SECTION 2 – AFFECTED ENVIRONMENT & EXPECTED IMPACTS

2.1 Introduction

To assess the need for improved transportation, and the effects of the proposed rehabilitation of the intersection of M-1 and M-102, it is essential to identify the social, economic and environmental factors that exist in the project area. As with all proposed projects, a review of potential impacts was conducted by MDOT and FHWA staff. Those impacts which had a reasonable possibility for individual or cumulative significant impacts were analyzed further. The results of this analysis are discussed below.

This section only describes impacts where they would actually occur. Discussion is not provided when: (1) impacts would not occur, (2) there are no specific regulatory requirements that pertain to the issue, and (3) the issue has not been identified as a concern by citizens or a government agency during the course of the project. The level of detail provided is related to the severity of potential impacts for each topic.

2.2 Land Use

The proposed project intersection is on the border of the Cities of Detroit (Wayne County) and Ferndale (Oakland County). Land surrounding the project area is urban and generally "built out" including some vacant parcels. Within the project area, commercial and industrial land uses border M-1 and M-102. Aside from the commercial businesses fronting these roadways, the majority of the project area contains residential neighborhoods. Existing land uses are identified on Figure 2-1, and future land uses (as designated on the Detroit and Ferndale land use plans) are shown on Figure 2-2. It should be noted that there has been a rezoning request on the property in the southeast corner of the intersection to convert it to commercial land use. It is recommended by traffic engineers and traffic planners that proposals for major developments, such as these, require a traffic impact study to demonstrate conformity with area land use plans and future traffic conditions.

M-1 (Woodward Avenue) was recently designated a Michigan State Historic Route by the State of Michigan and as a National Scenic Byway, by the FHWA. As a result of these designations, the roadway has a corridor management plan guiding adjacent development, and the corridor is eligible for specially funded enhancement projects.

Land use on the Detroit (south) side of the project area is a mix of commercial and light industrial along the major roadways. Residential neighborhoods are located behind the commercial and light industrial land uses that front the major roadways.

The southwest quadrant of the intersection is zoned for single-family and multi-family residential while the southeast quadrant is zoned for general business. Coordination with the City of Detroit

Figure 2-1
Existing Land Use

Figure 2-2
Future Land Use

did not identify any major new developments proposed in the project area with the exception of the rezoning request discussed earlier.

The 165-acre Michigan State Fairgrounds is located one block south of M-102 on the east side of M-1 (Figure 1-2). The land use plan for the City of Detroit does not indicate a land use change for the fairgrounds (City of Detroit 2003). However, developers have proposed a wide variety of ideas for the site including: an auto racetrack, a convention center, a concert hall, and a horse track. These ideas are speculative at this time and have not been adopted or approved as part of any land use plans.

The City of Ferndale land use plan has identified the M-1 (Woodward Avenue) corridor as an important resource for their community and the intersection of M-1 and M-102 as a gateway to their city (City of Ferndale 1998). Their plan recommends improvements at the intersection of M-1 and M-102 to emphasize the entrance to Oakland County and the City of Ferndale.

The northwest quadrant of the intersection is zoned for general business along M-1 and M-102, with residential zoning behind the front row of commercial properties. The zoning for the northeast quadrant of the intersection is also commercial along the main roads with residential zoning being located behind the front row of commercial properties. Coordination with the City of Ferndale did not identify any major new developments proposed in the project area.

The Preferred Alternative would not result in negative changes to existing or proposed land uses in the project area since it retains the existing condition. The Preferred Alternative was reviewed for consistency with adopted land use plans and is consistent with the land use plans of both Ferndale and Detroit, as it would not preclude the existing or future land uses identified in the plans.

2.3 Considerations Relating to Public Transportation

The frontage of the State Fairgrounds on M-1 also contains a bus shelter/transfer station for the Detroit Department of Transportation (DDOT) and the Suburban Mobility Authority for Regional Transportation (SMART). These two separate transit providers service the project area. DDOT provides public transportation service in the City of Detroit, while the SMART provides public transportation throughout southeastern Michigan. Both transit providers have bus stops near the project area (either on M-1 or M-102).

Future transit service for the M-1 corridor has been evaluated during the past several years, but there is still uncertainty regarding what will be implemented. According to a feasibility study by the Detroit Transportation Corporation completed in 2000, the most viable types of transit for the M-1 corridor are either bus rapid transit or light rail transit. Based on this feasibility study, funding is being pursued for more detailed analyses. Please note that there is no decision about the type of transit that could be used, or approval of funding for implementation. No transit projects are listed on the RTP or Transportation Improvement Program (TIP) for the M-1 corridor. There is no formal approved regional plan or strategy for transit in the corridor at this time. The Preferred Alternative can accommodate either bus rapid transit or light rail transit on the M-1 overpass in the future.

The Preferred Alternative would not result in negative impacts to public transportation in the area and would retain the existing intersection configuration. The Preferred Alternative is consistent with regional transit plans. It can accommodate both bus rapid transit and light rail transit (Detroit Transportation Corporation 2000). A concern was raised that the existing overpass could not accommodate light rail transit. A variety of information including design manuals and existing bridge plans were reviewed to determine if the M-1 overpass could accommodate light rail transit. The existing overpass has a maximum grade of four percent on either side of the overpass structure. Design manuals for light rail trains indicate they can travel on grades up to six percent. The existing bridge on the M-1 overpass was not designed for light rail transit. However, it was designed to be in accordance with AASHTO standards for vehicular traffic. Information indicates that the structures for light rail should be designed in accordance with the requirements of AASHTO Standard Specifications for Highway Bridges (Transportation Research Board 2000). A review of the loading capacity of the existing overpass indicates that it can accommodate light rail transit. Therefore, the Preferred Alternative would not preclude the development of future light rail transit facilities on the M-1 corridor.

2.4 Social Impacts

The proposed project will not cause any negative impacts on any minority, ethnic, low-income, elderly or handicapped groups. There will be no long-term negative impacts on area schools, churches, community facilities, recreational areas, or police and fire protection services. The Preferred Alternative is not anticipated to increase “cut-through” traffic using local streets to avoid the project area. Traffic will be maintained on local streets during construction. Although there may be some temporary disruptions during construction, MDOT will coordinate with the cities of Detroit and Ferndale in providing updated information on the maintenance of traffic plan as more details are identified during the design phase of the project.

2.5 ROW Impacts

The Preferred Alternative would not require grading or fee right-of way permits for construction. No residents or businesses would be displaced as a result of this project.

2.6 Environmental Justice

Executive Order 12898 on Environmental Justice directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects to minority and low-income populations caused by their programs, policies, and activities. To address this topic, the study team reviewed census data; conducted visual inspections of the project area; searched through numerous types of government records; and undertook public outreach activities. Additional outreach activities were conducted including the placement of project and meeting information on SMART bus shelters, and presentations to DDOT and the Detroit City Council, which were broadcast on local cable channels.

Portions of four different census tracts are located within the project area (Figure 2-3). According to information obtained from the US Census Bureau, minority populations range between ten and 86 percent in project area census tracts. Census tracts 5080 and 5381, in the

Figure 2-3
Contaminated Sites, Census Tracts, and Sites Eligible for NRHP

City of Detroit, are high minority areas (Table 2-1). According to FHWA guidance, "low-income" is defined as a household that is at or below the U.S. Department of Health and Human Services' poverty guidelines. Based on the 2000 U.S. Census information collected, Oakland County has approximately six percent of its population living at or below the poverty level, while Wayne County has 16 percent of its population living at or below the poverty level. As shown in Table 2-1, census tracts 1735 and 5080 exceed their respective county averages and include low-income populations subject to Environmental Justice requirements.

Table 2-1. Minority and Low-Income Population Information for the Project Area

AREA	POPULATION	MEDIAN	PERCENT MINORITY POPULATION	PERCENT OF PERSONS IN POVERTY
CENSUS TRACT 1734	5,622	$46,331	10%	7%
CENSUS TRACT 1735	3,384	$43,500	11%	11%
CITY OF FERNDALE	22,105	$45,629	10%	8%
OAKLAND COUNTY	1,194,156	$61,907	19%	6%
CENSUS TRACT 5080	2,557	$12,060	68%	48%
CENSUS TRACT 5381	2,403	$60,798	86%	3%
CITY OF DETROIT	951,270	$29,526	89%	26%
WAYNE COUNTY	2,061,162	$40,776	50%	16%
STATE OF MICHIGAN	9,938,444	$44,667	21%	26%

Source: US Census Bureau
* In 1999 US Dollars

No historic impacts to environmental justice populations have been identified, and no specific environmental justice issues associated with the Preferred Alternative have been noted. The Preferred Alternative would keep the existing intersection configuration and would not result in any changes to traffic capacity, traffic flow, or traffic operations. The Preferred Alternative would not result in negative impacts to existing noise levels, air quality conditions, ROW, economic conditions, safety, historic properties, contaminated sites, public transportation, or land use patterns. In addition, the Preferred Alternative would provide aesthetic improvements to the intersection. Based on this information, the Preferred Alternative would not result in disproportionately high and adverse effects on minority and low-income populations in the project area.

The public involvement program conducted as part of the study solicited input from potentially affected minority and low-income populations as well as other interested parties. During this process, the public had numerous opportunities to view and comment on all of the alternatives being considered. Additional details regarding public involvement are included in Section 4 of this document.

A continuing effort will be made to identify disproportionately high and adverse impacts to minority and low-income populations during later phases of this project. Because the Preferred Alternative is a rehabilitation project that proposes to maintain the existing condition, no negative impacts are anticipated to occur in the foreseeable future. If potential impacts are identified, every effort will be made to involve impacted groups in the project development process and to avoid or mitigate impacts.

2.7 Economic Conditions

In the project area, commercial and industrial businesses front M-1 and M-102. Businesses in the project area are well established and consistent to other locations along the M-1 corridor. The M-1 corridor is generally regarded as a retail shopping corridor. In addition to retail, many of the businesses in the corridor service the automobile industry (e.g., car dealerships, service garages, and gas stations) or provide services to area residents (e.g., cleaning services, law offices, or restaurants). Some of the area businesses are destinations for customers that travel from different communities, while others rely on drive-by traffic to attract customers.

The Preferred Alternative would not result in substantial changes to ongoing economic conditions or trends because it would not change the fundamental economic characteristics in the project area.

While it is not possible to predict what impact the Preferred Alternative may have upon residential and business property values in the project area, it is more likely that property values will depend upon market conditions, zoning ordinances, and parcel-specific building conditions.

Businesses in the project area will be temporarily impacted by construction activities. Economic impacts could include temporary loss of parking, congestion related to lane closures, detoured traffic (including potential customers), and inconvenient access for both business owners and customers. Despite these impacts, access to all businesses would be maintained during construction.

2.8 Pedestrians & Bicyclists

Existing sidewalks are found along both M-1 and M-102 in the project area. These combined facilities are used by both bicyclists and pedestrians. The Preferred Alternative would allow the safe movement of pedestrians and bicyclists, and would not result in negative impacts to pedestrians and bicyclists in the project area. Field observations in the project area have not identified major pedestrian or bicycle movements or patterns at the intersection. However, it should be noted that the bicycle community is currently working with MDOT and other stakeholders on developing a strategy for a pedestrian and bicycle plan for the future. The Preferred Alternative does not propose any modifications to the sidewalks, however, there may be temporary closures of sidewalks during construction. If the pedestrian improvements described in Section 1.5.2 are implemented (as determined during the design phase) then the overall situation for pedestrians and bicyclists would be improved. If these improvements are not implemented, conditions would be the same as the existing situation. The Preferred Alternative would result in a situation that is the same or better than the existing condition for pedestrians and bicyclists.

2.9 Air Quality

Under the direction of the Clean Air Act Amendments (CAAA) of 1990, the U.S. Environmental Protection Agency (EPA) has established health-based National Ambient Air Quality Standards (NAAQS) for six pollutants (Table 2-2). These six “criteria” pollutants are lead (Pb), ozone (O_3),

sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM_{10}, 10-micron and smaller along with $PM_{2.5}$, 2.5 micron and smaller). The project area is in attainment for lead, sulfur dioxide, oxides of nitrogen, and particulate matter. For this project pollutants of principle concern are ozone and carbon monoxide.

Effective June 15, 2004, the ten-county southeast Michigan area (including Oakland and Wayne Counties) will be designated by EPA as a nonattainment area for the 8-hour NAAQS for ozone. Based on EPA's plan for implementation, it is likely that the need to test for conformity under the new 8-hour standard will apply during 2005. Conformity under the 1-hour standard will continue until the 8-hour standard is applied.

Table 2-2. National Ambient Air Quality Standards

POLLUTANTS	AVERAGE TIME	PRIMARY STANDARD[a]	SECONDARY STANDARD[b]
CARBON MONOXIDE	1-hr	35 ppm (40mg/m^3)	No Secondary Standard
	8-hr	9 ppm (10mg/m^3)	No Secondary Standard
LEAD	Quarter	1.5 µg/m^3	Same as Primary
NITROGEN DIOXIDE	Annual	0.053 ppm (100µg /m^3)	Same as Primary
OZONE	1-hr	0.12 ppm (235µg/m^3)	Same as Primary
	8-hr	0.08 ppm (157µg/m^3)	Same as Primary
RESPIRABLE PARTICULATE MATTER (10 MICRONS OR LESS) (PM_{10})	24-hr	150 µg/m^3	Same as Primary
	Annual	50 µg/m^3	Same as Primary
RESPIRABLE PARTICULATE MATTER (2.5 MICRONS OR LESS) ($PM_{2.5}$)	24-hr	65 µg/m^3	Same as Primary
	Annual	15 µg/m^3	Same as Primary
SULFUR DIOXIDE	3-hr	–	0.5 ppm (1300µg/m^3)
	24-hr	0.14 ppm (365µg/ m^3)	–
	Annual	0.03 ppm (235µg/ m^3)	–

Source: Code of Federal Regulations, Title 40, Part 50.
[a] Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.
[b] Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.

Based on the requirements of 40 CFR 53 and 23 CFR 450, proposed transportation projects in nonattainment and maintenance areas must be included in a long-range plan (LRP) and TIP that conform to state air quality plans as outlined in the State Implementation Plan (SIP). Proposed "regionally significant" transportation projects must be included in a LRP and TIP that have undergone an emissions analysis to demonstrate "conformity" with the SIP. Conformity is an analytical process that's required to ensure that projects do not contribute to violations of air quality standards or delay meeting the standards. This approach is intended to assure that transportation projects do not result in violations of the NAAQS. Demonstration of regional ozone conformity is not required on this project because it would not change the capacity, traffic operations, or traffic flow in the project area and is not considered "regionally significant". Ozone is a regional pollutant and evaluation impacts on a project-level basis are not meaningful.

Effective June 30, 1999, portions of Wayne, Oakland, and Macomb counties were redesignated by EPA to attainment/maintenance for CO. The project area falls within this

attainment/maintenance area for CO. Demonstration of CO conformity is not required on this project because it would not change the capacity, traffic operations, or traffic flow in the project area and is not considered "regionally significant".

The current NAAQS for particulates include PM_{10} (particles with diameters of 10 micrometers or less) and $PM_{2.5}$ (particles with diameters of 2.5 micrometers or less). Current FHWA policies for transportation projects do not require microscale analysis of particulate impacts because there is no reliable methodology available for modeling it.

Based on this conclusion and in accordance with MDOT, FHWA, and EPA procedures, the air quality impact analysis for this project is limited to a microscale analysis of CO concentrations and a comparison of those concentrations to the established NAAQS for CO.

A CO hotspot analysis was performed at the M-1 and M-102 intersection. Hot spot analyses are typically performed at locations with the potential for CO problems based on projected traffic volumes and delays (idling vehicles emit greater amounts of CO than moving vehicles). The EPA-approved computer models MOBILE6.2 and CAL3QHC were used in this analysis to predict worse-case CO concentrations at sensitive receptors for opening day conditions (2004) and the design year (2025).

The criteria for an adverse impact from CO is an exceedance of the NAAQS at a sensitive receptor modeled for the year of opening and the design year. Ambient (background) levels of CO were 4.5 parts per million (ppm) and 3.0 ppm, for one hour and eight hours, respectively. Monitoring data came from Oak Park monitoring station located approximately three miles from the project area.

Using the MOBILE6.2 and CAL3QHC computer models, CO levels were predicted at locations immediately adjacent to the intersection of M-1 and M-102 during worst-case traffic and weather conditions for the years 2004 (opening day) and 2025. The results of the analysis are shown in Table 2-3. This analysis showed that all predicted CO concentrations are below the NAAQS, Table 2-2. The highest predicted 1-hour CO concentrations were 9.5 ppm for 2004 and 7.5 ppm for 2025. Both of these are below the 1-hour standard of 35.5 ppm. The highest predicted 8-hour concentrations were 6.4 ppm in 2004 and 5.0 ppm in 2025. Both of these are below the 8-hour standard of 9 ppm. Based on the information above, it can be assumed that the Preferred Alternative would not cause or contribute to localized CO violations that could be a health threat.

Table 2-3. Results For Carbon Monoxide Hotspot Analysis

RECEPTOR LOCATION	PREFERRED ALTERNATIVE (2004)		PREFERRED ALTERNATIVE (2025)	
	1-Hr	8-Hr	1-Hr	8-Hr
#1 SOUTHEAST CORNER	9.1	6.1	7.0	4.7
#2 NORTHEAST CORNER	7.3	4.9	5.9	4.0
#3 NORTHWEST CORNER	9.3	6.3	7.5	5.0
#4 SOUTHWEST CORNER	9.5	6.4	7.2	4.8

Results of Carbon Monoxide Hotspot Analysis are expressed in parts per million (ppm)
Source: Air Quality Impact Analysis Technical Report, The Corradino Group of Michigan, Inc. 2004

A summary of the existing air quality conditions, regulatory requirements, methodologies used to conduct the analysis and the results are provided in the *Air Quality Impact Analysis Technical Report* (The Corradino Group of Michigan, Inc. 2004) prepared for the project.

2.10 Noise Analysis

The FHWA Noise Abatement Criteria (NAC) and MDOT's *Procedures and Rules for Implementation of State Transportation Commission Policy 10136-Noise Abatement* (MDOT, 2003) were used to analyze the noise effects of the Preferred Alternative. Regulations found in 23 CFR Part 772 establish NAC for various land uses, dividing activities into five categories. MDOT has adopted these activity categories and NAC. The five categories are shown in Table 2-4. It should be noted that these regulations and policies only apply to projects that increase roadway capacity and/or change the alignment (either vertical or horizontal) of a roadway. Because the Preferred Alternative does not affect these elements, the noise analysis is provided in order to disclose likely changes in noise levels, but it does not identify noise impacts or assess noise mitigation.

Sensitive receivers are those locations where activities occur that could be affected by increased traffic noise levels (e.g., residences, motels, churches, schools, parks, libraries). Noise-sensitive receivers are located throughout the project area at varying densities. Residential neighborhoods are present at several locations including along Webster Street, Chesterfield Street, Bennett Street, and Woodstock Drive. Noise-sensitive receivers are also scattered throughout the remainder of the project area, which includes the motel at the northwest corner of the M-1 and M-102 Service Drives, the church at Woodstock Drive and the M-1 Service Drive, the cemetery, and the State Fairgrounds.

Existing noise levels were measured during peak hours at representative sites throughout the project area. The measured noise levels ranged from 54.8 decibels on the A-weighted scale (dBA) to 71.4 dBA $L_{eq}(h)$. Additionally, existing peak hour $L_{eq}(h)$ noise levels were modeled in the project area with the FHWA Traffic Noise Model (TNM) version 2.1. This model takes into account traffic volumes, vehicle types, vehicle speeds, roadway locations, screening provided by buildings, terrain features, and noise sensitive receiver locations to calculate future traffic-generated noise levels. Modeled existing peak hour levels ranged from 44.1 dBA to 71.0 dBA $L_{eq}(h)$.

Table 2-4. FHWA Noise Abatement Criteria

ACTIVITY CATEGORY	NOISE ABATEMENT CRITERIA (NAC) - $L_{eq}(h)$	DESCRIPTION OF ACTIVITY CATEGORY
A	57 dBA (Exterior)	Lands where serenity and quiet are of extraordinary significance and serve an important public need. The preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 dBA (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, St. John's Churches, libraries, and hospitals.
C	72 dBA (Exterior)	Cemeteries, commercial areas, industrial areas, office buildings, and other developed lands, properties, or activities not included in Categories A or B.
D	No Limit	Undeveloped lands, including roadside facilities and dispersed recreation.
E	52 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, St. John's Churches, libraries, hospitals, and auditoriums where no outside activity occurs.

Source: FHWA *Highway Noise Control Standards and Procedures*, 23 CFR Part 772

Future $L_{eq}(h)$ noise levels were predicted for the Preferred Alternative using the TNM 2.1 computer model. The Preferred Alternative would generally increase noise levels by one to three dBA above existing levels at sensitive receivers. However, this change would not be perceptible as the human ear does not perceive changes of 3 dBA or less (i.e., it would sound the same as current noise levels that are already experienced). Noise mitigation measures (e.g., noise walls or berms) are not applicable because the Preferred Alternative would not noticeably change noise levels (i.e., noise levels would be perceived by the human ear to be the same loudness as the current levels) or alter the intersection's capacity or design.

Additional information regarding the noise study can be found in the *Traffic Noise Report for the M-1 (Woodward Avenue) and M-102 (Eight Mile Road) Intersection Project* (DLZ 2004).

2.11 Surface Water

The project area is located in an urban environment that does not contain any water features such as lakes, streams, drains, or ponds. None of the improvements proposed under the Preferred Alternative would alter existing drainage patterns or runoff quantities/timing. The Preferred Alternative would not result in negative impacts to surface water resources in the project area.

To protect surface water quality, best management practices (BMPs) will be implemented to minimize soil erosion during construction. If impacts occur during construction, corrective action will be taken immediately. During construction, all disturbed areas will be revegetated as early as possible, to meet the standard requirements of the Michigan Department of Environmental Quality (MDEQ) and MDOT.

2.12 Wetlands / Floodplains

The project area is an urban environment and does not contain any regulated wetlands or floodplains. Correspondence from the MDEQ indicated that the project does not involve state regulated watercourses or wetlands (Appendix B).

2.13 Groundwater

In order to protect groundwater quality, all disturbed sewer lines will be addressed in accordance with standard construction specifications that will be imposed upon the construction contractor. If abandoned water wells or septic systems are encountered during construction, they will be addressed in accordance with standard construction specifications. Beyond these items, the contactor will need to meet all other Michigan Department of Community Health (MDCH), local health department, and MDEQ requirements designed to protect groundwater quality.

2.14 Threatened and Endangered Species

Threatened and endangered species are officially protected in Michigan by both the federal and state Endangered Species Acts (Public Law 93-205 and Part 365 of PA 451, the Natural Resources and Environmental Protection Act (NREPA), respectively). An endangered species under these acts is defined as in danger of extinction throughout all or a major part of its range. A threatened species under these acts is likely to become an endangered species within the foreseeable future throughout all or a major portion of its range. Special concern species are not afforded legal protection under the Michigan Act but are of concern because of declining or relict populations within Michigan. A candidate species is a species for which the U.S. Fish and Wildlife Service (USFWS) has sufficient information on their biological status to propose them as threatened or endangered under the federal Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

Coordination with the USFWS and the Michigan Department of Natural Resources (MDNR) did not identify the presence of any threatened or endangered species in the project area. Correspondence from the USFWS and MDNR is included in Appendix B. The Preferred Alternative would not result in negative impacts to threatened and endangered species.

2.15 Cultural Resources

Cultural resources include historic structures and archaeological sites that are eligible for listing or listed on the National Register of Historic Places (NRHP). As part of this study, an investigation was performed to identify cultural resources within the Area of Potential Effect (APE). The APE is limited to the existing ROW and the first row of properties that abut the ROW along M-1 and M-102 for 0.24 miles in each direction from the road intersection. The cultural resources investigation included background research, coordination with the SHPO, and field investigations. Three sites within the APE have been identified as being eligible for the NRHP (Figure 2-3). Correspondence noting SHPO's concurrence with the project's determination of eligible resources is included in Appendix B.

The NRHP has established criteria for determining historic significance. A property must have integrity of location, design, setting, materials, workmanship, feeling and association, and *typically* must meet at least one of the following criteria:

- Criterion A: Association with a significant events important to broad patterns of history;
- Criterion B: Association with the lives of significant persons;
- Criterion C: Embody the distinctive characteristics of a type, period or method of construction, or represent the work of a master;
- Criterion D: Have yielded or may be likely to yield information important in history or prehistory (usually archeological sites).

Ordinarily properties that are less than 50 years old are not considered eligible for the NRHP. However, these sites can be eligible under special circumstances which are defined in "Criteria Consideration" G. Criteria considerations describe a specific situation where the normal requirements of the National Historic Preservation Act and the four criteria listed above (Criteria A though D) do not apply due to extraordinary circumstances. Criteria Consideration G allows properties less than 50 years old to be listed on the NRHP if such properties are of exceptional importance. Additional information on Criteria Consideration G is found in the *Woodward Avenue – Eight Mile Road Intersection: Determination of Eligibility for the National Register of Historic Places* (Hess, Roise and Co. 2003) and also in *National Register Bulletin 22: Guidelines for Evaluating and Nominating Properties that have Achieved Significance within the Past Fifty Years* (Sherfy and Luce 1979).

Details regarding the cultural resource investigation are found in *A Cultural Resources Survey and Literature Search of the Proposed M-1 (Woodward Avenue) at M-102 (Eight Mile Road) Improvement Project* (CCRG 2003) and *Woodward Avenue – Eight Mile Road Intersection: Determination of Eligibility for the National Register of Historic Places* (Hess, Roise and Co. 2003) reports.

2.15.1 Archaeological Sites

The archaeological site files maintained by the SHPO at the Michigan Historical Center list two previously recorded sites in the vicinity of the M-1/M-102 intersection. Neither are located within the APE. Historical map evidence depicting the project area indicated the prior existence of farmstead structures in the area during the late nineteenth century. These, however, are all likely to have been located adjacent to the approximately 66-foot ROW of both thoroughfares prior to their expansion to approximately 210 feet in the late 1920s. Based on this evidence, these archaeological resources are assumed to have been destroyed by road construction, and no field surveys were conducted. Correspondence from SHPO noting the project will have no adverse effect on archeological resources is included in Appendix B.

2.15.2 Above-Ground Sites

2.15.2.1 M-1/M-102 Intersection

The M-1/M-102 intersection is eligible for listing on the NRHP under Criterion A for its importance in the evolution of transportation patterns in the Detroit metropolitan region (Figure 2-3). Noted not only as major local routes, the roads served as key federal (Woodward Avenue) and state (Eight Mile Road) highways until the creation of the interstate system. At the time of construction, the intersection was the busiest in the Detroit region and perhaps the state. The M-1 overpass opened in 1955, and the remainder of the intersection opened in the following year. While the intersection is slightly less than 50 years old and falls short of the National Register age guideline, age is not necessarily a restriction for the National Register, but is used as a guideline to assure historical perspective and avoid judgment based on current or recent popular trends. Guidelines related to the National Register indicate that properties can be included on the NRHP if they are of "exceptional importance", even if they are less than 50 years old. Criteria Consideration G provides that properties less than 50 years old can be eligible for the NRHP under such conditions. Given the importance of the intersection in relation to local, regional, and state history, it would meet the requirements for Criteria Consideration G. More information on this topic is included in the *Woodward Avenue – Eight Mile Road Intersection: Determination of Eligibility for the National Register of Historic Places* (Hess, Roise and Co. 2003).

2.15.2.2 St. John the Baptist Catholic Church at 20529 M-1

The St. John the Baptist Catholic Church at 20529 M-1 is eligible for the NRHP. The St. John the Baptist Catholic Church was dedicated in 1955, and the design of the church was directly copied from the Catholic cathedral located in Blaj, Romania. Although not yet having achieved the 50-year age criterion set for NRHP consideration, the church figures as a noteworthy architectural resource demonstrating the continuity of some of Detroit's early twentieth-century ethnic communities and the continued usage of the architectural forms of their old world homeland. The church is eligible for NRHP listing in 2005 under Criteria A for its association in the ongoing pattern of Detroit's ethnic settlement and as an architectural feature distinctly expressive of the maintenance of traditional building forms. The location of this property is shown on Figure 2-3.

2.15.2.3 Residence at 2501 M-102

The house located at 2501 M-102 is eligible for the NRHP and is important because it embodies distinctive characteristics of a period and offers a perspective into the transitional aspects of design that contributed to post-World War II housing approaches. The house was built in 1940 and is eligible for NRHP listing under Criterion C. The location of this property is shown on Figure 2-3.

2.15.3 Impacts

In accordance with Section 106 of the National Historic Preservation Act, the effects of the project on cultural resources have been evaluated. The Preferred Alternative proposes to retain

the existing intersection in its current configuration while repairing existing bridge structures and providing aesthetic improvements. The Preferred Alternative would have no effect on the NRHP-eligible residence at 2501 Eight Mile Road or the St. John the Baptist Church at 20529 M-1. This determination is based on the fact that all of the roads would be in the exact same location and configuration, access conditions would be unchanged, noise levels would not perceptibly change, and the visual atmosphere would be improved. Correspondence from SHPO concurring that the project will have no adverse effect on above-ground cultural resources is included in Appendix B.

The Preferred Alternative would have no adverse effect upon the existing intersection of M-1/M-102, which is eligible for the NRHP. The improvements proposed under the Preferred Alternative would retain the historic character and integrity of the existing intersection and provide enhancement through the application of aesthetic treatments and coordination with SHPO, the Woodward Heritage team and other stakeholders.

A concurrence letter has been developed by MDOT for signature by SHPO regarding the design of the Preferred Alternative and aesthetic improvements to the intersection. The proposed aesthetic improvements will be consistent with the historic theme and character of the intersection and will comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68). The aesthetic improvements are likely to include railing treatments, period lighting, and landscaping on the approaches. A draft of the concurrence letter is included in Appendix C of this document.

2.16 Section 4(f) Evaluation

There are no publicly owned parks or recreation areas in the project area. The Preferred Alternative would have no effect or no adverse effect on historic properties in the project area, and SHPO has concurred with this determination. Correspondence from SHPO concurring that the project will have no adverse effect on historic resources is included in Appendix B. Therefore, the Preferred Alternative would not result in the use of any of these properties as defined under Section 4(f). As described in Section 1.6, the Preferred Alternative is the only feasible and prudent alternative that does not use property from a Section 4(f) site.

2.17 Contaminated Sites

An investigation was performed to identify contaminated sites within the project area. A review of the EPA and MDEQ databases was performed to identify these sites within the project area. The database review identified three sites in the project area as having known previous contamination. Ferndale Honda (21350 M-1) and Calvin T Geeham (21203 M-1) are listed on the closed Leaking Underground Storage Tank (LUST) database, meaning they had leaking underground storage tanks that have been removed, and any contamination has been remediated. Delta Auto Repair (21355 M-1) is listed on the open LUST database, meaning they had a leaking underground storage tank at the last regulatory agency check, and this site has not yet completed remediation activities for site closure. Figure 2-3 shows the locations of the three known contaminated sites

The Preferred Alternative would retain the existing intersection configuration and would not require the acquisition of additional ROW. However, prior to construction activities, the following measures will be undertaken:

- All known and potentially contaminated sites will be investigated prior to finalizing plans for adjacent construction.
- All known and potentially contaminated sites will be managed in accordance with applicable federal and state laws. Where appropriate, site-specific investigations will be completed to evaluate potential contamination and to determine if mitigation is necessary. If site-specific corrective action plans are needed, these plans may include the following mitigation strategies: (1) documenting properties using design and construction documents, (2) educating workers to identify potential contamination sources, (3) using appropriate personal protective equipment during construction, and/or (4) remediation (clean-up) of contaminated soil or groundwater.
- A Worker's Health and Safety Plan will be developed to address worker protection and general mitigation measures if asbestos or lead are encountered.
- The MDEQ will be consulted regarding Underground Storage Tank (UST) and Leaking UST properties adjacent to construction areas to assure that new exposure pathways are not created.
- A contingency plan will be developed to address the removal of unregistered USTs and the cleanup of any associated contamination, as well as to address other types of previously undocumented contamination found during the construction operations.

2.18 Visual Conditions

Visual conditions of the project area are typical of urban areas in Southeastern Michigan. The project area includes roads as well as commercial, industrial, and residential properties. Large billboards, utility towers, and buildings dominate views in the corridor. Comments received from the public indicate that some do not like the appearance of the existing overpass structure. However, others have stated they like the overpass as it is. M-1 north and south of the intersection contains a grassed median. However, the median is replaced with a traffic barrier on the M-1 overpass.

Key viewpoints from the motorist's perspective occur at two locations in the project area. The first viewpoint is located on M-1 as drivers reach the crest of the overpass structure and are provided views of either Ferndale or Detroit (headed north or south, respectively). This viewpoint is unique because it provides an elevated view of the area, which is uncommon for the corridor due to its level terrain. The second viewpoint occurs as traffic is about to travel through the underpass on M-102 and is provided full views of the tri-level intersection. Other than the study intersection, the project area does not contain unique or outstanding visual features. Undeveloped lots and landscaping provide some visual variety, but in general, various forms of development dominate visual conditions.

The Preferred Alternative would include aesthetic improvements such as landscaping, improved historic railings, lighting and other treatments that would enhance the visual condition of the intersection. The application of the proposed aesthetic improvements will be consistent with the

historic theme and character of the site and comply with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68). The specific types of aesthetic treatments have not yet been fully identified but will include painting, restoration of existing R4 railing and replacement of non-historic railings with R4 railings, and replacement of historic lighting/fixtures. MDOT is also considering the installation of landscaping on the approaches to the intersection. The specifics of the aesthetic treatments will be determined during the design phase of the project in conjunction with meetings with the public.

2.19 Indirect (Secondary) and Cumulative Impacts

The following indirect ("secondary") and cumulative impacts would likely occur as a result of the Preferred Alternative. As noted in the introduction to this section, only relevant issues are evaluated. None of the indirect or cumulative impacts described in this section would be significant, even when considered in conjunction with previous impacts, impacts currently occurring, and impacts that would occur in the foreseeable future.

The Preferred Alternative would not result in secondary and cumulative impacts to land uses in the project area. Because the Preferred Alternative proposes to keep the existing intersection configuration, the project would not induce unwanted development or sprawl. As noted in Section 2.2, the project area contains a stable mix of commercial and residential properties intermixed with some light industrial land uses. The neighborhoods located in the project area were originally platted in the early 1900's and are well established with very few, if any, vacant lots. While specific commercial businesses have come and gone over time, commercial land uses have historically fronted M-1 and M-102 in the project area. Existing land uses in the project area are stable. Coordination with planners in the cities of Ferndale and Detroit, Michigan, have not identified any recently developed or newly proposed major developments in the project area. Future land uses in the project area are anticipated to be consistent with the adopted local land use plans. The Preferred Alternative would retain the existing intersection configuration and access patterns, and does not alter ongoing economic trends. Given this situation, the Preferred Alternative is not anticipated to induce development patterns that are different than what would occur regardless of the project.

The Michigan State Fairgrounds is the home of the nation's oldest State Fair and is open year-round featuring dog and horse shows, antique and trade shows, indoor auto racing, agricultural exhibits, and concerts. This site hosts a wide variety of festivals, events and concerts aside from the State Fair. These activities result in utilization of facilities most of the year. The land use plan for the City of Detroit does not indicate a land use change for the site (City of Detroit Draft Master Plan of Policies 2003). However, developers have approached the fairgrounds and proposed a wide variety of ideas for the site including: an auto racetrack, a convention center, a concert hall, and a horse track. These ideas are speculative at this time and have not been adopted or approved as part of any land use plans.

MDOT is also studying the reintroduction of intermodal freight activity at the northeast corner of the Michigan State Fairgrounds property. The goal of the project is to develop regional intermodal freight facilities with sufficient capacity to provide for existing and future demand. While the Detroit Intermodal Freight Terminal (DIFT) project is not directly related to this

project, one of the intermodal sites under consideration for improvement/development is located at the northeast quadrant of the Michigan State Fairgrounds property (33 acres), approximately 0.7 miles from the project area. The physical improvements of this project are not anticipated to impact the intersection of M-1 and M-102. Traffic projections indicate that improvement/development of the proposed State Fair Intermodal site would result in the addition of approximately 30 to 40 trucks per day on area roads and will not greatly impact the intersection's operations.

The Preferred Alternative would not change or modify local travel patterns. As a result, it will not induce "cut through" traffic within the neighborhoods near the project area. The Preferred Alternative would improve the quality of life enjoyed by neighborhood residents through the addition of aesthetic improvements consistent with the historic context of the intersection.

A look at the recent history (1970-2000) of the region indicates a general and steady decline of populations and economic conditions. While the area contains viable and healthy neighborhoods, the commercial properties in the project area are in a state of decline attributed to regional and national economic conditions. Redevelopment is proposed on the northeast and northwest quadrants of the intersection as identified in the City of Ferndale Land Use Plan (City of Ferndale 1998). The City of Detroit has not identified any redevelopment projects near the project area intersection with the exception of the potential rezoning discussed earlier. Assumptions about future land uses in the project area were identified based on adopted land use plans. While these plans identify most of the likely uses and are the officially approved vision for the area, there are other development proposals and plans that have been identified for the project area. However, because these are under consideration but not adopted in any official plans, they are still somewhat speculative and have not been explicitly included in this analysis.

The DIFT project has the potential to change future economic conditions in the project area through the relocation of industrial properties and the expansion of the intermodal facility. This study is still ongoing and has not resulted in a recommendation, to date. Future economic conditions in the project area are assumed to continue following regional and national trends. The Preferred Alternative would not change the capacity, traffic flow, or traffic operations at the intersection and is not anticipated to induce development on adjacent properties.

The Preferred Alternative will not result in indirect or cumulative impacts to anticipated traffic conditions, noise, or air quality in the project area. This conclusion is based on the fact the Preferred Alternative proposes to retain the existing condition.

2.20 Construction Permits

No permits are needed to implement the Preferred Alternative.