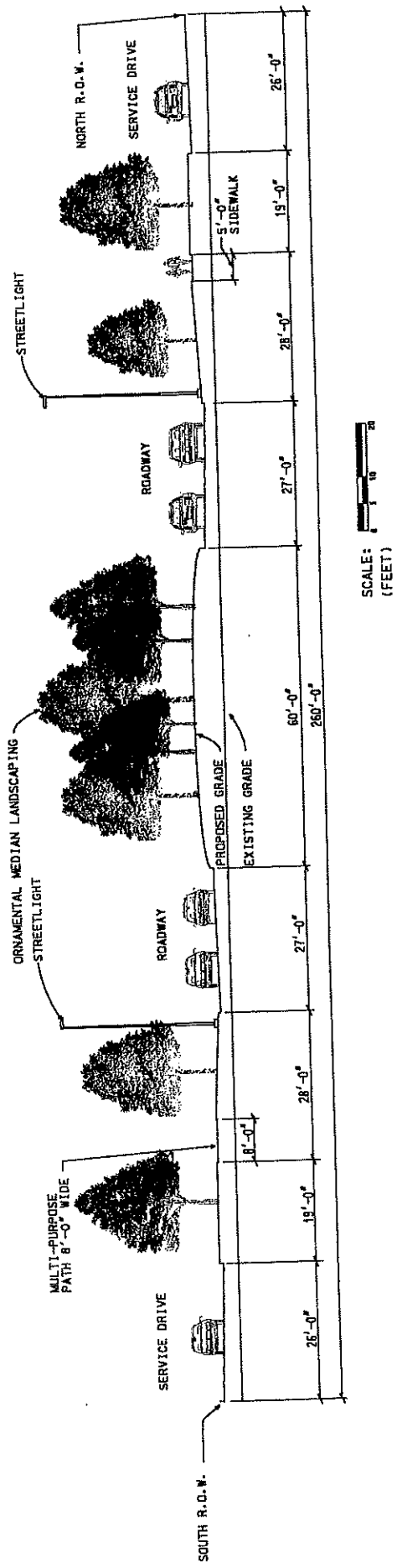
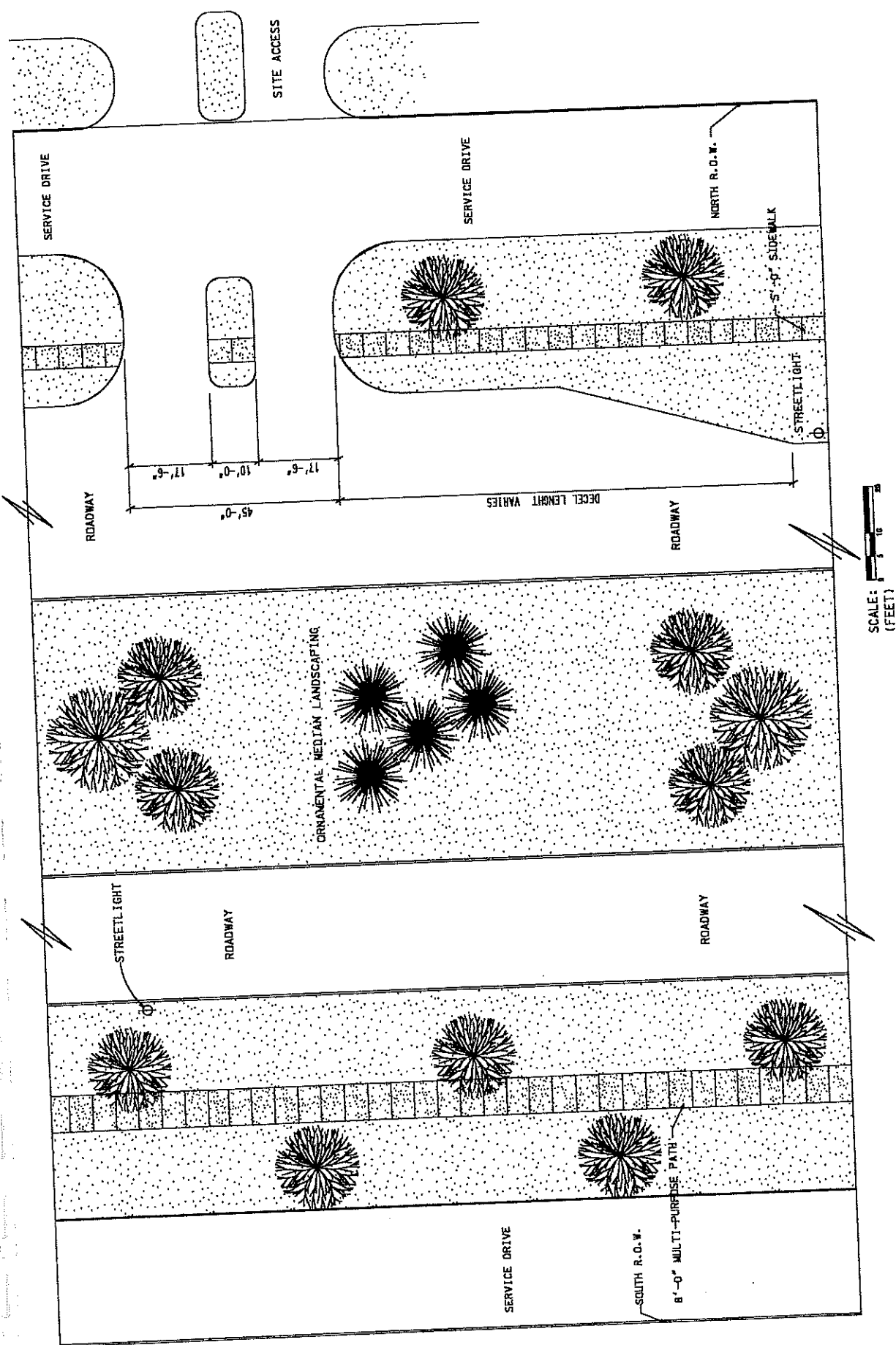


Figure 4

ECORSE & HAGGERTY ROAD CORRIDOR PLAN



SCALE: 1" = 16'
(FEET)

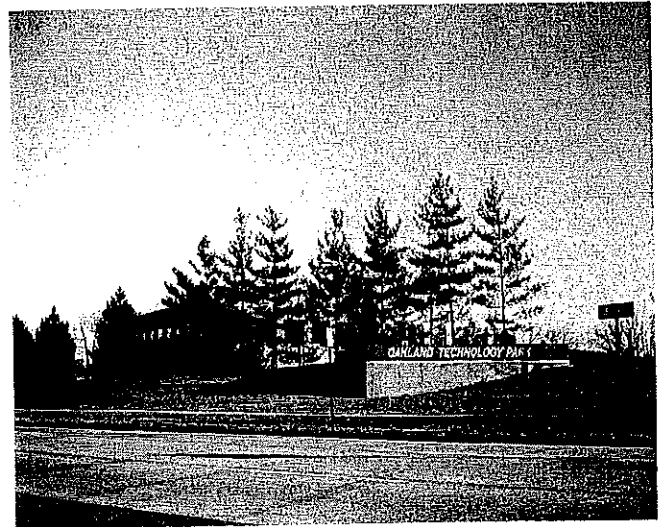
Figure 5
ECORSE & HAGGERTY ROAD CORRIDOR PLAN

Gateways

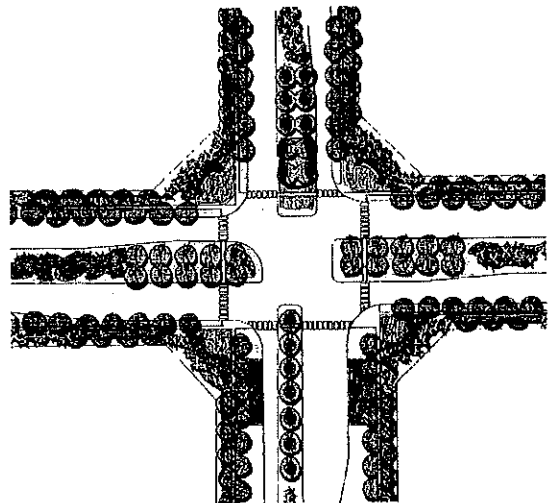
Streetscape enhancements are recommended to establish an attractive, cohesive, and unified image for the Ring Road corridor, especially at major points of entry. If a high standard of quality and appearance is established at entry points, development of the balance of the corridor is more likely to be of a higher standard. The use of a consistent design theme at entry points also creates a distinctive pattern that can be emulated and carried through in the design of private developments.

The preceding road cross-sections and plan view illustrations include conceptual landscape treatments for the corridor. In addition to these improvements, major gateway enhancements are recommended for principal entry points (see Figure 3). Secondary gateway enhancements are recommended at major road intersections along the corridor.

The proposed major gateway design concept calls for a substantial entry structure and extensive landscaping to signify entry into the corridor. The secondary gateway design concept could have a similar but more modest design with less elaborate landscaping that could be repeated at major intersections and at project entrances.



Entrances should have major gateway feature



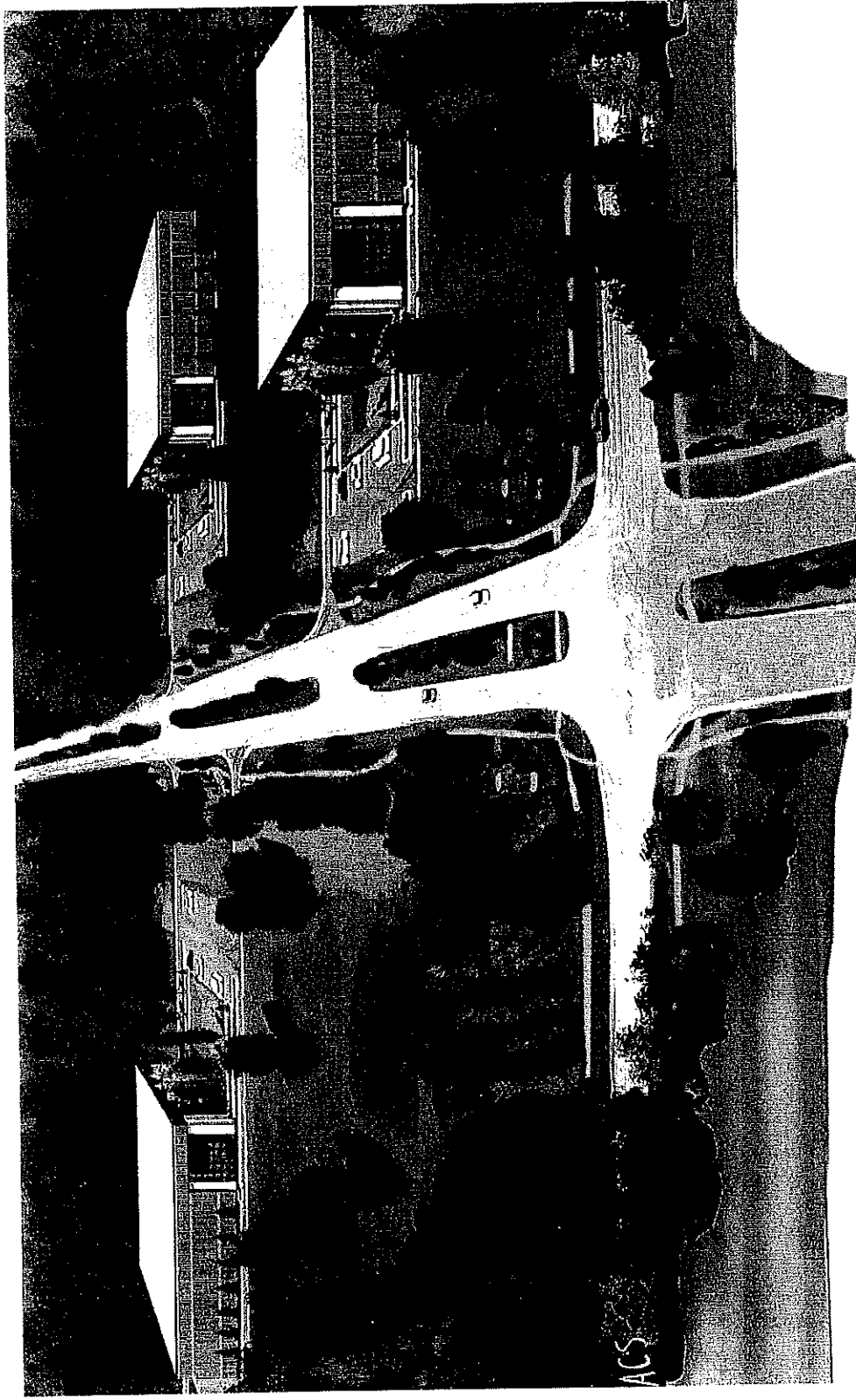


Figure 6: Major Gateway Concept - Ecorse and Haggerty intersection

Residential Protection Areas

One of the primary objectives of this corridor plan is to protect the viability of existing and future residential neighborhoods. The central segment of the Ecorse Road Corridor is planned and developed for residential use. The Denton neighborhood does not front directly on the corridor but will be heavily influenced by its development, especially the large industrial area at the eastern end of Ecorse Road. Additionally, there is an existing neighborhood along the southern end of the Haggerty corridor. Design and land use measures to protect residential areas include:

- Planning less intense land uses immediately adjacent to the neighborhood and in areas that form an entry to the neighborhood, such as along Denton Road which is the major link between this neighborhood and the balance of the Township. Less intense uses include light industrial uses with office fronts that project a higher quality image from the road.
- Use of special buffers, setbacks and screening measures to protect such areas from the negative appearance and noise of industrial activities. Where heavy truck docking areas are adjacent to or visible from residential areas, berm heights of at least eight (8) feet are recommended together with landscaping to screen and contain noise.

Other Road Design Features

Clear Zone Setbacks: Clear zone setbacks, which consider vehicle impact, must be adhered to when designing roadside improvements (landscaping, entrance features, signs, etc.). Visual sight triangles (unobstructed view areas) at road intersections must be provided. Another factor to consider in planting setbacks is the roadside area reserved for a vehicle that has left the roadway to recover control and return to the driving surface. This area should be free of immovable objects. Smaller multiple-stemmed trees, such as amur maple, serviceberry, or witch hazels can be planted within the clear zone area since they are considered "break away" trees. However, these plants must still be located outside of the sight distance triangle area. The precise dimensions of these clear safety zones for Ecorse Road and Haggerty Road must meet the design standards of Wayne County.

Access Management: The development of the corridor will have a significant impact on traffic. Traffic management techniques of this plan include: land use patterns, anticipation of future road improvements, and preservation of road capacity through access management. The widening of roads along the corridor will accommodate increases in traffic volumes; however, this capacity must be preserved and maximized to meet long-term traffic needs and maintain safety. Standards for spacing between driveways and separation from intersections, and the design of driveways are recommended in the next section addressing site development guidelines. These standards will help preserve road capacity and safety by reducing potential traffic conflict points that impede traffic flow and that reduce road capacity. Also, access management increases greenspace by reducing the number of driveways.

2. Site Development Standards

Purpose

To ensure that development throughout the corridors is coordinated and of the highest possible quality, the following site development standards are recommended. The objectives of these design standards are to:

- promote a unified image throughout the corridor;
- promote quality site design and building architecture to enhance the character and value of the corridor;
- promote site design that benefits public safety;
- promote efficient access management and preserve the capacity of the road network;
- integrate natural features such as wetlands and existing vegetation into site designs; and
- provide enough flexibility so that architects, site designers and developers can produce viable projects that meet both development and community objectives.

Access Management Standards

The following access management standards are recommended to preserve and enhance road capacity, and improve circulation and traffic safety:

- **General Standards for Driveway Location:** Driveways shall be located so as to minimize interference with the free movement of traffic, to provide adequate sight distance, and to provide the most favorable driveway grade. Driveways, including the radii but not including right turn lanes, passing lanes and tapers, shall be located entirely within the right-of-way frontage, unless otherwise approved by Wayne County and upon written certification from the adjacent property owner agreeing to such encroachment.
- **Standards for the Number of Nonresidential Driveways:** The number of nonresidential driveways shall be the minimum necessary to provide reasonable access for regular traffic and emergency vehicles, while preserving traffic operations and safety along the public roadway. A single means of direct or indirect access shall be provided for each separately owned parcel. Where possible, this access shall be via a shared driveway or a service drive. Where it is not possible to provide shared access, this access may be by a single driveway. Additional driveways may be permitted for a property only under one of the following:
 - One additional driveway may be allowed for properties with a continuous frontage of over five hundred feet, and one additional driveway for each additional five hundred feet of frontage, if the Planning Commission determines there are no other reasonable access opportunities.

- Two one-way driveways may be permitted along a frontage of at least one hundred twenty five feet, provided the driveways do not interfere with operations at other driveways or along the street.
- The Planning Commission may determine additional driveways are justified due to the amount of traffic generated by the use without compromising traffic operations along the public street, based upon a traffic impact study submitted by the applicant.
- **Driveway Spacing Standards:**

- **Between driveways:** The minimum spacing between two nonresidential driveways on the same side of the road shall be based upon posted speed limits along the parcel frontage. The minimum spacings indicated below are measured from centerline to centerline.

Table 13: Driveway Spacing Standards	
Posted Speed Limit (MPH)	Minimum Driveway Spacing (In Feet)
30	155
35	185
40	225
45+	300

For sites with insufficient road frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

- **Offsets:** To reduce left-turn conflicts, new nonresidential driveways should be aligned with driveways or streets on the opposite side of the roadway where possible. If alignment is not possible, driveways should be offset a minimum of two hundred fifty feet along an Arterial roadway and one hundred fifty feet along other roadways. Longer offsets may be required depending on the expected inbound left-turn volumes of the driveways, or sight distance limitations.
- **Spacing from intersections:** Minimum spacing requirements between a proposed nonresidential driveway and an intersection either adjacent or on the opposite side of the street may be set on a case-by-case basis by the Planning Commission during site plan review but in no instance shall be less than the distances listed below. The following measurements are from the near edge of the proposed driveway, measured

at the throat perpendicular to the street, to the near lane edge of the intersecting street or pavement edge for uncurbed sections.

Table 14: Minimum Nonresidential Driveway Spacing From Road Intersections

Location of Driveway	Minimum Spacing for a Full Movement Driveway	Minimum Spacing for a Channelized Driveway Restricting Left Turns
Along an Arterial Road from intersection with another Arterial	250 feet	250 feet
Along an Arterial Road from intersection with a local street	175 feet	175 feet

For sites with insufficient frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

- **Nonresidential Driveway Design:** Nonresidential driveways shall be designed according to the standards of the Road Authority and in accordance with the following:
 - For high traffic generators, or for nonresidential driveways along roadways experiencing or expected to experience congestion, all as determined by the Planning Commission, two egress lanes may be required (one being a separate left turn lane).
 - Where a boulevard entrance is designated by the applicant or Planning Commission, a fully curbed island shall separate the ingress and egress lanes. The radii forming the edges on this island shall be designed to accommodate the largest vehicle that will normally use the driveway. The minimum area of the island shall be one hundred eighty square feet. The Planning Commission may require landscaping on the section outside the public right-of-way. Such landscaping shall be tolerant of roadway conditions. Direct alignment of boulevard entrances is discouraged.
 - All nonresidential driveways shall provide an unobstructed clear vision between a height of three feet and ten feet in a triangular area measured ten feet back from the point of intersection of the driveway and the street right-of-way.
- **Standards for Shared Driveways and Service/Frontage Roads:** The use of service roads, in conjunction with driveway spacing, preserves traffic flow and minimizes traffic conflicts, while retaining reasonable access to the property. Where the Planning Commission determines that reducing the number of access points may have a beneficial impact on traffic operations

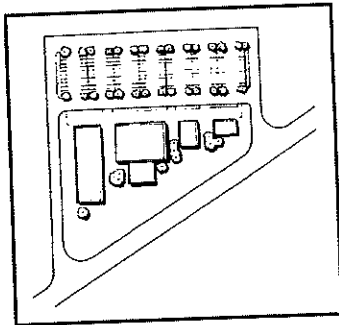
and safety while preserving the right to reasonable access, access from a side street, a shared driveway or service road connecting two or more properties or uses may be required. In particular, service drives, frontage roads or parking lot maneuvering lanes connecting lots or uses may be required in cases:

- Where the driveway spacing standards of this section cannot be met.
- When the driveway could potentially interfere with traffic operations at an existing or potential traffic signal location.
- The site is along a portion of the corridor where there is congestion or a relatively high number of accidents.
- The property frontage has limited sight distance.
- The fire department recommends a second means of emergency access.

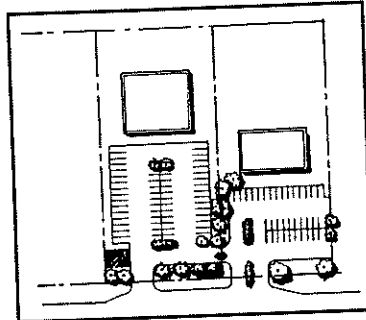
● **Service Road or Shared Driveway Design Standards:**

- **Location:** Shared driveways or service roads shall generally be parallel or perpendicular to the front property line and may be located either in front of, adjacent to, or behind, principal buildings. In considering the most appropriate alignment for a service road, the Planning Commission shall consider the setbacks of existing buildings and anticipated traffic flow for the site.
- **Access Easement:** Shared driveways and service roads shall be within an access easement recorded with the appropriate Road Authority which permits traffic circulation between properties. This easement shall be 60 feet wide, except an access easement parallel to a public street in front of the building may be 40 feet wide. The required width shall remain free and clear of obstructions, and shall not be used for parking unless otherwise approved by the Planning Commission.

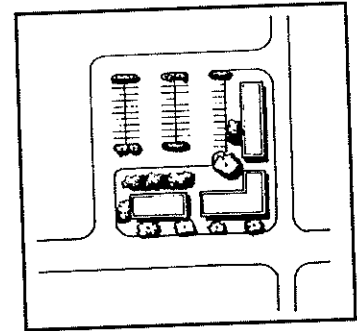
Examples of Shared Driveway Types



Shared Rear Access Drive



Shared Cross Access



Perpendicular Access Drive

- **Driveway Storage Length:** A driveway storage area shall be provided between the intersection of the service drive with an arterial road and any internal circulation lane. The depth of the storage area shall be sufficient to accommodate expected vehicle queues. As a guideline, the minimum storage area should be at least 60 feet. A larger or smaller storage area may be required depending upon the trip generation characteristics of uses served by the drive.
- **Construction and Materials:** Service roads shall have a base, pavement and curb with gutter in accordance with the road design standards of the Road Authority.
- **Elevation:** The site plan shall indicate the proposed elevation of the service road at the property line and the Building Department or appropriate authority of each community shall maintain a record of all service road elevations so that their grades can be coordinated.
- **Maintenance:** Each property owner using a shared driveway or service drive shall be responsible for its maintenance. The community shall require a copy of the maintenance agreement between all property owners responsible for the shared facility to ensure that an agreement is in place to provide adequate maintenance.

Traffic Impact Studies

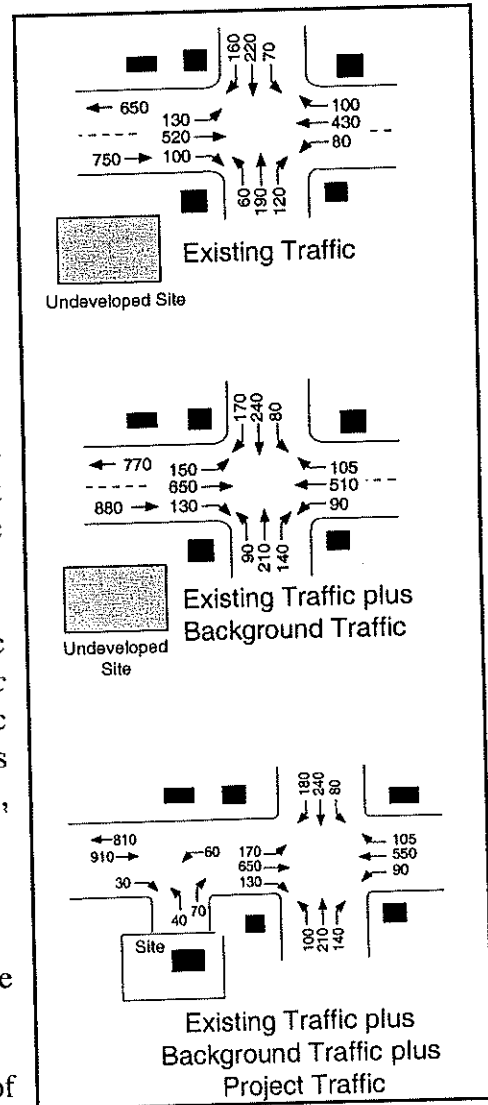
When warranted, traffic impact studies (TIS) should be required to help determine the potential future traffic conditions on the adjacent roadways once a proposed development is finished. Traffic impact studies can be an essential part of the development review process to assist the community in making decisions regarding land use, rezonings, subdivisions, and access management. If done correctly, a TIS can predict the peak-hour operational conditions at site driveways and affected road intersections in the vicinity of the project. This input can help with the final design of access points and internal circulation and can identify necessary off-site road improvements. Traffic impact studies are most helpful for larger projects and should include separate traffic generation data for cars and trucks.

SEMCOG and MDOT have developed a handbook on traffic impact studies. This handbook titled *Evaluating Traffic Impact Studies* provides guidelines regarding when a traffic impact study should be required, what types of analyses should be included in the study, who is qualified to prepare it, and how one should be reviewed and used.

Building Setback, Design and Materials

Building design, location and architectural standards are provided in this section.

- Larger Buildings Off Frontage:** The placement of very large buildings with continuous unbroken walls along the corridor frontage is discouraged. Larger buildings should be placed within the interior of development areas, away from the road frontage to allow smaller buildings with a more desirable appearance and scale to be located on the frontage.
- Architectural Features to Provide Visual Relief:** Where larger buildings, and/or buildings with long, continuous flat walls are oriented to the street, an architectural feature shall be used to provide a visual break at least every 200 feet. Entrance indentations, arches, colonnades, columns, pilasters, detailed trim, brick bands, contrasting courses of material, cornices, or porches may be used to meet this standard.

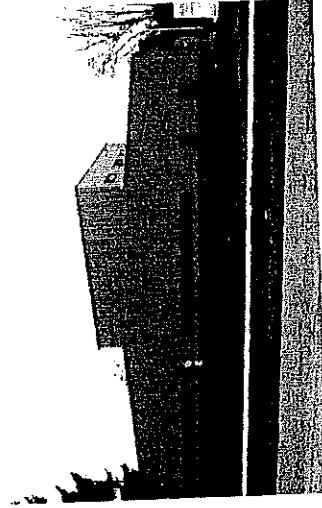


- **Proportion:** Proportion is the size relationship of one element of a building to another. For example, the height of the building compared to the length of the building is a basic proportional relationship. Another is the size of the window(s) in relation to the size of the wall. Achieving a balance in proportions will result in a more attractive building.
- **Entrances:** In siting and designing a building, one of the most important decisions is locating the main entrance into the building. Entrances should be located in the most visible and accessible spot on the building. Entrance should be emphasized with architectural features to provide stronger identity, variety and interest to the facade.
- **Glass:** The use of glass is limited to 50 percent of the road facade to avoid the excessive use of this material and a dated appearance. However, the first floor of buildings should have a minimum of 25 percent glass to provide variety, interest and openness. Glass with a reflection greater than 20 percent is prohibited.
- **Style:** There is no one dominant building style or design present throughout the corridor. However, where clusters of well-designed buildings clearly display a unique style, new construction and redevelopment shall be consistent with, or complement the style of surrounding buildings with quality architecture. Where nonresidential frontage abuts residential land uses, the building shall include features such as peaked roofs, gables and others that are consistent with the style of residential buildings.
- **Building Materials:** Buildings throughout the corridor shall be constructed with permanent materials that provide long-term durability and require low maintenance, such as brick, stone, masonry, or other natural materials. Building materials that are generally not acceptable as the primary material include the following:
 - exterior insulation finish systems (EIFS), such as Dry-vit, Sto-Wall and other brands;
 - imitation wood, such as T-111 and other brands;
 - plain concrete block;
 - artificial brick-paneling;
 - vinyl, aluminum or steel siding; and
 - other materials that have poor durability and require a high level of maintenance.

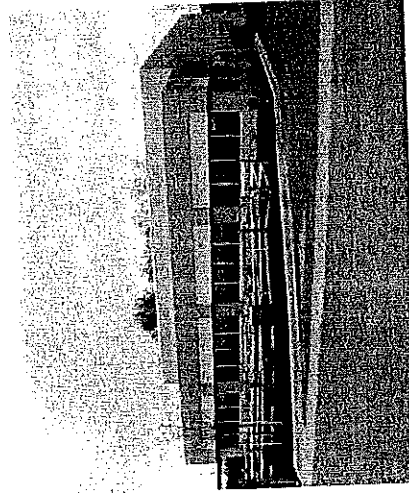
The above listed materials shall not comprise more than 25 percent of the building facade surface area. Due to the nature of industrial businesses, split-face block is an acceptable building material. However, the use of more durable and natural materials is encouraged for the facade of buildings that front directly on the corridor. As a minimum, 50 percent of the facade of all buildings facing the public road shall be finished with brick or other acceptable decorative stone or masonry materials.

Architectural Standards - Highlights

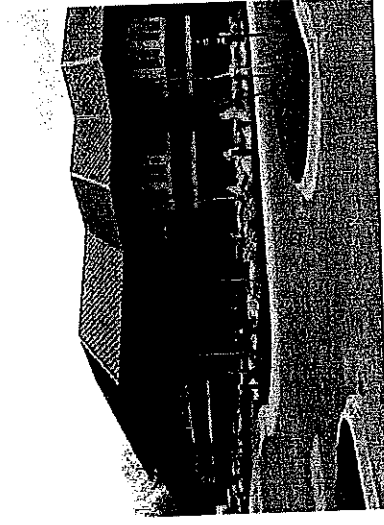
- Encourage windows and entry features to be visible from road (first floor at least 25% windows).
- Encourage high quality materials such as brick and stone; texture/natural colored block acceptable.
- Restrict amount of aluminum or steel; imitation or treated exterior wood (T-111); plain or painted concrete block; synthetic shingles or panels; exterior insulation finish systems (EIFS).



Not Desirable



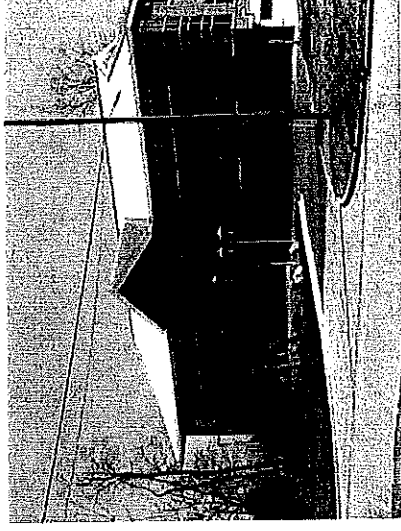
More Desirable



Most Desirable

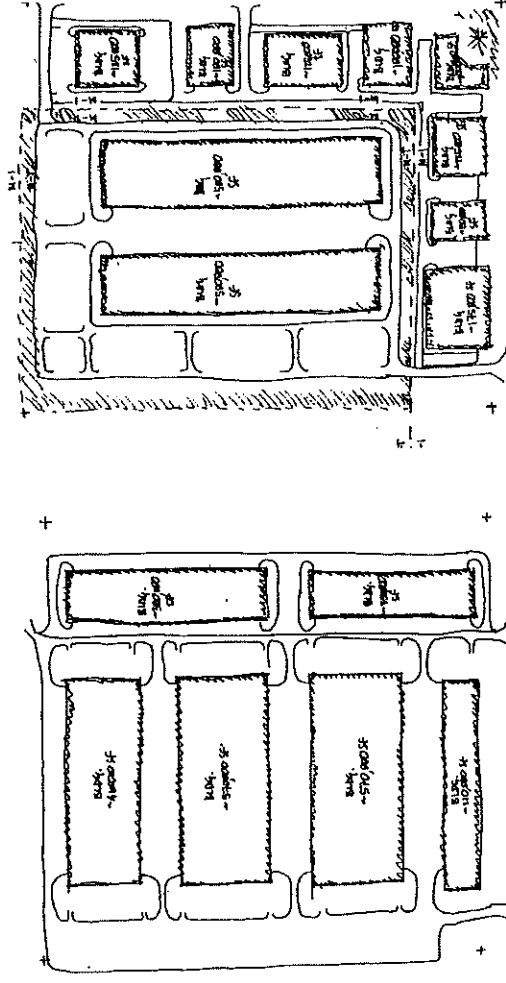
Architectural Standards - Highlights

- Encourage use of recesses, off-sets, arches, colonnades, columns, pilasters, detailed trim, brick bands, contrasting courses of material, cornices, or porches to vary building facades.
- Vary roof lines with gables, parapets, and cornice lines. Screen rooftop mechanical equipment with the roof form when possible.
- Use canopies, overhangs, raised parapets over the door, archways, awnings, larger openings and display windows, accent colors, and details such as tile work, moldings, pedestrian-scale lighting, and distinctive door pulls to add detail and additional interest to building designs.

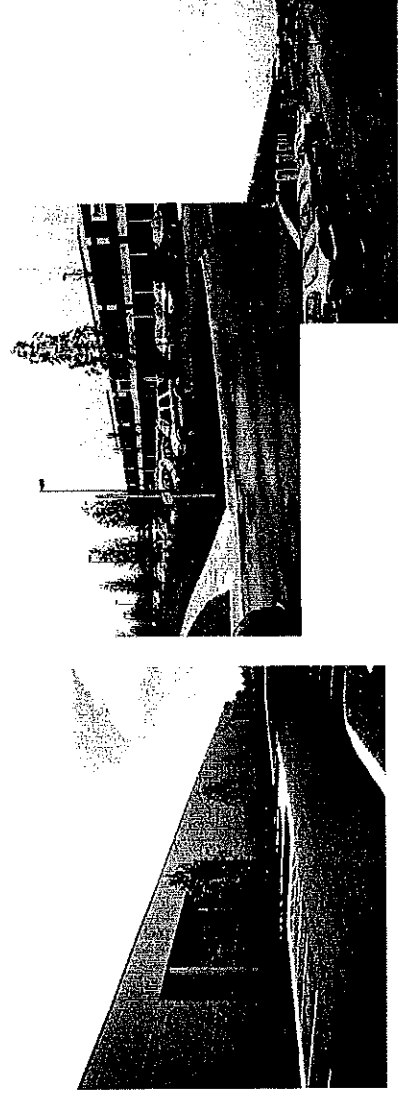


Building Scale and Location - Highlights

- Locate buildings with larger mass off the frontage to reduce their visual impact.
- Locate smaller, higher quality buildings on the frontage.
- Where larger buildings and buildings with long continuous walls are oriented to the street, use architectural features to provide visual relief and break-up the building mass. Provide such a visual break at least every 200 feet.



Small buildings on road front

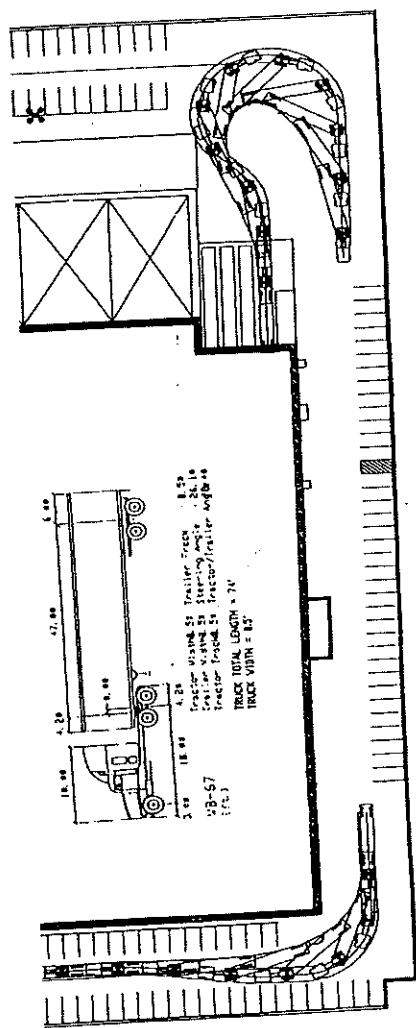


Parking and Circulation

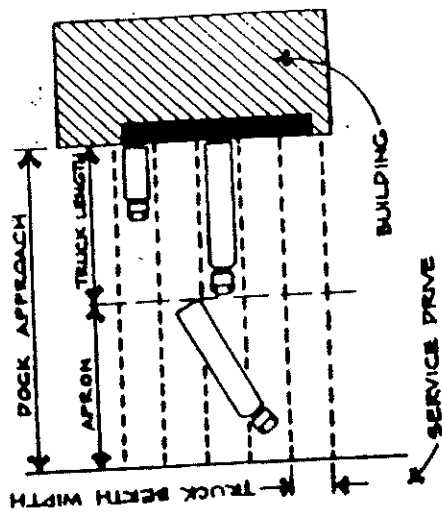
- **Parking Lot Location:** Off-street parking should be located at the side or rear of a building. The placement of parking lots in the front yard should be discouraged. It is recommended that not more than 50 percent of the proposed front yard area be devoted to parking lots and vehicular circulation. If site characteristics require parking to be constructed along street frontage, the amount of front yard parking should be minimized and the parking screened with landscaping or a screen wall or berm.
- **Entrances:** Entrances and exits shall be designed to enhance the flow of traffic into or out of the parking lot, thereby reducing congestion or traffic hazards. There shall be sufficient maneuvering room for vehicles to enter and leave the lot.
- **Pedestrian Circulation:** A safe transition shall be provided for people walking from their vehicles to the building, or for pedestrians or bicyclists using a public pathway to the building entrance. The design of the parking lot should minimize areas where vehicular traffic moves in the same space with pedestrians. Walkways should always be curbed to put them at a higher, safer level than vehicle traffic. Boldly marked crosswalks should be used where pedestrians must cross vehicular routes at the same grade.
- **Sidewalks/Pathways:** All sites throughout the corridor should attempt to integrate their development with established or planned pathways, while minimizing vehicular and pedestrian conflicts. By doing so, the corridor will offer a range of non-motorized commuting and recreational options for employees, residents and visitors.
- **Truck Circulation and Loading Docks:** During site plan review, applicants should be required to diagram and illustrate the size, type and number of trucks proposed to access the facility including turning movements (see illustration).
 - Loading docks shall be located to have minimal disruption to building users and nearby residents. Acceptable locations for loading docks include the rear of the building or facing the side or interior of the site if adequate screening is provided to shield the visibility of docks from surrounding public roads or adjacent properties. Large overhead doors should be of a similar (not contrasting) color to their surrounding walls and not used for signage.
 - An adequate turning radius for large trucks shall be provided. The minimum outside radius shall be 45 to 55 feet or more depending on length and requirements of trucks anticipated to use the site.

Truck Access and Circulation Standards - Highlights

- Require diagram of anticipated truck type, size, and circulation and turning movements on site plan.
- Require traffic impact study with generation data for car and truck traffic. Off- and on-site road deficiencies should be identified with a program of the cost, timing, and responsibility for road improvements.

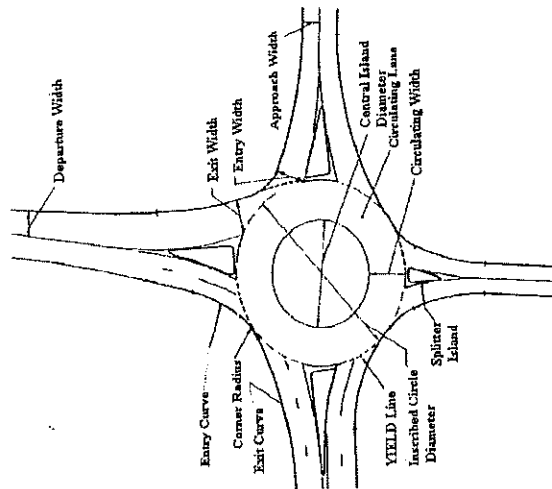
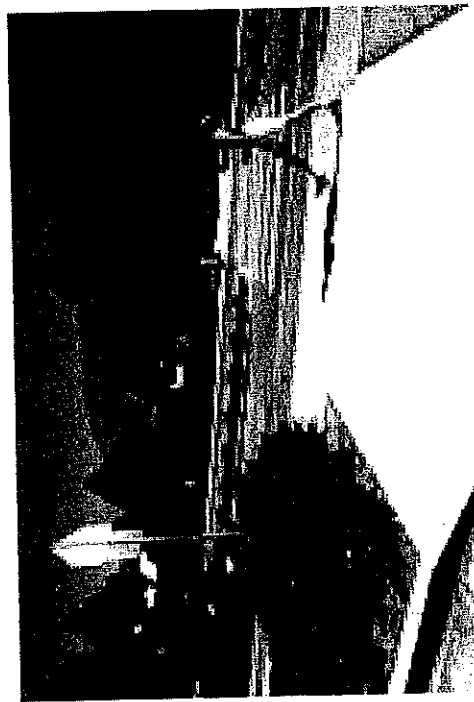
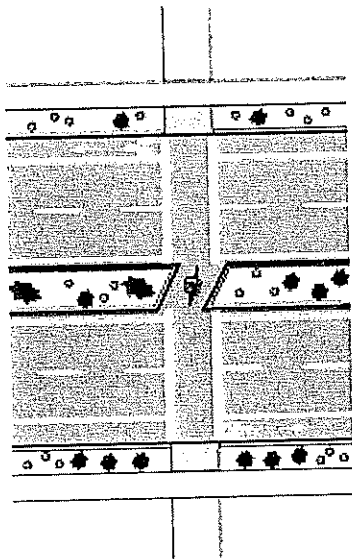
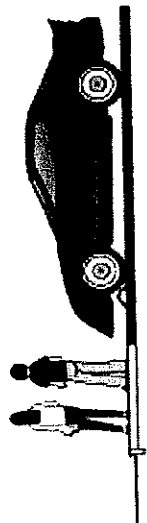


- Ensure adequate turning radius for large trucks - minimum outside radius of 45 to 55 feet or more depending on length and requirements of trucks anticipated to use the site.
- Ensure adequate service lanes and docking areas. Dock approach should be at least 100 to 120 feet.
- Orient docks to rear of site or facing internally with screening so they are not visible from the road.



Pedestrian Circulation - Highlights

- Provide adequate pedestrian walkways from the road and parking areas to building entrances and marked pedestrian crosswalks.
- Protect walkways from car overhang.
- Employ traffic calming techniques like roundabouts, median separations, special crossing



- Adequate service lanes and docks shall be provided. The dock approach shall be at least 100 to 120 feet deep.
- **General Screening:** Special care shall be given to the edge of the property, especially where the property meets the public right-of-way, or is adjacent to a different type of land use (e.g., industrial uses adjacent to residential uses). A landscape buffer or ornamental screen wall/fence shall be provided along the perimeter of non-residential property. Landscape berms may also be appropriate for larger sites.
- **Equipment Screening:** In addition to treating the perimeter of sites with landscaping and screen walls, all utilitarian features must be properly screened. Elements that are included in this category include: utility lines; transformers; ground and roof-mounted mechanical equipment; trash receptacles; and loading areas.

Proper placement of utilitarian features enhances the effectiveness of screening. Mechanical equipment, trash receptacles, and loading areas shall be located to the rear of the site and should not be visible from the road. Roof-top mechanical equipment shall also be located or screened so that it is not visible from the road.

- **Screening and Buffers for Residential Areas:** The special screening and landscaping required between commercial and industrial districts and residential districts shall be retained as required by the Township's Zoning Ordinance.
- **Planting Standards:** The following guidelines shall be followed in all corridor landscaping:
 - The plant palette should emphasize native trees, shrubs and native grasses which are hardy to this region. The objective is to be consistent with the existing landscape so the entire area possesses a cohesive, unified image. Deciduous trees shall have a DBH (diameter at breast height) of at least two and one-half (2.5) inches and evergreen trees shall be at least six feet high at the time of planting.
 - Plants shall be salt-spray tolerant, compatible with existing soil conditions and tolerant of a wide range of conditions.
 - The planting design shall use massing or groupings of materials to create a stronger visual impact for high speed areas, use plant diversity for long term health of the plants, use repetition for continuity and create visual interest by incorporating spring and summer flowers and fall color.
 - Where appropriate, plants shall be used as screens and buffers. For example, if an adjacent business has a loading area in the side yard, a row of trees or shrubs should be planted to screen the view of the loading area.
 - Plants shall not be located where they might interfere with overhead utilities or block visibility for pedestrians and motorists.
 - Landscape areas must be maintained and irrigated.

The following list of plants will do well in a wide range of conditions and will tolerate salt spray. This list is not intended to be all inclusive. Observation of localized topography and site conditions should influence the final plant selection. Existing native plants should provide clues to what will best serve in a particular site.

- **Trees:** Amur Maple, Red Maple, Hawthorn, Green Ash, White Ash, Crab Apple, Serviceberry, Witch Hazel.
- **Shrubs:** Red-stemmed Dogwood, Juniper-various species, Virburnum-various species.
- **Ground covers:** Ornamental grasses, Day lilies, Low junipers, Fragrant sumac.
- **Landscape Program and Character:** As a general guideline, the landscape program should include a mix of evergreens, canopy and ornamental trees, lower shrubs and flowering ground covers to provide a substantial impact and complete coverage of the boulevard. As a general

example, a landscape program similar to that used within the 12 Mile Road boulevard in Farmington Hills between Farmington Road and Halstead Road should be used as a model.

Storm Drainage Features

Storm drainage features should be used as site amenities whenever possible. Rigidly designed basins with very steep slopes that require fencing should be avoided. The following standards are recommended:

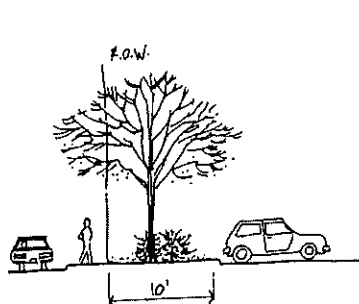
- **Site Amenity:** “Wet” retention/detention ponds should be encouraged as site amenities and located to enhance the project entrance and/or to provide a common site amenity. Such ponds shall be designed with a gradual slope (6:1) and naturalistic shape. A gradual slope promotes greater environmental value and eliminates the need for unattractive fencing. “Dry” detention areas should be located on the site to reduce their visibility and/or obscured with landscaping.
- **Common Drainage Facilities:** Common drainage facilities should be encouraged whenever possible to avoid multiple, small facilities that are unattractive and that result in long-term maintenance problems. The location and common drainage features should be identified early in the development stage of large sites so that sufficient area is reserved in advance of development.
- **Common Maintenance Agreements:** Common drainage facilities will necessitate the submission of common maintenance agreements to provide for equitable contributions by each separate land owner using the facility. Such agreements should be required and reviewed during the site plan review process to ensure that maintenance responsibilities are properly defined and that common area fees are sufficient.

Landscaping, Screening and Storm Drainage

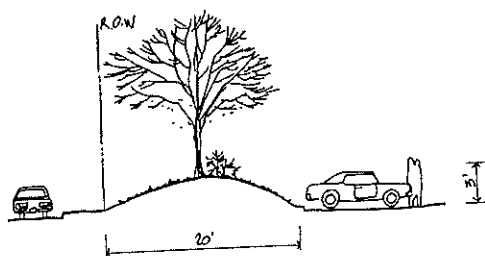
Landscaping has a significant impact on the quality of the environment. In addition to visual appeal, landscaping provides an essential buffer and screen for undesirable features such as parking lots and utility structures. It is recommended that uniform frontage and internal parking lot landscape requirements be adopted for the Ecorse and Haggerty Road corridors:

- **Frontage:** The following frontage screening, buffer and landscape requirements are recommended. Where parking lots or circulation lanes front on the public road, one of three optional buffer and landscape options shall be required:

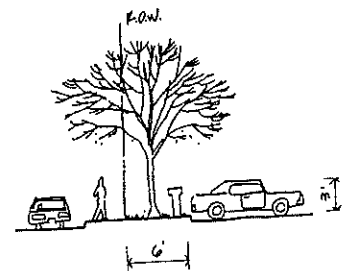
Table 15: Recommended Uniform Frontage Landscaping		
<i>Where Parking Fronts on the Public Road:</i>	Minimum Frontage Buffer (in feet)	Frontage Landscaping
(1) Landscape strip	15	1 tree per 30 feet 10 shrubs per 30 feet
(2) 3 foot high berm	25	1 tree per 40 feet 5 shrubs per 30 feet
(3) 3 foot high brick and/or decorative block wall	6	1 tree per 40 feet 5 shrubs per 30 feet
<i>Where No Parking on the Public Road Frontage</i>	N/A	one tree and four (4) shrubs for every 40 feet



Landscape Option (1)



Landscape Option (2)

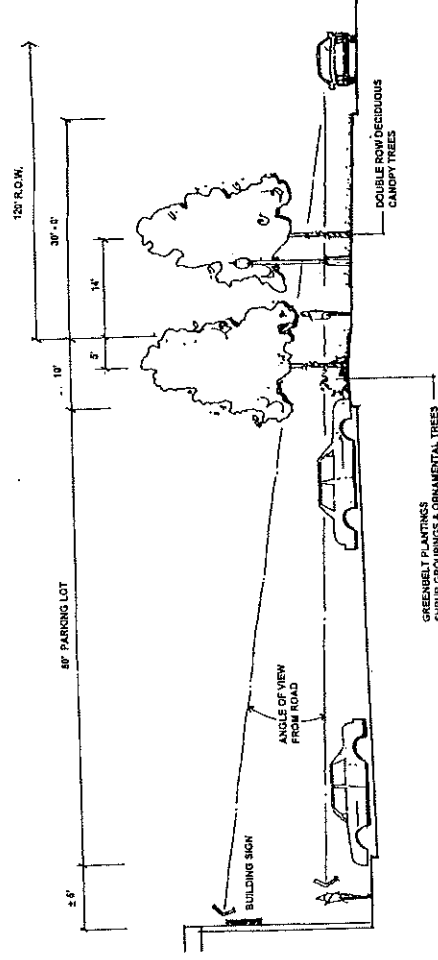
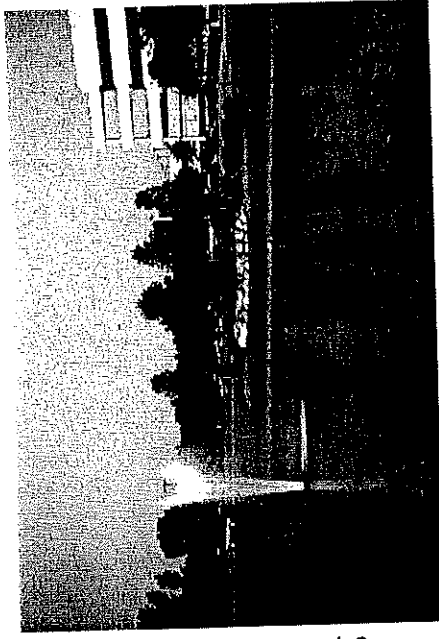


Landscape Option (3)

Internal Parking Lot Landscaping: A minimum of 15 square feet of landscaped area per parking space shall be provided. Landscaping shall consist of at least one canopy or evergreen tree and 2 shrubs for every 10 parking spaces. Each planting island shall be at least 150 square feet in area and shall have a minimum width of 8 feet. Landscaped areas within 20 feet of the perimeter of the parking lot may be counted toward this requirement, provided that such areas are not also counted toward other landscape or screening requirements.

Landscape Features - Highlights

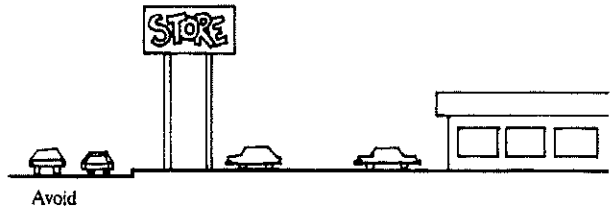
- Encourage use of drainage basins as site amenities.
- Consolidate drainage basins to avoid small, multiple basins that result in long-term maintenance issues.
- Encourage higher quality landscaping to screen parking lots and provide entry features.



Signs

The location, size and lighting of signs is as important as any other building component to consider during the design process. Monument or base signs, rather than pole or pylon signs, shall be used throughout the corridor. The general strategy should be to integrate the design of the sign and the building. The sign base shall be constructed of the same materials as the building, and the sign style shall be consistent with the architecture of the building. For all freestanding signs, landscaping, such as a combination of low shrubs, stones, and flowers shall be planted around the base. The following sign standards are recommended:

- **Monument Signs:** Monument or base signs shall be used rather than pole or pylon signs. Short post-mounted signs may be permitted provided the posts are surrounded by landscaping or some other natural material so they are not prominently visible.
- **Height, Area and Location:** The maximum height of monument or base signs shall be six (6) feet for office and industrial uses and ten (10) feet for retail or other commercial uses such as hotels and restaurants. The maximum sign area shall be based on frontage as determined by the Township's ordinance; however, the maximum sign area shall be 64 square feet. Signs shall not be placed on berms to artificially increase the height. In the case of large warehousing or trucking uses which are required to be located off of the Ecorse or Haggerty road frontage, monument signs may be placed at the driveway entrance to the site from Ecorse or Haggerty roads.
- **General Sign Design Standards:**

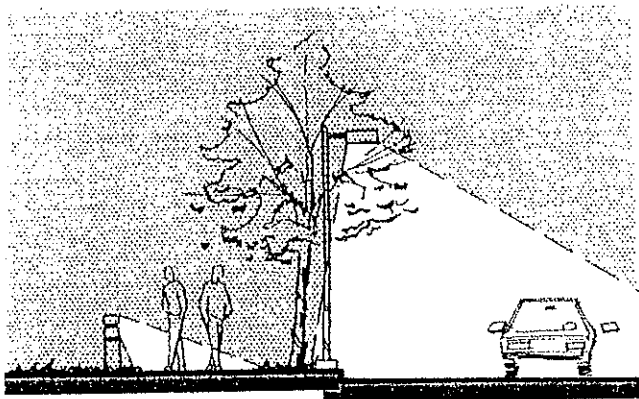


- The sign base shall use a material and color that complements those of the primary building.
- Landscaping consisting of shrubs, flowers, and accent stones shall be provided around the base of all signs.
- Lettering shall be consistent with the building (a colonial script for a colonial building, or a sans serif style of lettering for a modern building).
- The message on the sign shall be kept simple. Too many words reduces its effectiveness, especially on a road with high-speed traffic.
- Signs should be limited to two colors or three shades and use one lettering style.
- Neon lighting of signs is prohibited, unless the applicant can demonstrate that the use of neon is compatible with the building architecture and surrounding area.
- Ground lighting should be flush with the grade and/or obscured by landscaping.

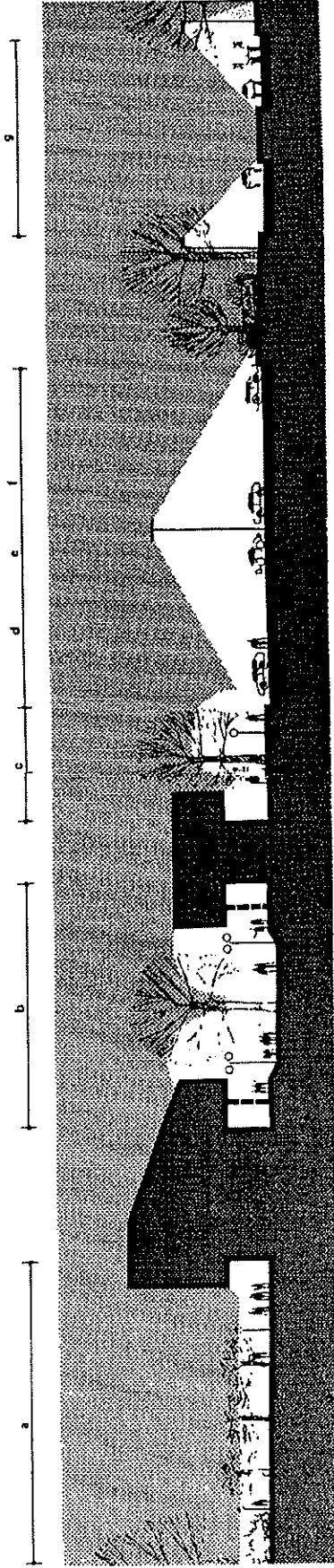
Lighting

The provision of sufficient lighting is necessary to provide a safe environment. Lighting can also be used as an important design feature. The type of pole and fixture will affect the overall appearance of a site during the day. More important, the type of lamp and the intensity of lighting will have a significant impact on the appearance of the property at night.

- **Fixture and Lamp Type:** "Shoe-box" style fixtures should be used. The two most common types of lamps are sodium and metal halide. The metal halide lamps, which generate a clean, white light and truer color rendition than sodium lamps, are required for the corridors.
- **Pole Height:** Excessive pole height is unattractive and causes light spread over too large an area with uneven intensity. Light poles shall not exceed 35 feet in height and shall conform to the lighting area standards illustrated on page 70.
- **Light Intensity:** The security value of lighting must be balanced with the concern to minimize impact on adjacent properties. Overall lighting levels shall be compatible with the surrounding area. Lighting should be uniform without spots with too little or too much light. Area lighting should be predominantly directed downward and shall be designed so that no light is directed off the site. All lamp fixtures, including building mounted lights, shall be cut-off fixtures that do not allow light to shine above the horizontal plane. A photometric grid plan can be requested to ensure that lighting is evenly and properly distributed (often provided by the light vendor at no cost to the developer). Lighting should conform with standards for placement, coverage, height and illumination illustrated on the following page.
- **Special Lighting:** Bollard lighting to illuminate pedestrian walkways and highlight driveways is encouraged to reduce the height and glare associated with higher mounted lights. Decorative lighting and fixtures should be encouraged on commercial sites such as retail centers. Ornamental fixtures should have a design that is consistent with the architectural style of the building and "modernistic" styles that quickly become dated in appearance or that are not easily maintained should be avoided.



Lighting Standards - Pole Height, Coverage and Intensity



- a. Outer pedestrian path system: warm, semiconcealed source; 12' maximum height, dark poles; 8 lumen average per square foot surface area.
- b. Pedestrian plaza: warm, semiconcealed, or visionable source; 20' maximum height, dark poles; lumens average per square foot surface area related to architectural design solution.
- c. Inner pedestrian path system: warm, semiconcealed, or visible source; 12' maximum height, dark poles; 1.0 lumen average per square foot surface area.
- d. Parking: cool, concealed source, cut-off design; 30'-45' heights, dark poles; 0.9 lumen average per square foot surface area.
- e. Entry roadway: cool, concealed source, cut-off design; 35' height, dark poles; 90' spacing, both sides; 1.2 lumen average per square foot surface area.
- f. Minor roadway: cool, concealed source, cut-off design; 35' height, dark poles; 90' spacing, one side or staggered; 0.8 lumen average per square foot surface area.
- g. Major roadway: cool, concealed source, cut-off design; 35' height, dark poles; 120' spacing both sides; 1.2 lumen average per square foot surface area.

VII. Implementation

Priorities, Time Frame, Funding and Responsibilities

Implementation of this corridor plan will require involvement by a wide variety of entities and funding sources. The following table outlines actions to implement this Plan including priorities, a time frame for action, funding sources and responsible entities.

Table 16: Priorities, Time Frame, Funding and Responsibility			
Recommendations	Priority	Time Frame	Funding Source/ Responsibility
A. Future Land Use and Zoning			
Adopt Haggerty Road and Ecorse Road Corridor Plan	High	August 1999	Adopted by Planning Commission
Adopt MT, Industrial Transportation District	N/A	Completed	Recommended by Planning Commission, adopted by Twp. Board
Zoning Changes to Conform with Corridor Plan Future Land Uses: <ul style="list-style-type: none"> • Eastern end of Ecorse Rd. and Denton area: M-2, General Industrial to M-1, Light Industrial • Northwest of Belleville Rd. and Tyler Rd.: C-2, Extensive Highway Business to C-1, General Business • Southwest of Belleville Rd. and Ecorse Rd.: C-1, General Business to O-T, Office Technology • WCCC area: M-1, Light Industrial to O-T, Office Technology 	Moderate	1999/2000	Recommended by Planning Commission, adopted by Twp. Board
B. Design Standards			
Adopt Corridor Overlay District	High	Nov/Dec 1999	Recommended by Planning Commission, adopted by Twp. Board
Application of Design Standards	High	on-going	Planning Commission during site plan review

Table 16: Priorities, Time Frame, Funding and Responsibility

Recommendations	Priority	Time Frame	Funding Source/ Responsibility
C. Road Improvements			
Coordinate w/MDOT & Wayne Co. to retain Ecorse Rd. r-o-w	High	Aug/Sept 1999	Township Administration
Coordinate With Wayne County Ring Road Plan (i.e., Ring Road Phase II)	High	1999/2000	Twp. Admin./Planning Commission/Twp. Board
Interchange Improvements at Ecorse and I-275	Moderate	1999-2005	Various, federal, state and local
Other priority Intersection improvements: <ul style="list-style-type: none"> • Ecorse and Haggerty • Ecorse and Belleville • Haggerty and Tyler 	Moderate	1999-2005	Various, federal, state and local
Gateway Improvements	Moderate	1999-2005	Various, federal, state and local
Boulevard improvements to Haggerty and Ecorse	Moderate	2005-2010	Various, federal, state and local

Funding for corridor improvements will come from a variety of sources, as summarized below:

- **Grants:** There are a variety of grant funding sources for road improvements. The principle federal program at this time is the TEA-21 grant program. This program includes funding for specific transportation improvements as well as enhancements such as streetscape improvements and pathway projects. In addition to federal funding, special state grants are available for economic development projects. One such source, Category A grants, are tied to job creation. This funding source can be combined with special assessments and other funding, and used to pay for corridor improvements. For example, Category A funding and special assessments were used to fund boulevard improvements along the 12 Mile Road corridor in Farmington Hills.
- **County Funding:** Both Ecorse and Haggerty roads are County roads and thus eligible as part of the County's normal road improvement funding process. The priority place on County funded improvements to Ecorse Road may be elevated as a result of the Ring Road program which is intended to form a stronger transportation link between Metro and Willow Run airports.
- **Developer Contributions:** Through the development process, developers of individual parcels can be encouraged to contribute right-of-way and to make road improvements. Developer

contributions can be facilitated through the requirement of traffic impact studies that quantify traffic impacts and assist in identifying necessary road improvements.

- **Special Assessments:** Special assessment districts provide the option of bonding to leverage funds for road improvements. The special assessment process requires a commitment by a majority of the property owners within the assessment district. Assessments may be allocated based on a formula that distributes costs based on benefits. Road frontage is the most common method, but other methods, such as traffic generation, may be used.
- **Coordinated Funding Strategy:** Ultimately a coordinated funding strategy will be needed to realize the full scope of road improvements and enhancements envisioned by this plan. The Township has already initiated a "Corridor Development Team" and periodic meetings with local, County and MDOT representatives to begin the funding and coordination process.

APPENDIX A

Haggerty Road and Ecorse Road Corridor Overlay District (HECOD)

Sec. 100 Intent and Purpose

The Ecorse Road and Haggerty Road Corridor Overlay Zoning District (HECOD) establishes regulations applicable to site development including building setbacks, parking, landscaping and signage. This overlay district is based upon careful evaluation, study and plans completed as part of a corridor planning effort by the Van Buren Township Planning Commission. Objectives of the overlay district are as follows:

- Promote development consistent with the Ecorse Road and Haggerty Road Corridor Plan.
- Establish consistent standards for site development and building appearance.
- Achieve well managed, safe, and efficient traffic flow.

The application of these standards contributes to economic development objectives and will uphold and increase the value of private property. Access management standards in this district will help ensure safe and efficient traffic flow by controlling the number and location of access points. These measures will reduce traffic accidents and increase road capacity, thus maximizing the benefit from road improvements.

Sec 200 Definitions

Corridor Plan means the Haggerty Road and Ecorse Road Corridor Plan as adopted by the Van Buren Planning Commission.

Corridor Plan Boundaries means the area designated within the boundaries of the Haggerty Road and Ecorse Road Corridor Plan as adopted by the Van Buren Planning Commission.

Road Authority means the governmental entity with jurisdiction over a road subject to the standards of the HECOD.

Arterial Road: A road designated as an arterial road, thoroughfare or major thoroughfare by the Van Buren Township Master Plan as amended or as determined by the Planning Commission.

Local Street: A street or road designated as a local street by the Van Buren Township Master Plan as amended or as determined by the Planning Commission.

Sec. 300 Development Standards

Development within the HECOD shall meet the following standards. (Dimensional standards are summarized in Table A-3 at the end of this Section):

1. Permitted and Special Uses:

The permitted uses, special uses and accessory uses shall be as permitted by the underlying zoning district.

2. Setbacks and Right-of-way Preservation/Dedication:

a. **Setbacks:** All setbacks shall be as required by the underlying district regulations.

b. **Preservation of Right-of-way:** The use of flexible development options to preserve the area designated for future right-of-way is encouraged within the HECOD. Techniques which may be used include PUD and/or cluster options currently available in the zoning ordinance. Planned unit development or cluster options permit development to be clustered on a smaller portion of the site allowing open space, including future right-of-way, to be preserved. Flexible development options also are encouraged for development within the corridor boundaries because such options enable the Township to obtain commitments to achieve design objectives of the Corridor Plan and HECOD. The Township shall review the site plan to ensure that environmental features and adjacent land uses are not significantly impacted and that the intent of the HECOD and Corridor Plan are met.

c. **Right-of-way Dedications:** The actual dedication of right-of-way is also encouraged in exchange for development flexibility allowed by PUD or cluster options. The dedicated right-of-way area may be counted toward a portion of the open space requirements of the PUD or cluster/open space provisions. Wayne County, in cooperation with the Township may enter into agreements with a petitioner and may accept or execute documents of title, including, but not limited to, deeds, covenants and easements that convey rights to land designated as future right-of-way or that place restrictions on the use and development of future right-of-way. Prior to execution, any agreement or document of title shall be approved by Wayne County.

3. Access Standards and Traffic:

The following driveway spacing, access management and traffic impact requirements shall apply to all development within the HECOD.

a. **General Standards for Driveway Location** Driveways shall be located so as to minimize interference with the free movement of traffic, to provide adequate sight distance, and to provide the most favorable driveway grade. Driveways, including the radii but not including right turn lanes, passing lanes and tapers, shall be located entirely within the right-of-way frontage, unless otherwise approved by Wayne County and upon written certification from the adjacent property owner agreeing to such encroachment.

b. **Standards for the Number of Nonresidential Driveways** The number of nonresidential driveways shall be the minimum necessary to provide reasonable access for regular traffic and emergency vehicles, while preserving traffic operations and safety along the public roadway. A single means of direct or indirect access shall be provided for each separately owned parcel. Where possible, this access shall be via a shared driveway or a service drive. Where it is not possible to provide shared access, this access may be by a single driveway. Additional driveways may be permitted for a property only under one of the following:

- i. One (1) additional driveway may be allowed for properties with a continuous frontage of over five hundred (500) feet, and one (1) additional driveway for each additional five hundred (500) feet of frontage, if the Planning Commission determines there are no other reasonable access opportunities.
- ii. Two one-way driveways may be permitted along a frontage of at least one hundred twenty five (125) feet, provided the driveways do not interfere with operations at other driveways or along the street.
- iii. The Planning Commission may determine additional driveways are justified due to the amount of traffic generated by the use without compromising traffic operations along the public street, based upon a traffic impact study submitted by the applicant.

c. Driveway Spacing Standards:

- i. **Between driveways:** The minimum spacing between two nonresidential driveways on the same side of the road shall be based upon posted speed limits along the parcel frontage. The minimum spacings indicated below are measured from centerline to centerline.

Table A-1: Driveway Spacing	
Posted Speed Limit (MPH)	Minimum Driveway Spacing (In Feet)
30	155
35	185
40	225
45+	300

For sites with insufficient road frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

- ii. **Offsets:** To reduce left-turn conflicts, new nonresidential driveways should be aligned with driveways or streets on the opposite side of the roadway where possible. If alignment is not possible, driveways should be offset a minimum of two hundred fifty (250) feet along an Arterial roadway and one hundred fifty (150) feet along other roadways. Longer offsets may be required depending on the expected inbound left-turn volumes of the driveways, or sight distance limitations.
- iii. **Spacing from intersections:** Minimum spacing requirements between a proposed nonresidential driveway and an intersection either adjacent or on the opposite side of the street may be set on a case-by-case basis by the Planning Commission during site plan review but in no instance shall be less than the distances listed below. The following measurements are from the near edge of the proposed driveway, measured at the throat perpendicular to the street, to the near lane edge of the intersecting street or pavement edge for uncurbed sections.

Table A-2: Minimum Nonresidential Driveway Spacing From Road Intersections

Location of Driveway	Minimum Spacing for a Full Movement Driveway	Minimum Spacing for a Channelized Driveway Restricting Left Turns
Along an Arterial Road from intersection with another Arterial	250 feet	250 feet
Along an Arterial Road from intersection with a local street	175 feet	175 feet

For sites with insufficient frontage to meet the above criterion, the Planning Commission may require construction of the driveway along a side street, a shared driveway with an adjacent property, construction of a driveway along the property line farthest from the intersection or require a service/frontage road.

d. Nonresidential Driveway Design: Nonresidential driveways shall be designed according to the standards of the Road Authority and in accordance with the following:

- i. For high traffic generators, or for nonresidential driveways along roadways experiencing or expected to experience congestion, all as determined by the Planning Commission, two egress lanes may be required (one being a separate left turn lane).
- ii. Where a boulevard entrance is designed by the applicant or Planning Commission, a fully curbed island shall separate the ingress and egress lanes. The radii forming the edges on this island shall be designed to accommodate the largest vehicle that will normally use the driveway. The minimum area of the island shall be one hundred eighty (180) square feet. The Planning Commission may require landscaping on the section outside the public right-of-way. Such landscaping shall be tolerant of roadway conditions. Direct alignment of boulevard entrances is discouraged.
- iii. All nonresidential driveways shall provide an unobstructed clear vision between a height of three (3) feet and ten (10) feet in a triangular area measured ten (10) feet back from the point of intersection of the driveway and the street right-of-way.

e. Shared Driveways and Service/Frontage Roads The use of service roads, in conjunction with driveway spacing, preserves traffic flow and minimizes traffic conflicts, while retaining reasonable access to the property. Where the Planning Commission determines that reducing the number of access points may have a beneficial impact on traffic operations and safety while preserving the right to reasonable access, access from a side street, a shared driveway or service road connecting two or more properties or uses may be required. In particular, service drives, frontage roads or parking lot maneuvering lane connection between lots or uses may be required in cases:

- Where the driveway spacing standards of this section cannot be met.

- When the driveway could potentially interfere with traffic operations at an existing or potential traffic signal location.
- The site is along a portion of the Corridor where there is congestion or a relatively high number of accidents.
- The property frontage has limited sight distance.
- The fire department recommends a second means of emergency access.

f. Service Road or Shared Driveway Design Standards:

- i. **Location:** Shared driveways or service roads shall generally be parallel or perpendicular to the front property line and may be located either in front of, adjacent to, or behind, principal buildings. In considering the most appropriate alignment for a service road, the community shall consider the setbacks of existing buildings and anticipated traffic flow for the site.
- ii. **Access Easement:** Shared driveways and service roads shall be within an access easement recorded with the appropriate Road Authority which permits traffic circulation between properties. This easement shall be 60 feet wide, except an access easement parallel to a public street in front of the building may be 40 feet wide. The required width shall remain free and clear of obstructions, and shall not be used for parking unless otherwise approved by the Planning Commission.
- iii. **Driveway Storage Length:** A driveway storage area shall be provided between the intersection of the service drive with an arterial road and any internal circulation lane. The depth of the storage area shall be sufficient to accommodate expected vehicle queues. As a guideline, the minimum storage area should be at least 60 feet. A larger or smaller storage area may be required depending upon the trip generation characteristics of uses served by the drive.
- iv. **Construction and Materials:** Service roads shall have a base, pavement and curb with gutter in accordance with the road design standards of the Road Authority.
- v. **Elevation:** The site plan shall indicate the proposed elevation of the service road at the property line and the Building Department or appropriate authority of each community shall maintain a record of all service road elevations so that their grades can be coordinated.
- vi. **Maintenance:** Each property owner using a shared driveway or service drive shall be responsible for its maintenance. The community shall require a copy of the maintenance agreement between all property owners responsible for the shared facility to ensure that an agreement is in place to provide adequate maintenance.

g. Modification of Standards for Special Situations

During site plan review the Planning Commission shall have the authority to modify the standards of this Section upon consideration of the following:

- i. The standards of this section would prevent reasonable access to the site.
- ii. Access via a shared driveway or service/frontage road is not possible due to the presence of existing buildings or topographic conditions.

- iii. Roadway improvements (such as the addition of a traffic signal, a center turn lane or bypass lane) will be made to improve overall traffic operations prior to project completion, or occupancy of the building.
 - iv. The use involves the redesign of an existing development or a new use which will generate less traffic than the previous use.
 - v. The proposed location and design is supported by the MDOT as an acceptable design under the existing site conditions. The Planning Commission may also request the applicant provide a traffic impact study to support the requested access design.
 - vi. The modification shall be of the minimum amount necessary, but in no case shall spacing of a full-access driveway be less than sixty (60) feet, measured centerline to centerline.
 - vii. Where there is a change in use or expansion at a site that does not comply with standards herein, the Planning Commission shall determine the amount of upgrade needed in consideration of the existing and expected traffic pattern and the capability to meet the standards herein to the extent practical.
- h. **Traffic Impact Studies:** When warranted, a traffic impact study (TIS) shall be prepared by the developer or applicant to determine the potential future traffic conditions on the adjacent roadways once a proposed development is finished. If required, the TIS shall predict the peak-hour operational conditions at site driveways and road intersections affected by the development. The results of the TIS shall be used in the final design of access points and internal circulation and may identify necessary off-site road improvements. As a minimum, the TIS shall meet standards as published by SEMCOG and MDOT in the handbook titled *Evaluating Traffic Impact Studies* and shall be found acceptable by the Planning Commission.

4. Lot standards:

- a. **Minimum lot width:** Lot width requirements for districts with frontage on the Corridor should be evaluated against the access management standards in this district to determine if they are adequate. Small lot width requirements encourage a greater number of driveway access points which impede traffic flow and reduce safety. A minimum width of 100 feet is recommended for all residential districts and a minimum width of 150 feet is recommended for all non-residential districts. Larger widths may be appropriate for certain districts and should be encouraged.
- b. **Minimum lot depth:** Larger minimum lot depth requirements should be encouraged. Deeper lots can better accommodate setback requirements when measured from the future right-of-way line as required by this district and allow area for service drives and internal circulation lanes which reduce the frequency of access points.

5. Architectural Standards:

- a. **Building Facade Materials:** Building facades (front only) shall be finished with a minimum of 50 percent brick, stone or decorative masonry materials. Not more than 50 percent of building facades shall be composed of glass. The first floor of buildings (to a maximum height of 15 feet) shall consist of at least 25% glass. Vinyl aluminum, steel or

EIFS (exterior insulation finish systems) shall not compose more than 25 percent of facade materials.

- b. **Building Design Features:** To the maximum extent practicable, building designs shall incorporate building design features such as full gable roofs, recesses, off-sets, arches, colonnades, columns, pilasters, detailed trim, brick bands, contrasting courses of materials, cornices, or porches to vary building facades.
- c. **Scale and Location:** In the case of developments with very large building footprints and building masses (over 200,000 square feet) such large buildings shall be located off the road frontage to reserve the road frontage for smaller buildings. If this type of configuration is not practicable, architectural features as listed above shall be provided at least every 200 feet of the building facade to reduce the impact and mass of very large buildings and improve their appearance.

6. **Corridor Landscaping/Buffers/Screening/Lighting:**

- a. **Required Landscaping:** The following frontage and parking lot landscape requirements shall be required within the HECOD. Where parking lots or vehicular circulation lanes front on the public road, one of three optional buffer and landscape options shall be required as prescribed in Table A-2:

Table A-3: Frontage Landscape Requirements		
Where Parking Fronts on the Public Road:	Minimum Frontage Buffer (in feet)	Frontage Landscaping
(1) Landscape strip	15	1 tree per 40 feet 10 shrubs per 30 feet
(2) 3 foot high berm	25	1 tree per 40 feet 5 shrubs per 30 feet
(3) 3 foot high brick and/or decorative block wall	6	1 tree per 40 feet 5 shrubs per 30 feet

- b. **Internal Parking Lot Landscaping:** A minimum of 15 square feet of landscaped area per parking space shall be provided. Landscaping shall consist of at least one canopy or evergreen tree and 2 shrubs for every 10 parking spaces. Each planting island shall be at least 150 square feet in area and shall have a minimum width of 8 feet. Landscaped areas within 20 feet of the perimeter of the parking lot may be counted toward this requirement, provided that such areas are not also counted toward other landscape or screening requirements.
 - c. **Parking and Circulation in Front Yards:** Not more than 50 percent of the proposed front yard area shall be devoted to parking and circulation.
 - d. **Screening and Buffers for Residential Areas:** Screening and landscaping between non-residential and residential districts or uses as normally applicable in the underlying zoning district shall be required.
 - e. **Planting Standards:** All landscaping shall comply with the standards of the Zoning Ordinance and the Corridor Plan.
7. **Signs:** The following standards shall apply to all accessory signs within the HECOD.

- a. **Monument Signs:** All accessory signs shall be monument or base type signs. Short post-mounted signs within the following height limitations may be permitted provided the posts are surrounded by landscaping or some other natural material so they are not prominently visible.
 - b. **Height, Area and Location:** The maximum height of monument or base signs shall be six (6) feet for office and industrial and ten (10) feet for retail or other commercial uses such as hotels and restaurants. The maximum sign area shall be as permitted by the Zoning Ordinance, however, the maximum permitted sign area shall not exceed 64 square feet. Signs shall not be placed on berms to artificially increase the height. In the case of large warehousing or trucking uses which are located off of the Ecorse or Haggerty road frontage to meet the design standards of the HECOD or as required by the M-T, Industrial Trucking district, monument signs at may be placed at the driveway entrance to the site from Ecorse or Haggerty roads.
 - c. **Lighted Signs:** All lighted monument or base signs shall be lit with capped, exterior white ground lights which have a steady, stationary light of reasonable intensity and shielded from all adjacent streets and residential buildings. Ground lights shall be flush with the grade or obscured from view off-site by ground level landscaping.
 - d. **Wall signs:** Wall signs shall be as permitted by the Zoning Ordinance.
8. **Storm Drainage Features:** Storm drainage basins shall meet the design standards of the Corridor Plan. Where common drainage facilities are proposed the applicant shall submit a common maintenance agreement to provide for equitable contributions by each separate land owner using the facility. The agreement shall ensure that maintenance responsibilities are properly defined and that common area fees are sufficient to provide for the maintenance of the common drainage facility.
9. **Sidewalks and Pathways:** All development within the HECOD shall provide a continuous sidewalk or pathway along the entire road frontage of the site. A five (5) foot wide concrete sidewalk shall be provided for sites fronting on the north side of Ecorse Road and the east side of Haggerty Road. An eight (8) foot wide concrete path shall be provided for sites fronting on the south side of Ecorse Road and the west side of Haggerty Road.

Sec. 400 Appeals and Variance.

Any appeal or variance from the standards or requirements of the HECOD shall be reviewed in accordance with the variance and appeal procedures as set forth in the Zoning Ordinance.

Sec. 600 Disclaimer.

Approval of a proposed development, with or without conditions, acceptance of a donation or dedication of land, execution of agreements and acceptance or execution of documents of title are not to be construed as a commitment that construction or improvements to the Corridor or related facilities will occur. The construction of, or improvement to the Corridor shall not serve as a consideration for any agreements undertaken to preserve right-of-way.

Table A-4: Summary of HECOD Standards**Road Design and Access Management**

Boulevard Future Right-of-way	170-80 feet
Parkway Future Right-of-way	200-40 feet
Walkway and Pathways: <ul style="list-style-type: none"> • North side of Ecorse & east side of Haggerty • South side of Ecorse & west side of Haggerty 	5 foot wide sidewalk one side 8 foot wide multi-purpose path one side
Driveway Spacing	175 - 250 feet
Shared Access Easement Width	60 feet, 40 feet if parallel to a public street; 26 foot pavement width

Building Setback, Architecture, Signs and Lighting

Front Building Setback	50 feet
Building Facade Materials:	<ul style="list-style-type: none"> • minimum 50% brick, stone or decorative masonry • not more than 50% glass; 1st floor at least 25% glass • vinyl aluminum, steel or EIFS no more than 25% • architectural feature required at least every 200 feet
Light Pole Height	35 feet
Signs	6 foot height for office or industrial; 10 feet for retail, hotels, etc. Maximum area 64 sq. ft.

Parking and Circulation

Parking Lots	maximum of 50 percent of the proposed front yard ¹ area devoted to parking and circulation.
Truck Turning Radius	outside turning radius: 45 to 55 feet
Truck Dock Approach	100 to 120 feet deep

Landscaping

Frontage Landscaping	one tree and four (4) shrubs for every 40 ft. of frontage; additional screening required if parking lot on frontage
Parking Lot	15 sq. ft. landscaped per parking space; one tree and 2 shrubs for every 10 parking spaces

¹ Proposed front yard means the area devoted to the front yard on a proposed site plan, not the required front yard based on required setback requirement.

APPENDIX B

Model Traffic Impact Ordinance

Model Traffic Impact Study Ordinance

Sec. 101 Intent

(Community name) recognizes the direct correlation between land use decisions and traffic operations. The intent (chapter, article or section) is to permit accurate evaluation of expected impacts of proposed projects to assist in decision-making. This ordinance is further intended to help achieve the following objectives:

- Provide a standard set of analytic tools and format for preparing traffic impact studies.
- Allow the community to assess the effects that a proposed project may have on the community by outlining information needed and evaluation procedures to be used.
- Help ensure safe and reasonable traffic operating conditions on streets and intersections after development of the proposed use.
- Reduce the negative traffic impacts created by individual developments, and which may negatively impact such developments, by helping to ensure the transportation system can accommodate the expected traffic safely and efficiently.
- For rezonings, the traffic impact study is intended to evaluate if the rezoning is timely and, if inconsistent with the master plan, if the rezoning would be a logical alternative to the master plan.
- Realize a comprehensive approach to the overall impacts of various developments along a corridor or within part of a community rather than a piecemeal approach.
- Provide direction to community decision makers, road agencies and developers of expected impacts of a project.
- Alert the community, transportation agencies, and developers of improvements or modifications needed to the roadway, access or site design.
- Protect the substantial public investment in the existing street system.

Sec. 102 Definitions

The following terms used in this ordinance shall be defined as follows:

Development: A site plan, subdivision tentative preliminary plat, condominium project, mobile home park, redevelopment, reuse or expansion of a use or building.

Average Day: A Tuesday, Wednesday, or Thursday for most uses. The average day may be a Saturday for uses that have higher peak-hour traffic volumes on a Saturday rather than mid-week.

Gap (critical gap): The median time headway (in seconds) between vehicles in a major traffic stream which will permit side-street vehicles at STOP or YIELD controlled approach to cross through or merge with the major traffic stream under prevailing traffic and roadway conditions.

Level of service: A qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time, delay, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Master Plan: The plan adopted by the (community name) Planning Commission which illustrates the intended future land use pattern and may also describe roadway functional classifications and intended improvements to the transportation system (i.e., Comprehensive Plan, Future Land Use Plan, Thoroughfare Plan, etc.)

Peak Hour: A one hour period representing the highest hourly volume of traffic flow on the adjacent street system during the morning (a.m. peak hour), during the afternoon or evening (p.m. peak hour); or representing the hour of highest volume of traffic entering or exiting a site (peak hour of generator).

Study Area: The geographic area containing those critical arterial intersections (and connecting roadway segments) which are expected to be affected by the site-traffic generated by a development.

Traffic Impact Study: The analysis of the potential traffic impacts generated by a proposed project. This type of study and level of analysis will vary dependent upon the type and size of the project - Traffic Impact Assessment, Rezoning Traffic Impact Study, Traffic Impact Statement, and Regional Traffic Impact Study.

Trip (i.e., directional trip): A single or one-direction vehicle movement with either the origin or the destination (exiting or entering) inside a study site.

Sec. 103 Applicability

A traffic impact study shall be required and shall be submitted by a petitioner for a rezoning, site plan or subdivision plan under any of the following situations. The type of study required shall be dependent upon the type and scale of the proposed use and existing traffic conditions.

a. A "Rezoning Traffic Impact Study" for the following Rezoning and Master Plan amendment requests:

1. A proposed rezoning consistent with the community's long range land use plan, but when the timing of the change may not be appropriate due to traffic issues. This threshold applies when a rezoning would permit uses that could generate 100 or more directional trips during the peak hour, or at least 1000 more trips per day, than the majority of the uses that could be developed under current zoning.
2. A proposed rezoning which is inconsistent with the community master plan when permitted uses could generate at least one hundred (100) directional trips during the peak hour of the traffic generator or the peak hour on the adjacent streets or over seven hundred fifty (750) trips in an average day.
3. A site along any corridor identified as a critical/congested/safety management corridor in the Master Plan or Long Range Transportation Plan.
4. Proposed amendments to the Master Plan which would recommend uses which would generate higher traffic volumes.

b. Development Proposals: site plans, plats, mobile home parks and condominium projects

1. A Traffic Impact Statement shall be required for any proposed development which would be expected to generate over one hundred (100) directional trips during the peak hour of the traffic generator or the peak hour on the adjacent streets, or over seven hundred fifty (750) trips in an average day.
2. A Traffic Impact Assessment shall be required for projects which could generate 50-99 directional trips during a peak hour.
3. A Traffic Impact Statement shall be required for any proposed development along a corridor identified in the Master Plan or Long Range Transportation Plan as a Critical, Congested, or Safety Management Corridor (segments which currently experience, or are projected to experience, significant congestion or relatively high crash rates) which would be expected to generate over fifty (50) directional trips during the peak hour of the traffic generator or the adjacent streets, or over five hundred (500) trips in an average day.

4. A Traffic Impact Statement or Assessment, based on the thresholds in 1 and 2 above, shall be required for new phases or changes to a development where a traffic study is more than two (2) years old and roadway conditions have changed significantly (volumes increasing more than 2 percent annually).
5. A Traffic Impact Assessment shall be required for a change or expansion at an existing site where the increased land use intensity is expected to increase traffic by at least fifty (50) directional trips in a peak hour or result in at least 750 vehicle trips per day for the entire project. A Traffic Impact Statement shall be required if the traffic is expected to increase by over 100 directional trips in the peak-hour.
6. Special (conditional) land uses, planned unit developments, and other uses which are specifically required to provide a traffic impact study in the zoning ordinance. The type of study shall be based on the thresholds in Items 1 and 2.
7. A change in a Planned Unit Development (PUD) to a more intense use (Note: on a case-by-case basis or using thresholds similar to those above).
8. Where required by the road agency to evaluate access issues.

Sec. 104 Traffic Impact Study Contents:

a. Description of the site, surroundings, and study area: Illustrations and a narrative should describe the characteristics of the site and adjacent roadway system (functional classification, lanes, speed limits, etc.). This description should include surrounding land uses, expected development in the vicinity which could influence future traffic conditions, special site features and a description of any committed roadway improvements. The study should define and justify the study area selected for analysis.

b. Description of the requested zoning or use

1. Traffic study for a rezoning or Master Plan amendment request: a description of the potential uses which would be allowed, compared to those allowed under current zoning. If the use is not consistent with the community's master plan, an explanation of the difference should be provided.
2. Traffic study for a site plan review, mobile home park, condominium project or subdivision tentative preliminary plat, or specified Special Land Uses: a description of factors such as the number and types of dwellings units, the gross and usable floor area, the number of employees and shift change factors. Intended phasing or future expansion should also be noted.

c. Description of existing traffic conditions

1. Traffic counts: Existing conditions including existing peak-hour traffic volumes (and daily volumes if applicable) on street(s) adjacent to the site. Existing counts and levels of service for intersections in the vicinity which are expected to be impacted, as identified by the community at a pre-application conference or discussion, should be provided for projects requiring a Traffic Impact Statement or Regional Traffic Analysis. Traffic count data shall not be over two (2) years old, except the community or road agency may permit 24 hour counts up to three (3) years old to be increased by a factor supported by documentation or a finding that traffic has increased at a rate less than two percent (2%) annually in the past three to five years.

Traffic counts shall be taken on a Tuesday, Wednesday or Thursday of non-holiday weeks. Additional counts (i.e. on a Saturday for a proposed commercial development) may also be required in some cases. The individual or firm performing the impact study shall obtain the traffic counts during average or higher than average volume conditions (i.e. regarding weather or seasonal variations and in consideration of any construction or special events) for the area under study.

2. Roadway characteristics shall be described and illustrated, as appropriate. Features to be addressed include lane configurations, geometrics, signal timing, traffic control devices, posted speed limits, average running speeds and any sight distance limitations. Existing levels of service shall be calculated for intersections included within the study area.
3. Existing driveways and potential turning movement conflicts in the vicinity of the site shall be illustrated and described.
4. The existing right-of-way shall be identified along with any planned or desired expansion of the right-of-way requested by the applicable road agency.
5. Traffic crash data and analysis covering the most recent three (3) years for the study area or proximity to site access points may be required by the community, particularly for sites along roadways identified as Critical or Congested Corridors. (Note: crash analyses are not generally appropriate for a Rezoning Traffic Study or a Traffic Impact Assessment)

d. Background Traffic Growth

For any project requiring a Traffic Impact Statement with a completion date beyond one (1) year at the time of the traffic study, the analysis shall also include a scenario analyzing forecast traffic at date of completion along the adjacent street network using a forecast based on a network traffic assignment model (if available), historic annual percentage increases and/or future development in the area which has been approved. For project requiring a Regional Traffic Analysis available long range traffic projections shall be used.

e. Trip Generation

1. Forecasted trip generation of the proposed use for the a.m.(if applicable) and p.m. peak hour and average day. The forecasts shall be based on the data and procedures outlined in the most recent edition of Trip Generation published by the Institute of Transportation Engineers (ITE). The applicant may use other commonly accepted sources of data or supplement the standard data with data from at least three (3) similar projects in Michigan.
2. For rezoning requests where a traffic study is required, the study should contrast the traffic impacts of typical uses permitted in the requested zoning district with uses permitted in the current zoning district. The determination of typical uses shall be made by the _____ (Planning Commission, Planning Director, etc.). For Traffic Impact Assessments, Statements, or Regional Traffic Analyses, the rates for the specific use(s) proposed shall be used.
3. Any trip reduction for pass-by trips, transit, ridesharing, other modes, internal capture rates, etc. shall be based both on ITE findings and documented survey results acceptable to the agency reviewers. The community may elect to reduce the trip reduction rates used.
4. For projects intended to be developed in phases, the trip generation by phase shall be described.

f. Trip Distribution

The projected traffic generated shall be distributed (inbound v. outbound, left turn v. right turn) onto the existing street network to project turning movements at site access points, and nearby intersections where required. Projected turning movements shall be illustrated in the report. A description of the application of standard engineering procedures for determining the distribution should also be attached (trip distribution model, market studies, counts at existing driveways, etc.). For projects requiring a Regional Traffic Analysis, use of a network traffic assignment model projection (if available) may be required to help evaluate impacts.

g. Impact Analysis

1. Level of service or "capacity" analysis at the proposed access points using the procedures outlined in the most recent edition of the Highway Capacity Manual published by the Transportation Research Board. For projects requiring a Traffic Impact Statement or Regional Traffic Analysis, before and after capacity analyses shall also be performed for all street intersections where the expected traffic generated at the site will comprise at least five percent (5%) of the existing intersection capacity, and/or for roadway sections and intersections experiencing congestion or a relatively high crash rate, as determined by the community or applicable road agency.

Option: Level of service analysis for intersections identified at the pre-application conference.

2. Gap studies for unsignalized intersections where applicable.
3. The community may require a Regional Traffic Analysis which evaluates the impact on the street network over a wide area and/or for up to 20 years for a project of regional significance, if a network model is available.

h. Access design/Access management standards

The report shall include a map and description of the location and design of proposed access (driveways or new street intersections) including: any sight distance limitations, dimensions from adjacent driveways and intersections within 250 feet on either side of the main roadway, data to demonstrate that the number of driveways proposed is the fewest necessary, support that the access points will provide safe and efficient traffic operation and be in accordance with the standards of (community name) and the applicable road agency. (not required for a Rezoning Traffic Study)

i. Other study items

The traffic impact study shall include:

1. Need for, or provision of, any additional right-of-way where planned or desired by the applicable road agency.
2. Changes which should be considered to the plat or site plan layout.
3. Description of any needed non-motorized facilities.
4. If the use involves a drive-through facility, the adequacy of the (queuing stacking) area should be evaluated.
5. If a median crossover is desired, separate analysis should be provided.
6. If a traffic signal is being requested, the relationship of anticipated traffic to traffic signal warrants in the Michigan Manual of Uniform Traffic Control Devices. Analysis should also be provided on the impacts to traffic progression along the roadway through coordinated timing, etc.
7. Description of site circulation and available sight distances at site driveways.

j. Mitigation/Alternatives

The study shall outline mitigation measures and demonstrate any changes to the level of service achieved by these measures. Any alternatives or suggested phasing of improvements should be described. The mitigation measures may include items such as roadway widening, need for bypass lanes or deceleration tapers/lanes, changes to signalization, use of access management techniques or a reduction in the proposed intensity of

use. Proposed mitigation measures should be discussed with the applicable road agency. The responsibility and timing of roadway improvements shall be described.

k. Qualifications

Preparer. The preparation of a thorough traffic impact study requires extensive background and experience in traffic-related analyses. Therefore, the experience of the preparer best defines his or her ability to provide a technically sound analysis. Recommended preparer requirements are outlined below.

I. The person responsible for the preparation of the study shall meet the following requirements:

1. Three or more years of recent experience in the preparation of traffic impact studies.
2. The development of impact studies (and similar intersection and/or corridor analyses) comprise a major component of the preparer's recent professional experience. This requires ongoing experience and familiarity with the Highway Capacity Manual techniques as well as the computer software (Highway Capacity software and others) that provide level of service results and other analysis findings needed to fully assess potential impacts.
3. Specific education, training, and/or professional coursework in traffic impact analysis from an accredited college or university or other professional transportation training organization (ie. National Highway Institute, Northwestern University Traffic Institute, etc.).
4. The study preparer shall be an associate (or higher) member of one or more professional transportation-related organizations, particularly the Institute of Transportation Engineers (ITE) or the Transportation Research Board (TRB). This helps ensure that the preparer is maintaining their knowledge as new research is published and analysis techniques are changed or refined.

II. In addition, the preparer should have one of the following professional qualifications:

1. A registered engineer (PE).
2. A community planner with AICP or PCP certification.
3. A trained professional transportation planner.

III. Any study involving roadway or traffic signal design work shall be prepared by or under the supervision of a registered engineer (PE) with specific training in traffic engineering.

IV. The study should include a resume of the preparer responsible for the report. The study may also include relevant experience of the preparer's firm. The study should also be signed by the preparer with full recognition of potential liability for the results and recommendations outlined in the report.

Reviewer. Review of the study is important to ensure that the analysis and recommendations are based on accepted practices. The ITE recommends that the traffic impact study be reviewed by "trained traffic engineers or transportation planners." The qualifications of the reviewers should parallel those of the preparers as outlined above.

Sec. 105 Procedures

1. The applicant shall discuss or meet with (community planner/zoning administrator/engineer, etc. as designated by community) to determine if a study is needed, what type of study is needed and specific items to be addressed.

2. The applicant submits traffic impact study to the community, with the request for rezoning or development proposal. A revised study may be required as the scope and details of the request change.
3. The community distributes the traffic impact study to the appropriate road agencies, and adjacent community, if appropriate. A copy may also be submitted to the metropolitan planning organization, transit agency, etc. as appropriate for projects of regional significance or along critical corridors.
4. Road and other review agencies provide community with comments prior to any action on the project.

Sec. 106 Waiver of Study Requirements

The requirement for a traffic impact study, or the study elements listed in Sec. 104 "Traffic Impact Study Contents," may be waived/modified following consultation with a representative of the road agency by the (Municipal (Traffic) Engineer, Planning Director, Zoning Administrator, Planning Commission or Board of Appeals). Reasons for the waiver or modification shall be documented. Factors to be considered include:

- Roadway improvements are scheduled which are expected to mitigate any impacts associated with the proposed project.
- The existing level of service along the roadway is not expected to drop below C due to the proposed project.
- The existing level of service is not expected to be significantly impacted by the proposed project due to specific conditions at this location.
- A similar traffic study was previously prepared for the site and is still considered applicable.

Initial Traffic Evaluation Checklist Form

Form A

(To Be Completed By Local Agency During Pre-application Conference)

I. BACKGROUND

1. Name and Location of Project _____
2. Name of Applicant _____
3. Address and Phone Number of Applicant _____

4. Traffic Impact Study Preparer: _____ Phone: _____
5. Date Application Submitted: _____
6. Applicable Roadway Agencies: _____

II. ANTICIPATED TRAFFIC IMPACTS

(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

TIA = Traffic Impact Assessment TIS = Traffic Impact Statement RTA = Regional Traffic Analysis	No	Maybe	Yes	Study Type (required if maybe or yes)
A. Rezoning				
1. Is the proposed rezoning inconsistent with the Master Plan and would generate at least 100 more peak hour directional trips than uses under the present zoning?				
2. Is the proposed rezoning consistent with the community's Master Plan but would generate 1000 daily trips more than permitted under current zoning or does the community believe the timing of the rezoning may be inappropriate due to traffic conditions?				
B. Site Plan/Condominium/Subdivision Plan				
1. Is the project site located along a "critical", "safety management" or "congested corridor" as defined by the metropolitan planning organization or as identified in a community plan or area's long range transportation plan?				TIA, TIS or RTA
2. Is the project expected to generate 50 to 99 peak hour directional trips or 500-749 trips daily?				TIA
3. Is the project expected to generate 100 to 500 peak-hour directional trips or 750 vehicle trips per day?				TIS
4. Does the project involve amendments to an approved PUD to permit higher traffic generating uses?				Study type varies
5. Does the project involve a permitted or special land use identified by the community as requiring preparation of a traffic impact study?				Study type varies
6. If the project involves the expansion of an existing development, will the expansion result in more than (1) 50 additional peak hour directional trips, or (2) 750 vehicle trips per day for the entire development?				Study type varies
7. Will the project generate over 500 peak-hour directional trips or significant traffic volumes impacting a wide geographic area?				RTA

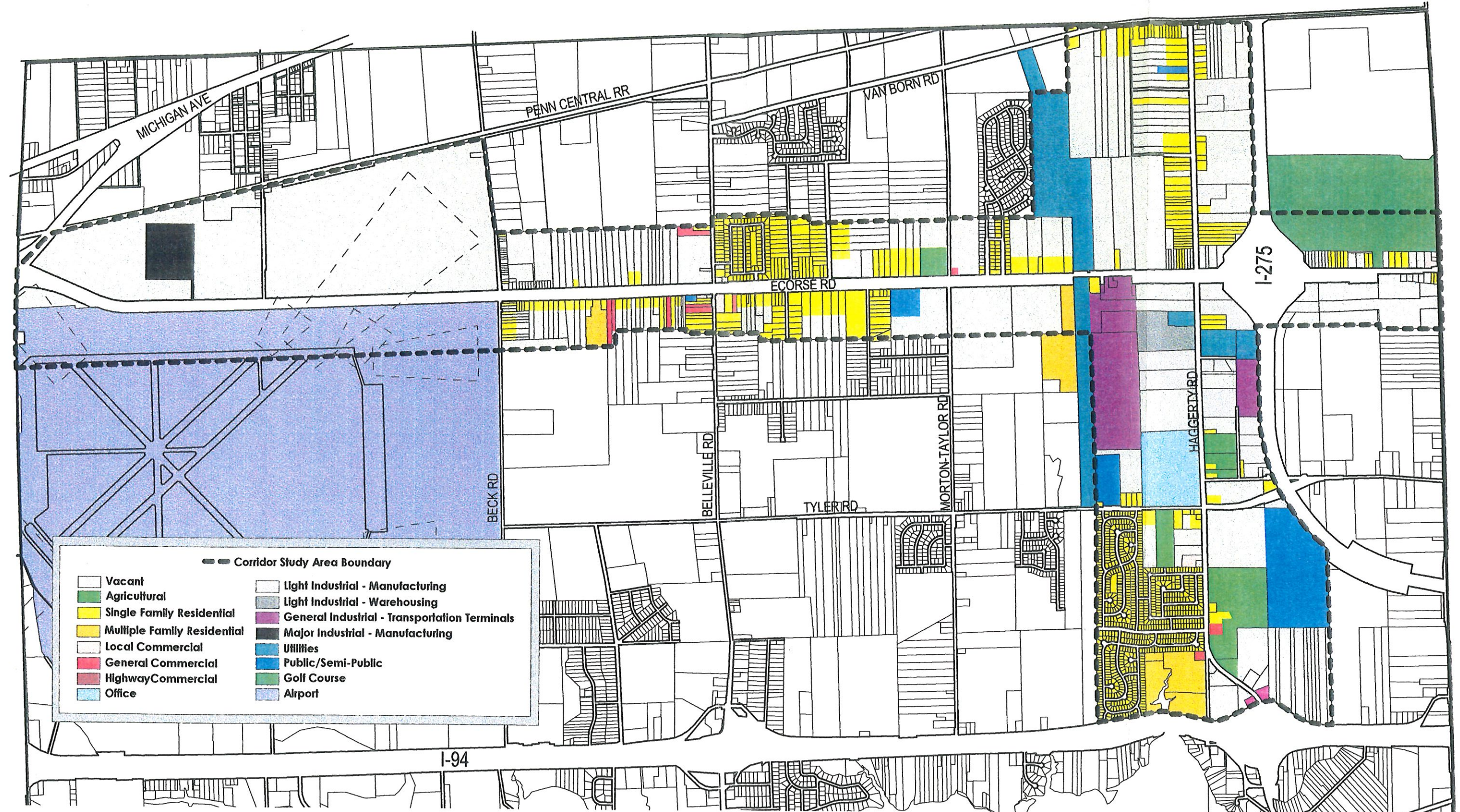
Note: Traffic generation rates should be based on the most current ITE Trip Generation manual or other approved source.

PLANNING CONSULTANT ACKNOWLEDGMENT

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John Otwell Assistant Urban Designer, Maps and Graphics

Ecorse and Haggerty Road Corridor Plan Charter Township of Van Buren, Wayne County, Michigan



Map 1 - Existing Land Use

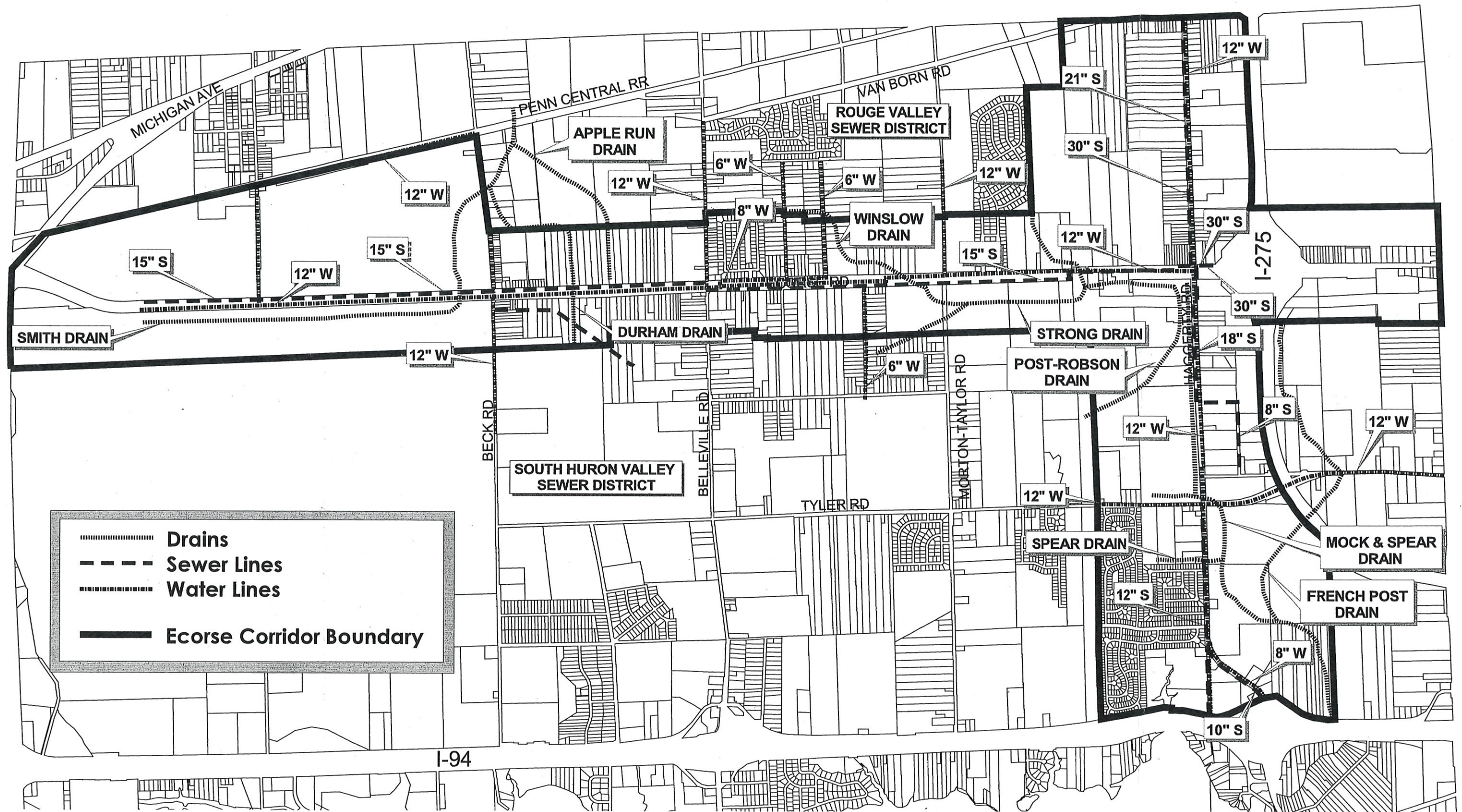
Basemap Source: Wade-Trim 11/97

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Ecorse and Haggerty Road Corridor Plan

Charter Township of Van Buren, Wayne County, Michigan

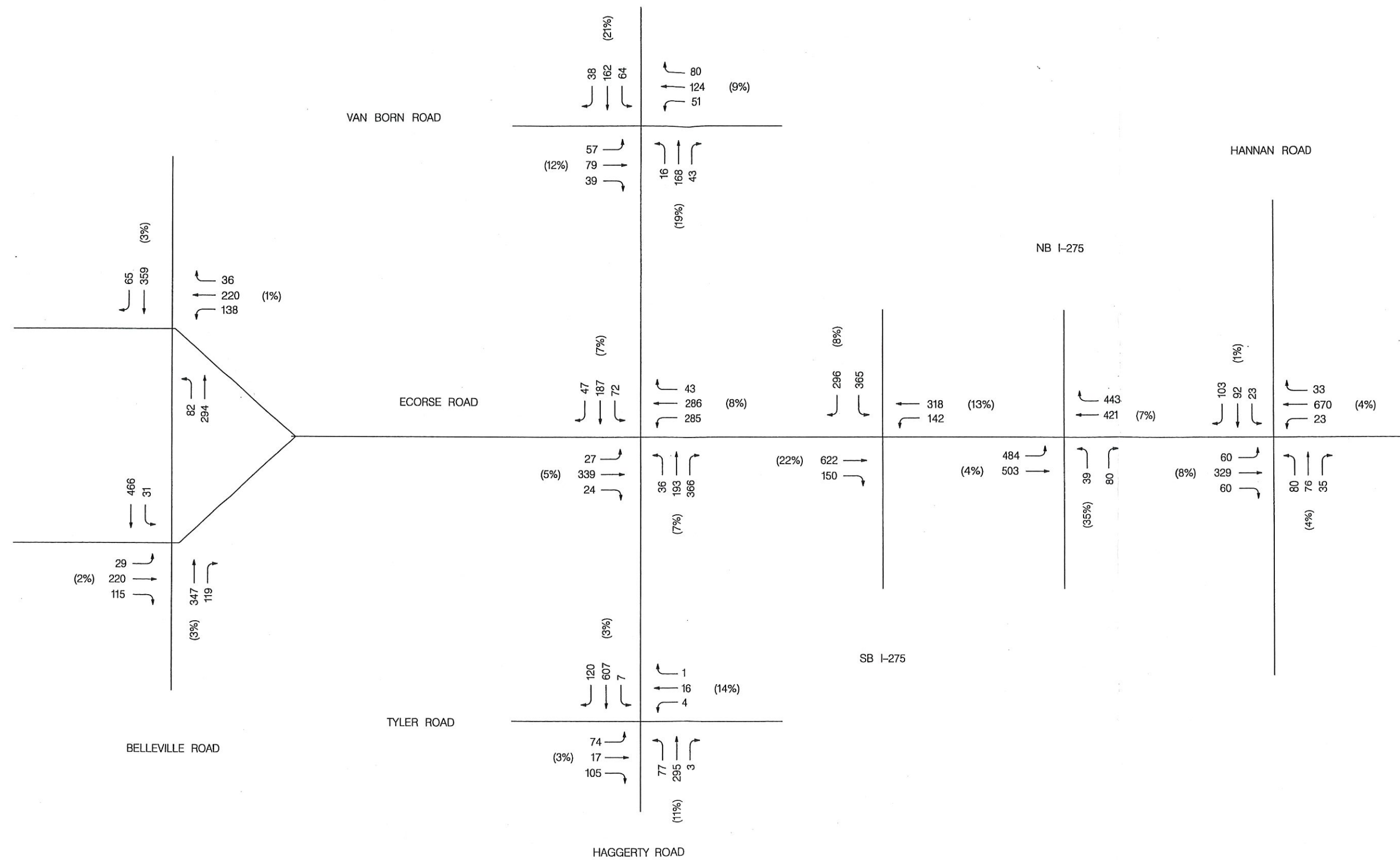


Map 2 - Utilities

Basemap Source: Wade-Trim 11/97

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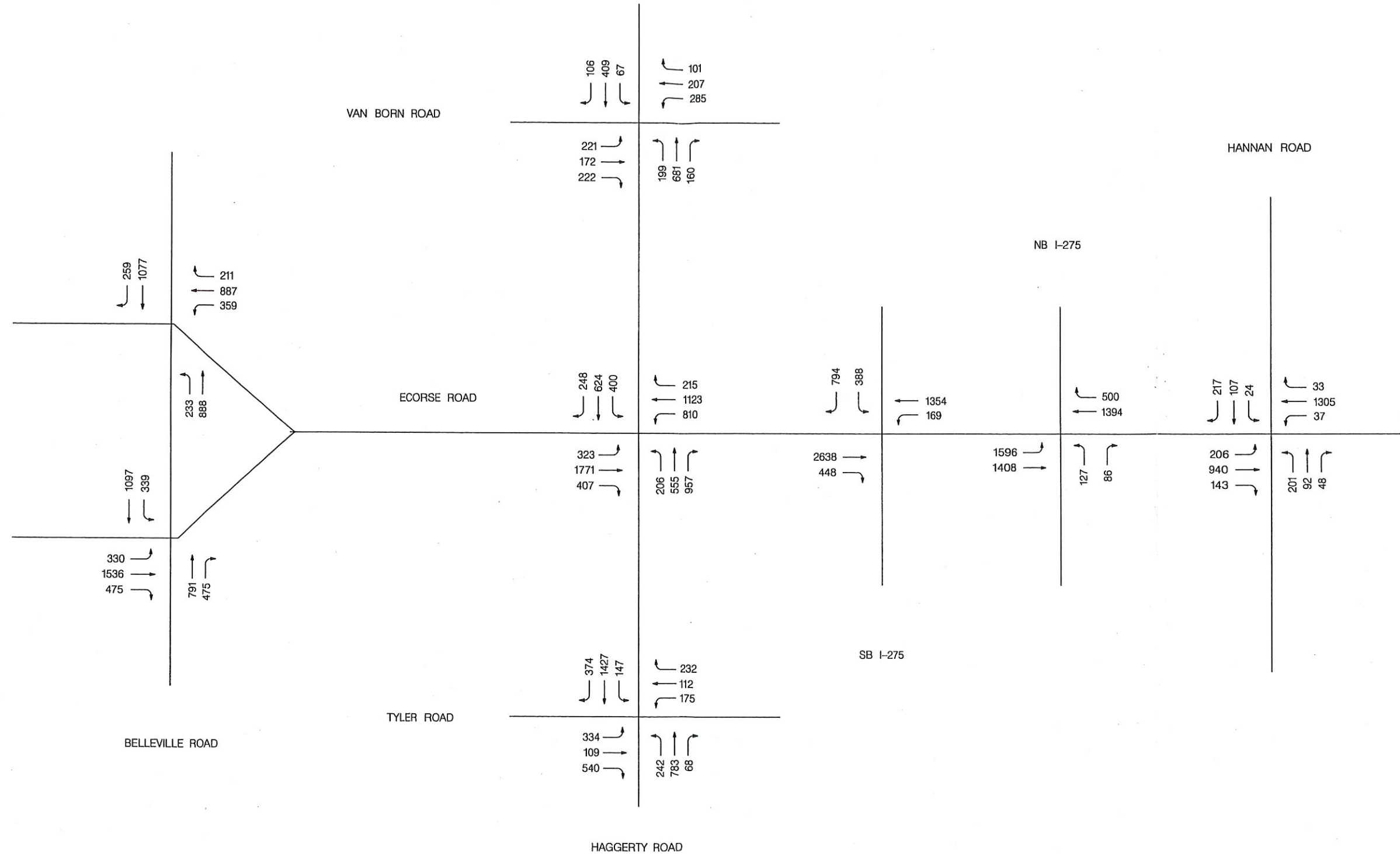


XX - PEAK HOUR VOLUME
(XX%) - PEAK HOUR TRUCK PERCENTAGE

Figure 1

VAN BUREN CHARTER TOWNSHIP — ECORSE ROAD CORRIDOR STUDY — EXISTING TRAFFIC VOLUMES





XX - PEAK HOUR VOLUME

Figure 2

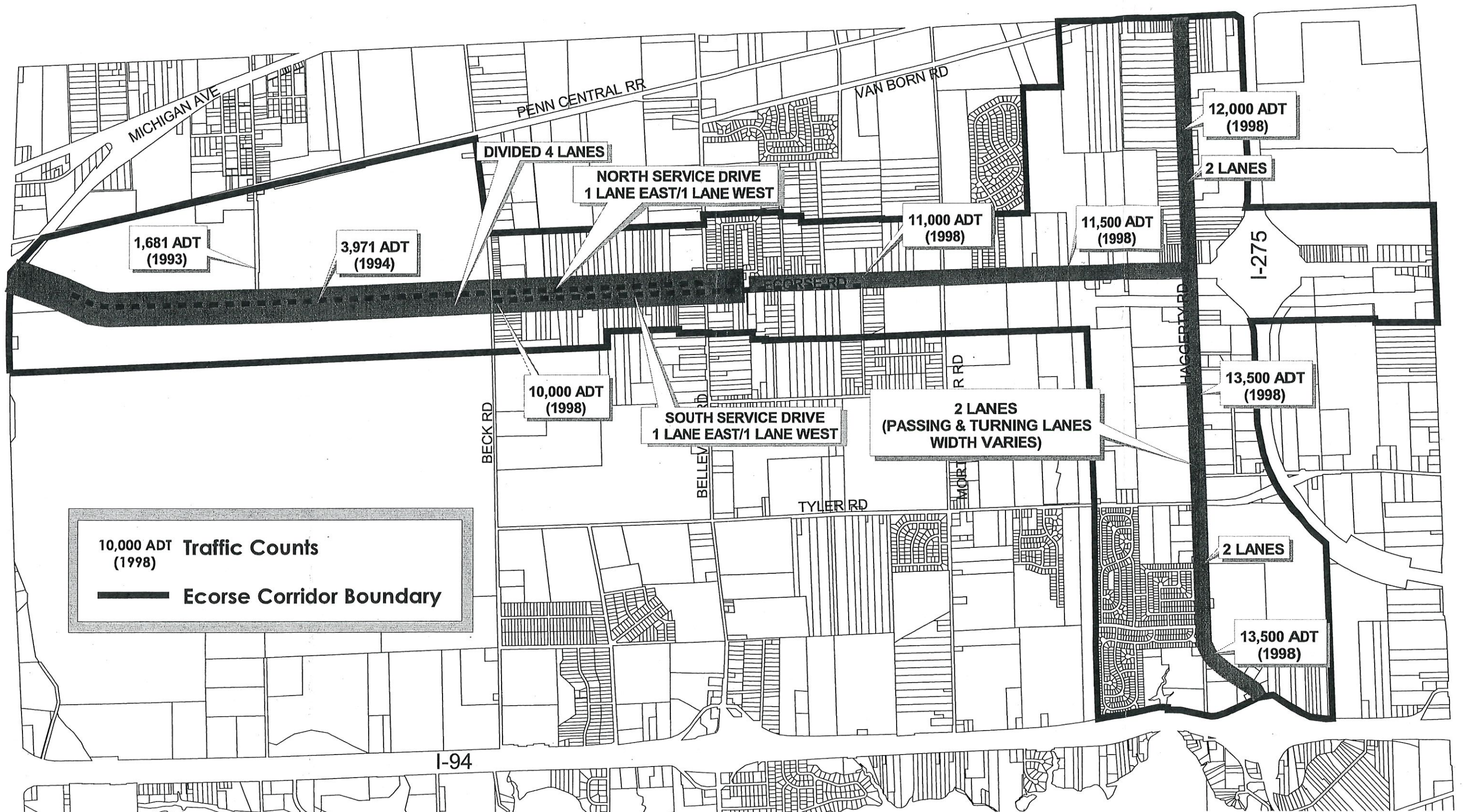
VAN BUREN CHARTER TOWNSHIP — ECORSE ROAD CORRIDOR STUDY — FUTURE TRAFFIC VOLUMES



McNAMEE, PORTER, & SEELEY, INC.

Ecorse and Haggerty Road Corridor Plan

Charter Township of Van Buren, Wayne County, Michigan

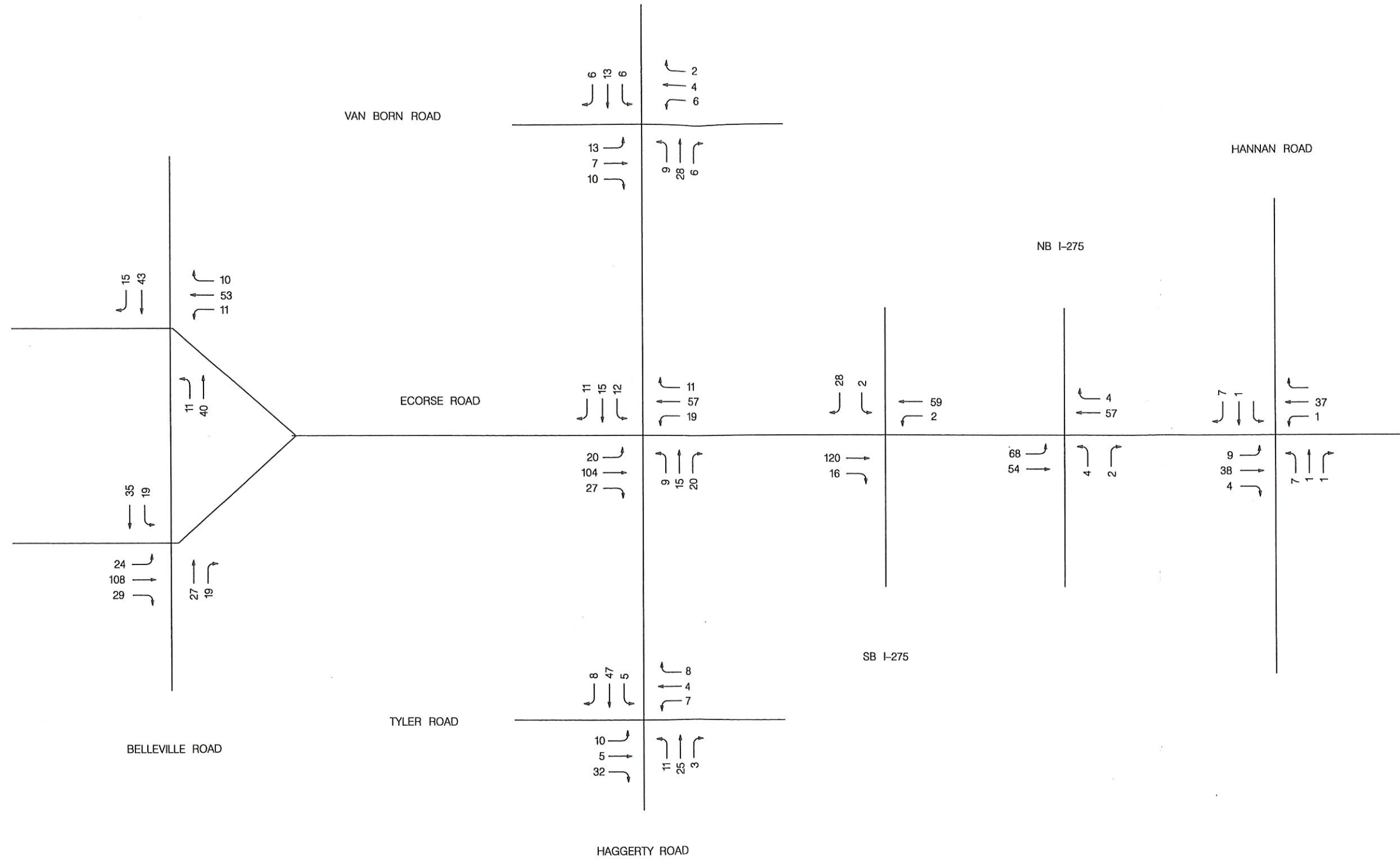


Map 3 - Road Conditions

Basemap Source: Wade-Trim 11/97

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XX - PEAK HOUR TRUCK VOLUME

Figure 3

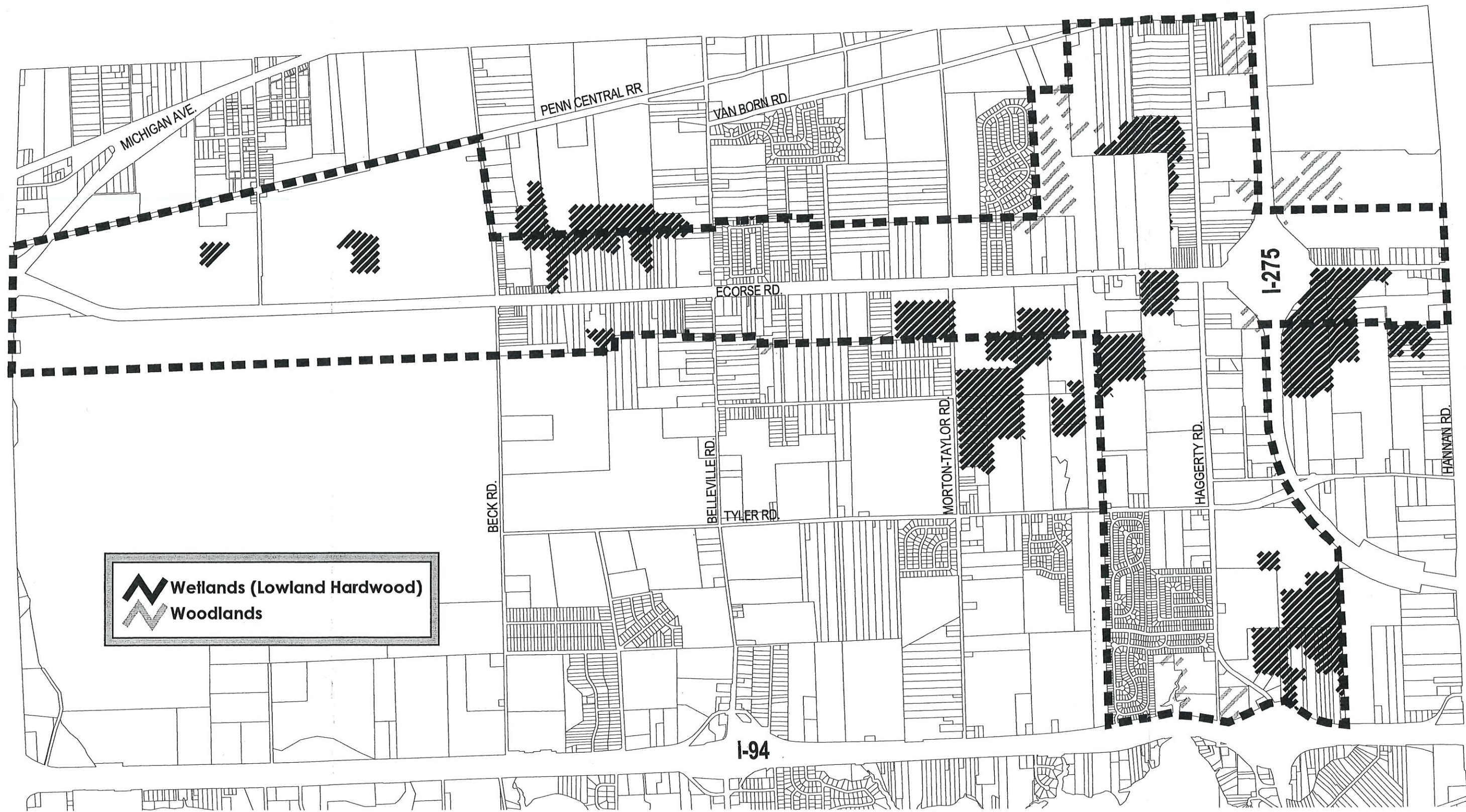
VAN BUREN CHARTER TOWNSHIP — ECORSE ROAD CORRIDOR STUDY — FUTURE TRUCK VOLUMES



McNAMEE, PORTER, & SEELEY, INC.

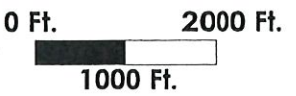
Ecorse and Haggerty Road Corridor Plan

Charter Township of Van Buren, Wayne County, Michigan



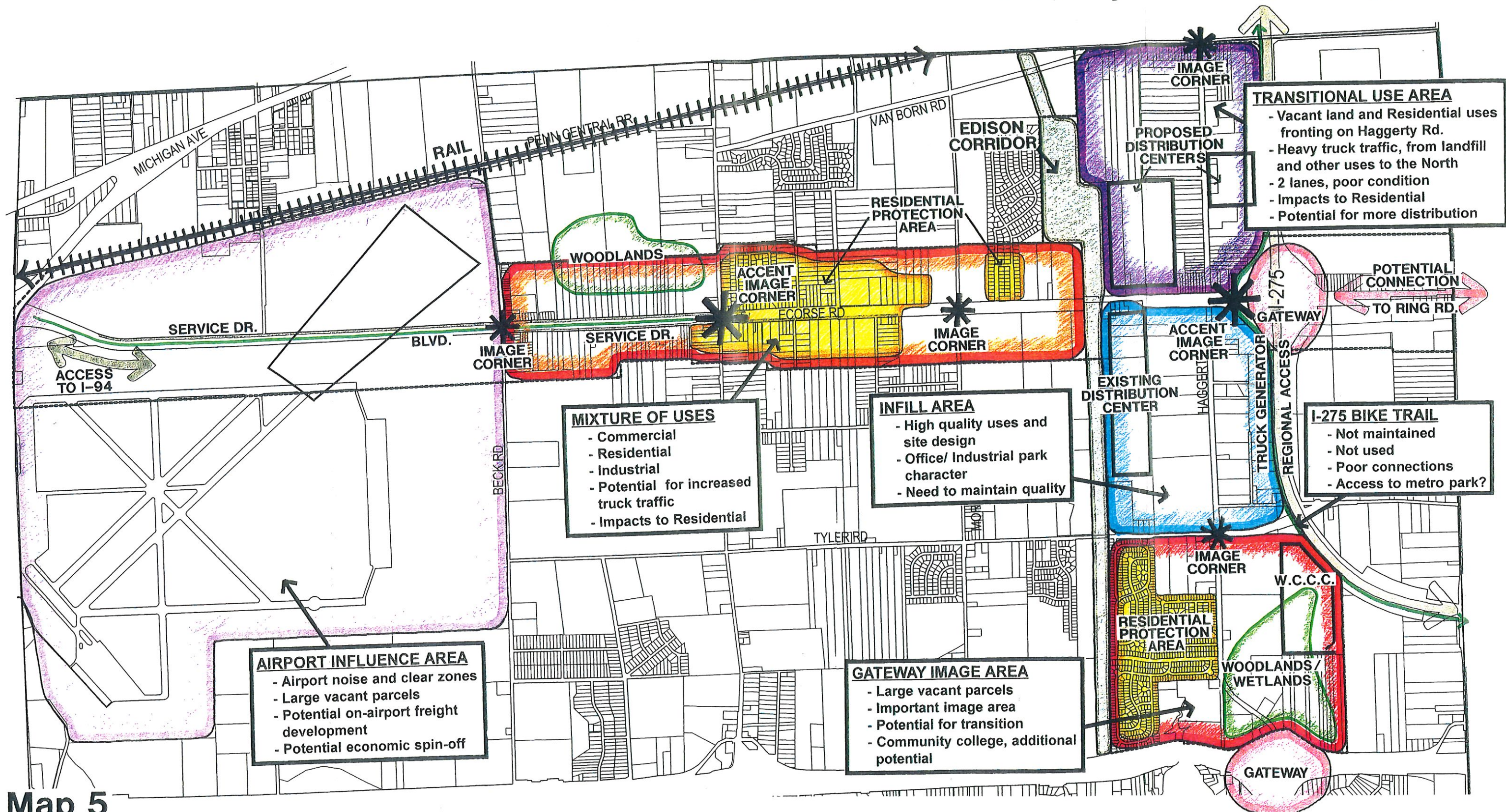
Map 4 - Natural Features

Basemap Source: Wade-Trim 11/97
Data Source: Michigan Resource Information Center



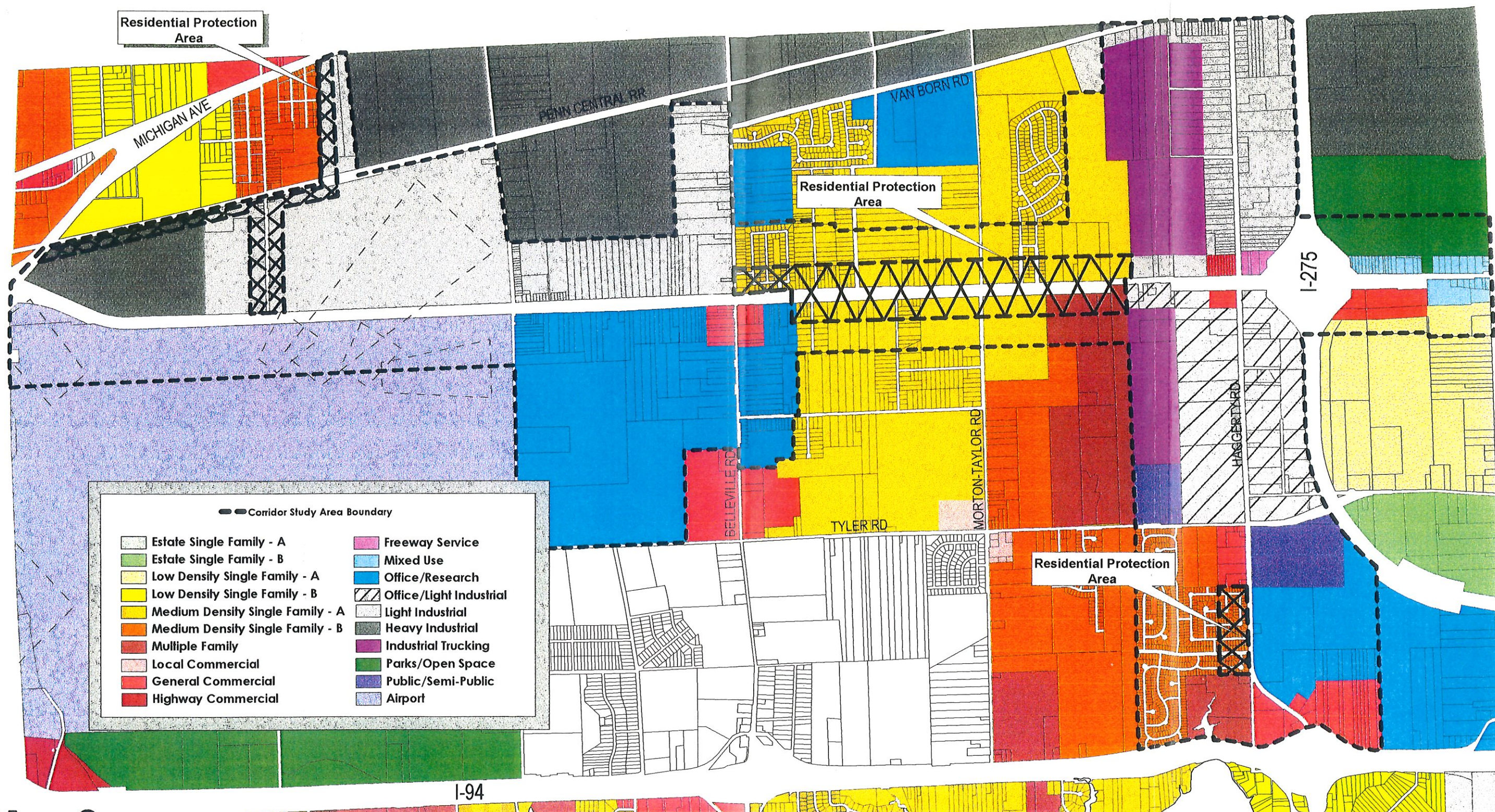
Ecorse and Haggerty Road Corridor

Charter Township of Van Buren, Wayne County, Michigan



Map 5
Opportunities and Constraints

Ecorse and Haggerty Road Corridor Plan Charter Township of Van Buren, Wayne County, Michigan



Map 6
Proposed Future Land Use

Basemap Source: Wade-Trim 11/97
Data Source: McKenna Associates, Inc. 10/98

0 Ft. 2000 Ft.
1000 Ft.



5/30/2000