

Revised December 8, 2003

**M-15 – I-75 to I-69
Environmental Impact Statement
Green Sheet Mitigation Summary For the TEPA**

<i>Impact Category</i>	<i>Mitigation Measures</i>
I. Social and Economic Environment	
a. 38 Residential Relocations 40 Business Relocations	<p>All eligible businesses and residents displaced by the project will be provided with relocation assistance and services in accordance and compliance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act). MDOT will, in accordance with applicable regulations, make every reasonable effort to inform individuals, businesses and not-for-profit organizations of the impact, if any, of the project on their property. Every effort will be made, through relocation assistance, to lessen any impact when it occurs.</p> <p>The locations of loons will be verified in the access management study of 2004 and during design and any that require right-of-way will be reviewed for impacts at that time.</p>
b. Safety Paths	<p>Final determinations regarding which portions of the corridor would be built with rural drainage (a ditch) and with curbs and gutters have not yet been made. Likewise, determinations have yet to be made on where safety paths would be constructed (except that they will be built in Independence Township).</p>
c. Aesthetics/Visual Effects	<p>The Memorandum of Agreement (MOA) on Cultural Resources calls for development of landscape plans for those National Register eligible properties that would experience an adverse impact.</p> <ul style="list-style-type: none"> • Dawley Residence/Stone Store, 850 Ortonville Road, Ortonville • Henry Hawes Residence, 8083 State Road, Goodrich • Michigan Milk Producers Receiving Station, 126 N. Ortonville Road, Ortonville • Rhodes-Green Farm Historic District, 10448 Green Road, Atlas Township • Freeman Sweers Residence/Louhelen Baha'i Center, 8203 State Road, Davison Township • Goodenough Townsend Residence, 2430 State Rd, Davison Township
II. Natural Environment	
a. Wetlands	<p>The 12.5 acres of wetland impacted will be mitigated by the replacement in kind of 18.1 acres of wetland split between a site north of Oakwood Road (just east of M-15) and the Little Hunt Club (Section 32 of Spaulding Township, T11N, R4E). A permit will be obtained from MDEQ for this compensatory wetland mitigation. A Wetland Mitigation Plan has been prepared for the first site and will be prepared for the second. The second site is in a different watershed, but its use was approved by MDEQ September 9, 2002.</p>

<p>b. Floodplains/Hydraulics</p>	<p>All new structures will pass the 100-year storm event without affecting backwater. Structures and culverts will be designed to prevent the base floodplain elevation of any stream with a drainage of more than two square miles (regardless of whether floodplain has been mapped), from causing a harmful interference. Hydraulic studies will be performed at the following locations during the design phase:</p> <table border="1" data-bbox="576 430 1477 850"> <thead> <tr> <th>Location/Stream Name</th> <th>Structure Type</th> <th>Old/New Length (ft.)</th> </tr> </thead> <tbody> <tr> <td>3050' north of Oak Hill Road</td> <td>72" pipe w/headwall</td> <td>84/158</td> </tr> <tr> <td>790' north of Huff Lake Road</td> <td>72" pipe</td> <td>60/68</td> </tr> <tr> <td>Duck Creek north of Wolf</td> <td>72" pipe w/headwall</td> <td>72/122</td> </tr> <tr> <td>Duck Creek south of Granger</td> <td>72" pipe w/headwall</td> <td>90/126</td> </tr> <tr> <td>Duck Creek north of Granger</td> <td>48" pipe w/headwall</td> <td>69/134</td> </tr> <tr> <td>Harris Creek south of Auten</td> <td>9'x5' box culvert</td> <td>74/85</td> </tr> <tr> <td>90' north of Ray Road (county line)</td> <td>15" concrete culvert</td> <td>54/120</td> </tr> <tr> <td>Paddison Drain north of Horton</td> <td>11.8'x6.9' box culvert</td> <td>51/141</td> </tr> <tr> <td>Kearsley Creek north of Green</td> <td>27.5'x7.5' box culvert</td> <td>50/92</td> </tr> <tr> <td>Cummings Drain south of Maple</td> <td>10'x6' concrete slab w/headwall</td> <td>54/154</td> </tr> </tbody> </table>	Location/Stream Name	Structure Type	Old/New Length (ft.)	3050' north of Oak Hill Road	72" pipe w/headwall	84/158	790' north of Huff Lake Road	72" pipe	60/68	Duck Creek north of Wolf	72" pipe w/headwall	72/122	Duck Creek south of Granger	72" pipe w/headwall	90/126	Duck Creek north of Granger	48" pipe w/headwall	69/134	Harris Creek south of Auten	9'x5' box culvert	74/85	90' north of Ray Road (county line)	15" concrete culvert	54/120	Paddison Drain north of Horton	11.8'x6.9' box culvert	51/141	Kearsley Creek north of Green	27.5'x7.5' box culvert	50/92	Cummings Drain south of Maple	10'x6' concrete slab w/headwall	54/154
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<p>c. Tree Removal/ Clearing/Landscaping</p>	<p>Mature trees will be preserved within MDOT right-of-way, where safety requirements are met. Property owners will be notified before any trees in front of their residences are removed and will be offered replacement trees.</p>																																	
<p>d. Water Quality</p>	<p>For highway runoff, storm water management facilities may include detention basins and grassed channels or swales to reduce the concentration of road contaminants reaching receiving bodies of water. Ditch check dams will be installed to control runoff velocities. Storm water management will be incorporated into final roadway design.</p> <p>Duck Creek south of Ortonville must be relocated and mitigated. Three options are outlined in Section 5.7. At Kearsley Creek, M-15's roadway section will be designed as narrowly as possible as it approaches Goodrich. Special considerations are noted in Section 5.7.</p>																																	
<p>III. Cultural Environment (Memorandum of Agreement Mitigation)</p>																																		
<p>a. Historic Properties</p>	<p>Consultation with interested parties and the State Historic Preservation Officer (SHPO) has resulted in a MOA to mitigate any adverse impacts to historic properties. See stipulations of MOA in Appendix L.</p>																																	
<p>b. Archaeological - Historic</p>	<p>A determination of the potential eligibility of site 20OK480 will be made once site access is possible, per the MOA in Appendix L.</p>																																	
<p>IV. Hazardous / Contaminated Materials</p>																																		
<p>a. Potentially Contaminated Sites</p>	<p>A Project Area Contamination Survey has been completed. The sites below have been identified for Phase II survey, prior to right-of-way acquisition.</p> <table border="1" data-bbox="576 1627 1477 1848"> <thead> <tr> <th>#</th> <th>Location</th> <th>Address</th> <th>Concern</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Zips Party Store (Zirnhelms County Market)</td> <td>3355 S State Rd</td> <td>Gas Station</td> </tr> <tr> <td>5</td> <td>Vacant Garage, NE corner of Bristol Rd & M-15</td> <td>Bristol Rd/M-15</td> <td>Old Gas Station</td> </tr> <tr> <td>7</td> <td>Last Chance Party Store</td> <td>5545 S State Rd</td> <td>Old Gas Station</td> </tr> <tr> <td>9</td> <td>Burton Industries</td> <td>6202 S State Rd</td> <td>Haz Materials</td> </tr> <tr> <td>22</td> <td>Church Auto Center (Kellys Auto Repair)</td> <td>8039 S State Rd</td> <td>Gas Station</td> </tr> </tbody> </table>	#	Location	Address	Concern	3	Zips Party Store (Zirnhelms County Market)	3355 S State Rd	Gas Station	5	Vacant Garage, NE corner of Bristol Rd & M-15	Bristol Rd/M-15	Old Gas Station	7	Last Chance Party Store	5545 S State Rd	Old Gas Station	9	Burton Industries	6202 S State Rd	Haz Materials	22	Church Auto Center (Kellys Auto Repair)	8039 S State Rd	Gas Station									
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	25	Vacant Lot, SE corner of Hawes & M-15	Hawes/M-15	Old Gas Station
	28	Morts Barber Shop/Goodrich Cleaners	8191-93 State Rd	Old Gas Station
	29	Town Pride Carpet	8217 State Rd	Old Gas Station
	30	Goodrich Car Care (Oakhill Auto Restoration)	8221-23 S State Rd	Old Gas Station
	38	Nu View Auto Glass/Car Wash	8355 State Rd	Old Gas Station
	44	Vacant Commercial Bldg	Horton Rd & M-15	Old Gas Station
	49	Engineering Tube Specialties (former dairy)	Ortonville Rd	Haz Materials
	51	Rite Aid (Waterlock Solvents)	1 Mill Street	Old Dry Cleaners
	52	Ace Hardware (Waterlock Solvents)	4 N Ortonville Rd.	Old Dry Cleaners
	53	Marathon Station (CMS/Boron)	15 N Ortonville Rd.	Gas Station
	54	Closed Garage (Futura Collision)	12 M-15	Haz Mat/Old Gas Sta.
	55	Little Caesars (former gas station)	11 S Ortonville Rd	Old Gas Station
	64	Vacant Commercial Bldg (Bell Auto Parts)	384 Ortonville Rd	Haz Materials
	70	Country Countertops	490 S Ortonville Rd.	Old Gas Station
	71	Clark Station	495 S Ortonville Rd	Gas Station
	73	Brandon Tire & Auto Center	595 S Ortonville Rd	Haz Materials
	81	Forster Auto Wash	880 S Ortonville Rd	Old Gas Station
	83	Former James Lumber Co.(Brandon Building Center, Oxford Lumber)	910 S Ortonville Rd	Old UST Site
	91	J & F Collision. Inc.	1342 S Ortonville Rd	Haz Materials
	97	Eagle Point Shopping Center (former gas station)	1764-76 S Ortonville Rd	Old Gas Station
	101	Alderman Animal Hospital (former gas station)	2140 S Ortonville Rd	Old Gas Station
	106	Former Dump (near Solley's Appliances)	S Ortonville Rd	Old Dump
	108	Oakhill Auto Parts/MVA Contr/City Press	3960-80 S Ortonville Rd	Haz Materials
	110	And I Do (Oakhill Auto Restoration)	3994 S Ortonville Rd	Haz Materials
	124	Mill Street Residential Wells	Mill Street	Groundwater Contam.

V. Construction

a. Maintenance of Traffic	Traffic will be maintained through part-width construction.
b. Air Quality	Dust control will be monitored to avoid affecting adjacent land uses. The contractor will be responsible for adequate dust-control measures.
c. Water Quality	Best Management Practices will be implemented according to MDOT and MDEQ standards.
d. Wetlands	Delineated wetlands are to be included on construction plans sheets, so they can be flagged for avoidance during construction.

SECTION 5

MITIGATION OF IMPACTS

The goal of mitigative measures is to preserve, to the greatest extent possible, existing neighborhoods, land use, and natural resources, while improving transportation. Although some adverse impacts are unavoidable, MDOT, through route location, design, environmental, and construction processes, takes precautions to protect as many social and environmental systems as possible. Construction activities that include the mitigation measures included below are those contained in the current MDOT “Standard Specifications for Construction.”

Further agency coordination will continue through the design stage. Design plans will be reviewed by many MDOT personnel prior to contract letting in order to incorporate any additional social, economic, or environmental protection items. Construction sites will be reviewed to ensure that the mitigation measures proposed are carried out and to determine if additional protection is required. More mitigation measures may be developed if additional impacts are identified. Specific mitigation measures will be included in the design plans and permit applications.

5.1 Right-of-Way Acquisition

A Relocation Plan has been prepared (Appendix D). The following standard procedures will be followed.

Compliance with State and Federal Laws – Relocation assistance and services will be provided by the acquiring agency in accordance and compliance with Act 31, Michigan P.A. 1970; Act 227, Michigan P.A. 1972; and the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) as amended, and Act 87, and Michigan P.A. 1980 as amended. The acquiring agency will inform individuals and businesses of the impact, if any, of the project on their property. Every effort will be made, through relocation assistance, to lessen the impact when it occurs.

Residential – Acquiring agencies are required by statute to determine the availability of comparable, decent, safe and sanitary housing for eligible displaced individuals. The acquiring agency has specific programs that will implement the statutory and constitutional requirements. Appropriate measures will be taken to ensure that all eligible displaced individuals are advised of the rights and benefits available and courses of action open to them.

Businesses and Farms – Acquiring agencies are required by statute to relocate eligible displaced businesses and farms. The acquiring agency has specific programs that will implement the statutory and constitutional requirements. Appropriate measures will be taken to ensure that all eligible displaced businesses and farms are advised of the rights and benefits available and courses of action open to them.

Relocation Information – A booklet entitled “Your Rights and Benefits” detailing the relocation assistance program can be obtained from the Michigan Department of Transportation, Real Estate Division, POB 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.

5.2 Soil Erosion and Sedimentation Control

Accelerated sedimentation caused by highway construction will be controlled before it leaves the highway right-of-way by placing temporary and permanent erosion and sedimentation control measures. The Michigan Department of Transportation has on file with the Michigan Department of Environmental Quality (MDEQ) an acceptable operating erosion and sedimentation control program that ensures compliance with Michigan Act 451, Part 91: Soil Erosion and Sedimentation Control. MDOT is self-regulated in its efforts to comply with this act. However, MDEQ may inspect and enforce soil erosion and sedimentation control practices during construction to ensure that MDOT and the contractor are in compliance with Part 91 and the acceptable erosion and sedimentation control program.

The following is a list of the mitigation measures for this project to be carried out in accordance with permit requirements.

No work will be done in the channels of Duck Creek, Harris Creek, Kearsley Creek, or other water courses during periods of seasonally high water, except as necessary to prevent erosion.

All construction operations will be confined to the highway right-of-way limits or acquired easements.

Areas disturbed by construction activities will be stabilized and vegetated as soon as possible during the construction period in order to control erosion.

Special attention will be given to protecting natural vegetative growth outside the project's construction limits from unnecessary removal or siltation. Natural vegetation, in conjunction with other sedimentation controls, provides filtration of runoff prior to entering storm sewers.

Protection of storm sewer inlets will be done to prevent sediment from entering the storm sewer system.

5.3 Environmental Permits

Proposed construction activities will involve the need for permits in several areas. Impacts on bodies of water such as lakes, streams, drains and wetlands will require permits under federal and state law:

Federal

- Executive Order 11990
- Clean Water Act of 1977, as amended: Section 401, state Water Quality Certification; Section 402(p), National Pollutant Discharge Elimination System, stormwater permit; and, Section 404, related to dredge and fill.

Federal Executive Order 11990 states that when federal funds are used on a project, impacts to any wetland (regardless of size) will require that there be no practicable alternative to impacts on that wetland. This "finding" is made in Section 1.3.6.

Section 401 of the Clean Water Act of 1977, as amended, requires certification from the state's water quality agency (MDEQ) to ensure that the discharge of dredged or fill material complies with the provisions of the Federal Water Pollution Control Act.

Section 402(p) of the Clean Water Act and subsequent regulation under 40 CFR 122.26 requires a National Pollutant Discharge Elimination System Storm Water discharge permit for construction projects that involve land clearing of five acres or greater. Permit application requirements include: 1) a location map and description of the nature of the construction activity; 2) location of the proposed discharge; 3) total area of the site and area to be disturbed; 4) an estimate of the runoff coefficient of the site and the increase in impervious area after construction is complete; and, 5) the nature of the fill. The intent of these requirements is to reduce impacts on water quality during and after construction.

Section 404 of the Clean Water Act requires a permit from MDEQ (acting for the U.S. Army Corps of Engineers) for the excavation and discharge of dredged and/or fill material in "waters of the United States," including wetlands. Section 401 Water Quality Certification from MDEQ is required prior to the issuance of the Section 404 permit.

State – Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended:

- Part 31, Water Resource Protection
- Part 301, Inland Lakes and Streams
- Part 303, Wetland Protection Act
- Part 365, Endangered Species Protection.

Parts 31 and 301 of Michigan Act 451 are administered by the MDEQ. A Part 31 permit (which is reviewed and issued with the Part 301 application) is needed to place fill material within any part of a floodplain with a drainage area of two square miles or more. A Part 301 permit is required for any work below the ordinary high water mark of any inland lake, stream or drain including the placement of any permanent or temporary river or stream structure.

A Part 303 wetland permit is required for any wetland disturbance, permanent, as well as temporary. The Part 303 permit is reviewed and issued with the Part 301 permit.

A Part 365 Endangered Species Permit is required from the MDNR Wildlife Division for any activity that may impact a state-listed threatened or endangered fish, plant, or animal species.

Final mitigation measures proposed in areas requiring the above permits will be developed in consultation with the appropriate agencies, and will be included in the permit application(s).

5.4 Existing Vegetation

The existing natural and ornamental vegetative cover will be retained wherever and whenever possible within the right-of-way limits. Where the existing ground cover must be removed, replacement vegetation will be established in a timely manner, using seed and mulch or sod.

Trees in front of residences within MDOT right-of-way will be saved as long as safety requirements are met. All property owners will be notified before any trees in front of their residences are removed and will be offered replacement trees to help offset the aesthetic and/or functional loss of trees.

Replacement tree species, numbers, and planting recommendations will be made jointly by MDOT's Roadside Development Section or the Region Resource Specialist as part of the project

design process following contact and coordination with adjacent property owners. For those owners who request replacement trees, the trees are to be replaced (with the property owners' approval) on their property as close to the right-of-way line as possible. The property owners will then assume the responsibility for maintaining these trees.

5.5 Disposal of Surplus or Unsuitable Material

Surplus or unsuitable material generated by the removal of structures, trees, etc., will be disposed in accordance with the following provisions designed to control the possible detrimental impacts of such actions. When surplus or unsuitable material is to be disposed of outside of the right-of-way, the contractor will obtain and file with MDOT written permission from the owner of the property on which the material is to be placed. In addition, no surplus or unsuitable material will be disposed in any public or private wetland area. Inert material may be used as a basement fill to a depth not less than two feet below the ground level, if the basement is not within the roadway cross section. Such material must be covered with at least two feet of clean soil to fill voids. Basement walls are to be removed to ground level. All regulations of the MDEQ governing disposal of solid wastes will be complied with.

5.6 Groundwater Quality

The sealing of water wells, septic systems, and sewer lines for the protection of groundwater quality will be ensured by the enforcement of MDOT specifications imposed on the contractor during construction. For houses or other structures with sewer service that are relocated or must be razed, sewer lines will be filled with concrete grout at the basement level, and water will be turned off at the street. In rural areas, the sewer line to the septic tank must be filled at the basement level. Abandoned water wells will be filled with grout applied from the bottom upwards through a conduit extended to the bottom of the well in one continuous operation until the well is filled. The contractor must also meet all local and Michigan Department of Community Health (MDCH) requirements.

Contractors will generally be allowed 60 to 90 days following issuance of the demolition contract for the site to be completely cleared. However, no more than 48 hours will be permitted following removal of any structure to fill the foundation to ground level. If the foundation is not filled within this time, MDOT will take independent action to fill the foundation, charging costs incurred to the contractor. The MDEQ notification procedures for demolitions will be followed.

The above specifications have been approved by the Michigan Department of Community Health. The contractor will also be referred to the local health department for assistance when special conditions such as flowing wells or wells with a high artesian head are encountered. If high water tables are encountered in cut sections, special methods will be used to reduce any negative effects on the area groundwater.

Improvements will be built as necessary along the pavement to drain the roadway sub-base. Edge drains will be used to intercept horizontal seepage. Stone baskets will be used to maintain and reroute the flow of springs when found below the roadway. Intercepted water will be discharged into an available roadside ditch, watercourse, or storm sewer. Although siltation of such watercourses from this intercepted water is rare, it will be controlled, when necessary, by the placement of material around the edge drainpipe to filter out fine material.

5.7 Surface Water Quality

Adequate soil erosion and sedimentation control measures will be implemented on all projects. Vegetation buffer strips approximately ten feet in width will be left in place along both sides of all stream crossings, if possible. This will promote infiltration, thereby reducing the potential impacts on the streams from added runoff and associated pollutants, including deicing salts, heavy metals, and pesticides.

At Kearsley Creek, M-15's roadway section was designed to be as narrow as possible as it approaches the south side of Goodrich. Still, concerns remained as Duck Creek and Kearsley Creek are cold water creeks. A field review meeting held April 24, 2002, included attendance by FHWA, US EPA, US Fish and Wildlife Service, MDOT, MDEQ, MDNR – Fisheries Division. At this meeting discussion led to a proposed design including:

1. curb and gutter through the section along the creek, and a combination of filtering, shading and detention;
2. steel sheeting or a Gabion retaining wall to support M-15; and,
3. riprap at base of the sheeting or Gabion wall to interface with stream to prevent scour along the base of the wall.

These measures will assist in mitigating effects on mussels and other aquatic life and will assist in cooling water before it reaches sensitive waterways.

Roadway widening in the south Ortonville area will necessitate the relocation of about 320 feet of Duck Creek. Three options are presented as potential mitigation measures to compensate for relocating Duck Creek.

1. Bring Duck Creek across M-15 at a point 300+ feet south of the current crossing and then north along the east side of M-15, and connect it to existing Duck Creek in front of the Brandon Intermediate School. This solution may require the relocation of a pedestrian path now planned for construction along the east side of M-15, and/or the relocation of some parking in front of Bank One to the rear of the building. Parking relocation could require the acquisition of school property.
2. Shift Duck Creek west to the location of the detention basin and move the detention function elsewhere on the lumber company's property. Use any current detention basin area not used for stream relocation.
3. Shift Duck Creek west to the location of the detention basin and move the detention function to other adjacent property acquired by MDOT. Contiguous land is available, at present, on the south and west sides of the lumber company site.

With stream relocation/reconstruction would come measures to improve/enhance aquatic habitat, such as creation of riffles and pools. To support its cold water creek status, plantings to shade the stream channel would be incorporated into stream design, within MDOT right-of-way. Shading of streams has been found to be an effective measure to avoid increases in stream temperature. Runoff from M-15 will be filtered through as much grassy vegetation as possible prior to outletting into Duck Creek.

When the project advances to the design phase, coordination will continue with MDEQ and MDNR regarding the most appropriate form of mitigation, based on the options outlined above.

5.8 Maintaining Traffic During Construction

The disruption of traffic in the construction area will be minimized to the extent possible. All construction areas and altered traffic patterns will be clearly marked during the construction phase. A preliminary construction staging program that calls for part-width construction has been developed and is the subject of ongoing review to ensure the constructability of the project and minimize impacts to the local neighborhoods and the motoring public. As currently proposed, four construction seasons will be needed to complete the project. No detours are called for at this time.

5.9 Continuance of Public Utility Service

Utilities will require relocation or adjustment. In doing so, coordination between MDOT and the affected utility company will take place during design, prior to actual construction. Proposed staging plans will also be presented to utilities to make them aware of the project. Service to the project area will be maintained with temporary connections during construction so service will not be interrupted.

5.10 Construction Noise Levels and Vibration Impacts

Construction noise will be minimized by measures such as requiring that construction equipment have mufflers; that portable compressors meet federal noise-level standards for that equipment; and, that all portable equipment be placed away from or shielded from sensitive noise receptors, if at all possible. All local ordinances will be adhered to.

Where pavement must be fractured, structures must be removed, or piling or steel sheeting must be driven, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys will be offered to adjacent property owners within 600 feet of an active construction area before construction begins to document any damage caused by highway construction.

5.11 Control of Air Pollution During Construction

The contractor will be required to comply with all federal, state and local laws and regulations governing the control of air pollution.

Dust Control: During construction of any project, adequate dust-control measures will be maintained so as not to cause detriment to the safety, health, welfare, or comfort of any person, or cause damage to any property or business.

Bituminous and Concrete Plants: All bituminous and Portland Cement concrete proportioning plants and crushers will meet the requirements of the rules of the MDEQ. For any portable bituminous or concrete plant or crusher, the contractor must apply for a permit-to-install or general permit. This permit should be applied for a minimum of 30 calendar days for plants with an active MDEQ permit (or 60 calendar days for plants not previously permitted in Michigan) prior to the plant being installed.

Dust collectors must be provided on all bituminous plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector must be returned to the dryer discharge unless otherwise directed by the project engineer.

5.12 Wetland Mitigation

Wetland mitigation will conform to Executive Order 11990 and applicable state law (Part 303 of Michigan Public Act 451). It will also consider needs under Part 301 of Michigan Public Act 451, which relates to the open water of streams and lakes. Note that special mitigation was outlined for Duck and Kearsley Creek in Section 5.7. Other potential mitigation for streams and lakes, such as addition of riffles and meanders will be considered at the time of permitting and is not included in this section.

Preliminary consultation regarding mitigation for wetlands was undertaken during delineation of wetlands. Mitigation of proposed wetland impacts has followed three sequential steps: 1) avoidance of wetlands where feasible; 2) minimization of unavoidable impact by adjustments to the project alignment and typical cross section; and, 3) compensatory wetland construction or restoration. The first two steps have been integral to project development. Specific mitigation measures would be done in accordance to all applicable federal, state, and local statutes administered by appropriate agencies.

As wetlands were delineated, the project was revised to avoid and minimize wetland impacts along the proposed M-15 project right-of-way. Wetlands along the route were evaluated and maximum efforts were made to avoid and minimize wetland impacts, particularly to the higher quality wetlands. Minimization of wetland impacts during construction would be further accomplished by soil erosion and sediment control practices, consistent with conditions of MDOT's Standard Soil Erosion and Sediment Control Plan. Further, side slopes may be modified to keep the toe of slope as close as possible to the roadway edge.

Compensatory wetland restoration or creation is planned, in accordance with state and local wetland protection ordinances, to mitigate unavoidable impacts to approximately 12.45 acres of wetlands. This total includes 0.71 acres of riverine open water and 0.69 acres of lacustrine (lake) open water to be mitigated later during the permit phase. Of the balance of this area, approximately 3.15 acres is comprised of forested or lake-fringe wetland. These wetlands are usually mitigated at a 2:1 ratio, i.e., 2 acres of mitigation for every acre of impact. Thus, about 6.30 acres is needed for mitigation. Most other kinds of wetlands, including emergent and scrub shrub wetlands are mitigated at a 1.5:1 ratio, so that each acre of impact is compensated with 1.5 acres of mitigation wetland, for a mitigation need of about 18.14 acres (Table 5-1).

Two areas have been identified as potential wetland mitigation sites: 1) A 49 acre parcel located north of and adjacent to Oakwood Road, in the northwest $\frac{1}{4}$ of Section 7, T5N, R9E, Brandon Township, Oakland County Michigan (Figures 5-1 and 5-2); and, 2) an 80 acre parcel (Little Prairie Hunt Club) located in Section 32, T11N, R4E, Spaulding Township, Saginaw County, Michigan (Figures 5-1 and 5-3).

The Oakwood Road site will be used to satisfy the 11.1 acres of wetland mitigation needed for the proposed M-24 Improvement Project. However, approximately 19 acres of wetlands will be created at the Oakwood Road site, plus 2.7 acres of preservation credit for the existing 27 acres of high quality wetland (see email dated February 25, 2003, Appendix C, page 32a). The total wetland mitigation acreage at the Oakwood Road site exceeds the acreage required to satisfy the compensatory wetland needs for the M-24 project. Therefore, the remaining 10.6 acres of wetland will be used to compensate a portion of the wetland mitigation for the M-15 project.

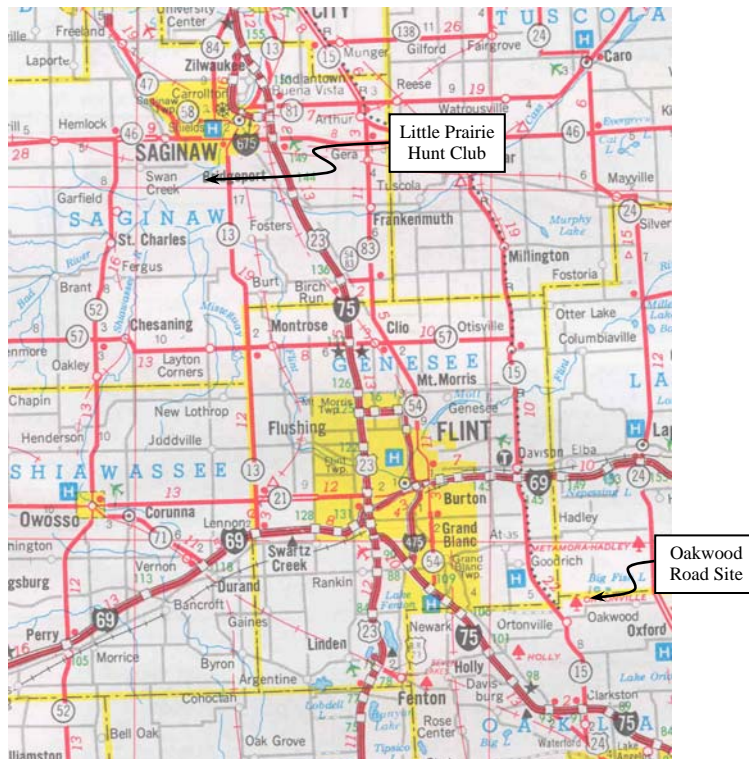
**Table 5-1
Wetland Acreages Affected and Potential Mitigation**

Wetland Community	Impact Acreage	Probable Mitigation Ratio	Estimated Mitigation Acreage
Palustrine Forested	3.11	2:1	6.22
Lacustrine Emergent	0.04	2:1	0.08
Palustrine Scrub-shrub	1.70	1.5:1	2.55
Palustrine Emergent	5.34	1.5:1	8.00
Palustrine Open Water	0.20	1.5:1	0.30
Riverine Emergent	0.66	1.5:1	0.99
Lacustrine Open Water	0.69	NA ¹	NA ¹
Riverine Open Water	0.71	NA ¹	NA ¹
Subtotal	12.45		18.14

Source: Tilton and Associates, Inc.

¹ NA means Not Applicable, as these open water wetlands are regulated under Part 301, not Part 303. Mitigation requirements will be decided at the time of permitting, as is the normal procedure.

**Figure 5-1
Potential Mitigation Sites**



The Oakwood Road site and a portion of the Little Prairie Hunt Club are within the Flint River Watershed. However the Little Prairie Hunt Club drains into the Shiawassee River Watershed. Normally wetlands are created in the same watershed where wetlands impacts occur. However, during a September 9, 2002, field review, a MDEQ representative consented to allow the balance

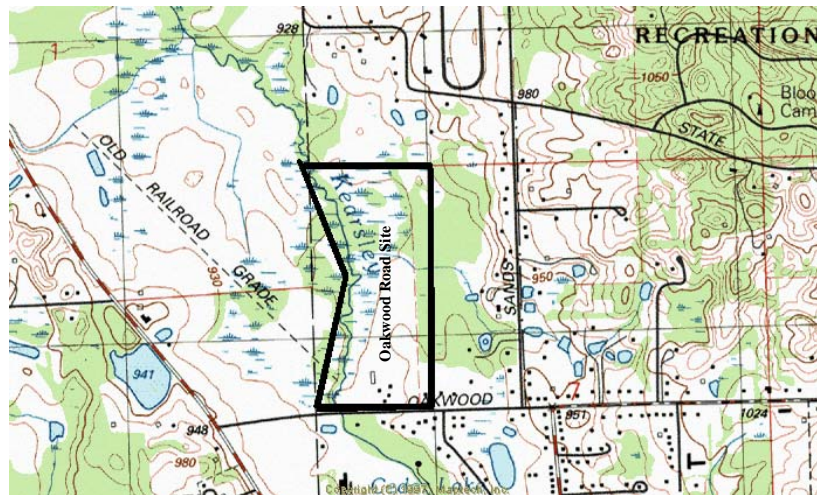
of the wetland mitigation for the M-15 improvement project to be created at the Little Prairie Hunt Club site

The Oakwood Road site has received environmental clearances (farmland, cultural resources, and threatened and endangered species) through the M-24 FEIS.¹ As the Little Prairie Hunt Club site will be a site for use by MDOT on the M-15 and other projects, environmental clearances at the Hunt Club were sought separately by MDOT (see Appendix N).

The Oakwood Road site has the following attributes:

- Restoring/creating mitigation wetland would add protection to Kearsley Creek, a designated cold-water trout stream.
- Potential wetland hydrology appears to be readily available both from creek flood flows and lateral groundwater flow from east to west toward the creek. A drain that was previously built on the property could be easily blocked to restore wetland hydrology to the lower non-wetland areas. The higher elevations of the potential mitigation site have sandy soil that would not seem to require, on average, more than a few feet (or less) of excavation to reach the ground water table. Artesian wells on the property could potentially be directed to support restored/constructed wetland.

Figure 5-2
Oakwood Road Site
(North of Ortonville, 0.1 mile east of M-15)



- Wetland construction/restoration could expand and enhance a large natural area/wetland complex that includes lowland hardwoods, forested wetland, emergent and scrub-shrub communities, and Kearsley Creek. The occurrence of

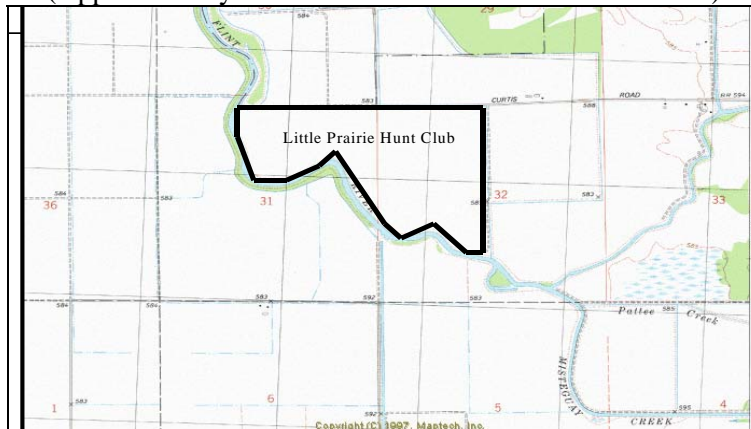
¹ “Final Environmental Impact Statement / Final Section 4(f) Evaluation for the Proposed Reconstruction of M-24 from One Mile North of the Oakland County Line to I-69,” approved by FHWA March 18, 2002.

tamarack, northern white cedar, ninebark, and shrubby cinquefoil suggest calcareous groundwater conditions typical of fens. The upland Oshtemo-Boyer soil is known to have a calcareous subsoil (Feenstra, 1982). Soil and groundwater conditions (with some grade modifications) at this property appear suited to growing northern white cedar and other calciphile wetland (fen) plants.

- The property has good accessibility from M-15 via Oakwood Road for construction equipment access.
- The high-quality existing wetland brings preservation credit for mitigation.

Little Prairie Hunt Club – This property is located in section 32 of Spaulding Township (T11N, R4E), Saginaw County, Michigan. Located in the Saginaw Lowlands, the site is over one hundred acres in area and is within the Flint River Watershed (Figure 5-3). The site, which is proposed for an 80-acre area for use with multiple projects, is currently being farmed and is surrounded by large drains that convey water to pump stations that empty to the Flint River. Soils at the site are primarily hydric. An onsite meeting was held on September 9, 2002, with officials from the MDOT and MDEQ to examine the property and discuss the feasibility of using the site for multiple projects. At that time, MDEQ gave verbal approval of the concept and further efforts to acquire the property for the purpose of MDOT wetland mitigation. The site is currently under review and negotiation.

Figure 5-3
Little Prairie Hunt Club
(Approximately four miles west of M-13 on Curtis Road)



5.13 Biological Mitigation

As silt fences are put in place during construction along wetlands, signs shall be placed along the spotted turtle sites (wetland sites 36 and 37, which correspond to biological sites 47 and 48 on east and west sides, respectively of M-15 between Groveland and Auten Roads, see Figure 1-6c) instructing workers to move any turtles found inside the fence, to outside the fence, and report such activity to supervisors.

5.14 Contamination Materials Mitigation

Several former gas stations/UST sites closed before 1988, which is when comprehensive federal and state UST regulations went into effect. Because they were not subject to the current UST regulations, there are no public records available for these older sites. Due to the potential for soil and/or groundwater contamination associated with USTs, on-site testing should be performed at all current and former UST sites that are within the project corridor during the PSI. In total, 31 sites are recommended for further testing including: one dump; seven sites potentially affected by hazardous material handling; and, 23 underground storage tank sites (see Table 4-14).

5.15 National Geodetic Survey Monuments

The corridor will be reviewed prior to construction to determine the location of U.S. Department of Commerce, National Geodetic Survey monuments (<http://www.ngs.noaa.gov>) to prevent disturbance to such monuments.

5.16 Additional Mitigation or Modifications

The final mitigation package will be reviewed by division representatives on the MDOT project study team, in cooperation with concerned state, federal, and local agencies.

Some changes to the early mitigation concepts discussed in this document may be required when design begins or when in-depth soil borings are made and analyzed. For example, the access management study conducted in 2004 may provide a more precise definition of where loons for U-turns may be necessary. The early mitigation concepts will be implemented to the extent possible. Where changes are necessary, they will be designed and field reviewed before permits are applied for or construction begins.

MDOT is concerned with worker health and safety and will abide by appropriate criteria and guidelines.

These preceding mitigation concepts are based on the best information available through August 2003.

SECTION 6

FINAL SECTION 4(f) EVALUATION

6.1 Introduction

As mentioned in the **Forward** of this document, the following impacts are based on the selection of the TEPA, but due to funding constraints the No-Build Alternative is being selected. If any work to the corridor is proposed in the future, all the information contained in the document and this section will be restudied and evaluated. The Memorandum of Agreement (MOA) with the State Historic Preservation Office (SHPO) was never executed for this project and therefore does not need to be rescinded.

This section describes and evaluates impacts to properties protected by Section 4(f) of the Department of Transportation Act of 1966. The purpose of the Section 4(f) Evaluation is to ensure that, where there are adverse effects to protected resources, all prudent and feasible alternatives to use of such resources have been considered, that planning has included all possible measures to minimize harm, and that coordination with appropriate agencies has satisfactorily occurred.

The Federal Highway Administration (FHWA) has determined the project will result in adverse effects on the potentially historic properties noted below:

- Dawley Residence / Stone Store
- Michigan Milk Producers Receiving Station
- Rhodes-Green Farm Historic District
- Henry Hawes Residence
- Freeman Sweets Residence / Louhelen Baha'i Center
- Goodenough Townsend Residence

The Technically and Environmentally Preferred Alternative would adversely affect the settings of these properties. FHWA has consulted with the State Historic Preservation Officer (SHPO) to develop measures to minimize harm. Those measures are contained in the Final Memorandum of Agreement found in Appendix L. This Final Section 4(f) document was prepared for processing under the procedures set forth in FHWA regulation 23 CFR 771.135.

6.2 Proposed Action and Need for Project

Widening M-15 for 20 miles between I-75 and I-69 is proposed. This two-lane rural highway is becoming inadequate due to tremendous growth in Oakland County and significant, but lesser growth in Genesee County. The population of the five townships comprising the corridor grew 29 percent from 1990 to 2000. Traffic forecasts for 2025 indicate a need through the length of the corridor for four through travel lanes, with traffic volumes ranging between 18,400 and 35,200. As congestion increases there are fewer opportunities to pass, and left turns to and from the 550 driveways along M-15 (400 are residential) become more and more difficult. Drivers must accept shorter gaps in traffic and wait longer. The result is poorer traffic service, decreasing safety, and a decreasing quality of life. The inability to get onto M-15 was noted at a number of the public meetings held for the project. With the project, the entire corridor will operate at a Level of Service C or better. For a more detailed discussion of the purpose and need for the project see Section 2 in the body of this Final EIS.

6.3 Description of Historic Resources

The *National Register of Historic Places* has established criteria for determining historic significance. These criteria require a property to have integrity of location, design, setting, materials, workmanship, feeling, and association. Additionally, the property must meet one of the following criteria: a) be associated with a significant event; b) be associated with the lives of significant persons; c) embody the distinctive characteristics of a type, period or method of construction, or represent the work of a master; or, d) have yielded or be likely to yield information important in history or prehistory (usually archaeological sites). A property must also be fifty years old or older to be considered *National Register* eligible. A discussion of properties considered eligible and expected to experience adverse effects with the project follows.

6.3.1 Ernest and Harriet Dawley Residence, 850 Ortonville Road (M-15)

Beginning in 1916, Ernest and Harriett Dawley began the construction of the distinctive stone clad residence at the corner of Ortonville Road and Wolf Road and construction continued over a period of ten years (Figure 6-1a). Once part of a larger farm, the house is clad with stones gathered from the property. Dawley, a well-known livestock dealer and farmer in the area, also transported livestock and produce to Eastern Market in Detroit and operated a nearby slaughterhouse. The house played a role in the slaughterhouse operations, with meat hung on the front porch until it could be picked up by neighboring farmers. Another reminder of the Dawley's is the metal rings at the exterior basement door that were used to raise a still out of the basement so that the corn mash could be cooked outside, then lowered back down the steps.

Located east of the house along the road is a pair of fieldstone pillars that flank the narrow front walkway. Constructed at the same time as the house, the pillars create a formal entrance to the front door from Ortonville Road. Approximately 40 inches tall, the pillars have battered sides that terminate with a hipped concrete cap. They comprise an integral part of the property.

The original property now includes a number of small businesses along M-15. The house later served as a television repair shop, and from 1968 to 1995 as a family residence. The current owner converted it into an antiques store in 1995. Driveway access from M-15 has not been allowed. It is from the side street to the south of the house.

While stone clad buildings are common in the Clarkston and Ortonville areas, the Dawley house is the finest example of this construction method and embodies the distinctive characteristics of a type, period and method of construction. Therefore, it is considered eligible for inclusion on the NRHP under Criterion C, architectural significance.

6.3.2 Michigan Milk Producers Receiving Station, 126 N. Ortonville Road, Ortonville

Constructed in 1947, this state-of-the-art receiving station (Figure 6-1b) was constructed to replace smaller stations located in Ortonville and Atlas. The new receiving station in Ortonville was, at the time, the second largest in the state.

The Michigan Milk Producers Receiving Plant, constructed by general contractor Karl B. Foster of Flint, Michigan, handled about 200,000 pounds of milk in an eight-hour period. Thoughtfully designed, the receiving station included a covered driveway where cans of milk shipped by the producers would arrive, then be moved by inbound and outbound power conveyors. To maintain production levels, the receiving station was equipped with a fully-automatic 60 horsepower oil-burning boiler to wash milk cans as well as provide heat and hot water for the building. Cooling of the milk was accomplished by passing it over a surface cooler, equipped with two eight-by-eight ammonia compressors, then storing it in three stainless steel 5,000 gallon cold wall tanks. Also included in the efficient design of the receiving station was a completely enclosed loading room to fill tank trucks with the processed milk.

Figure 6-1



Figure 6-1a Ernest and Harriett Dawley residence, with stone pillars in front yard



Figure 6-1b Michigan Milk Producers receiving station, Ortonville



Figure 6-1c Rhodes-Green farmstead streetscape



Figure 6-1d Henry Hawes residence, streetscape



Figure 6-1e Louhelen farmhouse, ca. 1948 farmhouse



Figure 6-1f Goodenough Townsend family farmhouse

The Art Moderne style of the Michigan Milk Producers Receiving Plant was popular from 1935 to 1950. Most commonly used for industrial designs, the Art Moderne style was representative of the general trend toward aerodynamics and industrial design. Typical features of the building style include curved corners, asymmetrical fenestration, smooth wall materials, including stucco or masonry wall surfaces, and a flat roof.

Although currently appearing to be vacant, the building is a well-preserved example of the small Art Moderne style industrial facilities. Linking the area's agricultural heritage to the requirements of contemporary living, the small facility was one of the largest milk receiving stations in Michigan. The former Michigan Milk Producers Receiving Station is directly associated with events (*National Register*, Criterion A) pertaining to the agricultural history of the area and embodies the distinctive characteristics of the Art Moderne style (Criterion C).

6.3.3 The Rhodes-Green Farm Historic District, 10448 Green Road

The Rhodes-Green Farm Historic District (10448 Green Road) is on the southwest corner of Green Road and M-15 (Figure 6-1c). The house was originally built in 1860, with the barn being erected in 1881. Other structures include a small livestock barn (ca. 1940s), a chicken coop (ca. 1930s), and a Quonset hut erected in 1944. The original 300 acres expanded to 700 (inclusive of family holdings) and went from general farming to raising Merino sheep. The farm now raises beef cattle and donkeys on 24 acres. The historic integrity of the property and the original farmstead and surrounding fields remain, though two new homes have been built along the frontage of M-15 as sell-offs from the farm, so the Rhodes-Green Farm property has three points of contact with M-15, with the new houses separating the frontages.

The original portion of the house is a one and one-half-story Upright and Wing form, resting on a fieldstone foundation. There is a recessed entry at the center of the wing element's west façade. Additional doors are placed on the east façade of the first addition and a bulkhead door near the junction of the upright and wing elements on the west façade. Windows are predominantly double-hung, most with six-over-six sashes. There is a 12-light fixed window north of the original door. Ornamentation includes a distinctive set of pilasters, frieze board, and cornice returns on the upright element, and an ornate series of panels on the north façade wall.

This farm is considered eligible for the *National Register* as a district under Criterion A, due to its association with early settlement by John and Huldah Rhodes, and its continuing agricultural activities. Together with the associated structures, lands, and a farm lane contribute to the whole.

6.3.4 Henry Hawes Residence, 8083 State Road (M-15), Goodrich

Located on the east side of State Road (M-15), the property currently consists of an Italianate style house erected ca. 1870 and a garage constructed ca. 1940 (Figure 6-1d). Around the house are several large trees, which were probably planted early in the history of the building and continue to provide both shade and privacy. The house, an example of the Front-Gabled Roof Italianate form, features a two-story main house with one-story elements extending from the north, east, and south facades. A distinctive cornice complete with brackets under the overhanging roof, two-over-two double-hung windows, and a polygonal bay window are among the extant features of the house. Although some alterations to the original building have occurred, including the construction of an enclosed porch at the southeast corner of the house in the early twentieth century and the cladding of the exterior walls with asphalt shingles, the building has retained a high level of its original integrity.

The first known owner of the house was Henry Hawes. In 1873, Hawes was listed in the Goodrich Business Notices as a “Manufacturer of all kinds of Agricultural Implements, Castings, Plows, &c., Main St.” In addition to his work as a manufacturer, Hawes was a farmer, owning 30-acres of land associated with the house on State Road. Hawes died in 1917. Little additional information is available on Hawes, who apparently drew most of his clientele from the Goodrich area. The land associated with Henry Hawes remained in the Hawes family into the 1940s when it was subdivided into Hawes Subdivision.

Although there have been a number of changes to the house, it still retains its distinctive appearance as an Italianate-style building. The only known example of the Italianate style in Goodrich and the surrounding area, the house is considered to be eligible for inclusion on the NRHP under Criterion C which requires the building embody the distinctive characteristics of a type, period, or method of construction. The small garage is considered a contributing resource to the potential Henry Hawes Residence Historic District. Constructed in years after Mr. Hawes’ death by his descendants, the garage represents the practice of constructing buildings to store the family automobile. Once a small farm, none of the early outbuildings, which could have served the same purpose, have survived.

6.3.5 Freeman Sweers Farm/Louhelen Baháí School, 8203 State Road

Established some time between 1873 and 1889, the original farm was owned and operated by Freeman Sweers and his wife Elizabeth Seelye Sweers (Figure 6-1e). Sweers was one of 12 children by Atlas Township pioneers Manly and Lydia Sweers. Although several of the Sweers family children carried out important roles in their communities, including brother Milo who served as the deputy sheriff of Genesee County and Lewis, who was the president of a bank in Ortonville, Freeman appears to have made his life work his 120-acre farm. The farm remained under the ownership of Freeman Sweers into the twentieth century, but by the 1930s had been sold to D.P. Hall. By 1930, the farm in deteriorated condition, was purchased by Lou and Helen Eggleston.

Although farming was part of the plan for the property, the Egglestons wanted to develop a property that could be self-supporting and become the basis for establishing a Baháí school. Two other such schools existed at the time, but no similar operation was located anywhere in the central United States.

The first classes at Louhelen (named for owners, Lou and Helen) were an informal nine-day session in the summer of 1931. Most who joined the first session were already Baháís, although at least one member from the community, a clergyman from nearby was also among those who attended. The school continued to grow over the next few years, requiring the construction of additional lodging in the form of small cabins and dormitories. Dining porches were added, the kitchen enlarged, and washrooms erected during the following years to accommodate the growing popularity of the school. In less than 20 years, the school had achieved an international reputation, with students attending from as far away as the Philippines and Latin America.

In 1948, Helen and Lou Eggleston legally transferred ownership of the Louhelen Baháí School to the trustees of the National Spiritual Assembly. Today, Louhelen continues to provide a year-round program that serves nearly 20,000 people annually in a wide range of spiritual education and community service programs.

Currently the Louhelen property includes the original farmhouse (ca. 1880), The Refuge originally constructed as the campus library in 1939; the Gym and Unity House (ca. 1930); the

Maintenance Barn (ca. 1900); the new main building including offices, classrooms and lodging (1980s); several small storage sheds erected in the 1980s; and, four staff residences, the earliest dating from the 1950s, and three more recently constructed in the 1990s. Extensive changes were made to the original farmhouse to accommodate the growing needs of Louhelen in the 1930s and 1940s. These alterations have since been reversed following a decision in the early 1980s to restore the farmhouse to its 1930s-appearance.

Louhelen Baháí School is considered eligible for inclusion on the NRHP under Criterion A. The former farm has slowly evolved into an internationally recognized center for religious instruction and growth in the Baháí Faith. One of the first three such centers in the United States at the time of its development in 1931, Louhelen was the first school established in the central portion of the country. Additionally, the farmhouse is considered eligible for inclusion on the NRHP under Criterion C. Constructed in the Italianate style, the Baháí community has faithfully restored the house to its original appearance, preserving an important connection to the farming community that provided the foundation for the school.

6.3.6 Goodenough Townsend Residence, 2430 State Road

The Goodenough Townsend residence is now reduced to approximately 3 acres of an original farmstead of 80 acres, circa 1873 (Figure 6-1f). Goodenough Townsend was a prominent citizen of the 1840s and 50s, serving variously as supervisor, clerk, justice of the peace, school inspector, highway commissioner, constable and postmaster. The residence remains an excellent example of a Gable-Ell home, circa 1875. The two-story house is oriented parallel to the main road by the wing element extending from the north façade of the upright. A one and one-half-story rear ell extends west from the wing element. A one-story, half-hipped, open porch extends across the length of the wing element and wraps around the north façade, to terminate partway down the length of the rear ell. Constructed on a stone foundation, the walls are clad with weatherboard, and each roof element is sheathed with asphalt shingles. A simple frieze board runs along the wall at the roof junction, and corner boards and simple watertable provide simple decorative details.

There is a turned spindle railing between the turned posts that support the porch roof. There are bay windows on the first floor of the upright element and immediately north of the front door under the porch roof. Windows also include double-hung, one-over-one sashes, typically flanked by shutters. Many windows particularly on the second floor have a simple pedimented hood molding.

This well-maintained Gabled-Ell example, with only minor alternations since its construction, is considered eligible for inclusion on the *National Register* under Criterion C.

6.4 Impacts on the Section 4(f) Properties

The properties discussed above are expected to experience adverse effects with the project. The properties and potential adverse effects are summarized in Table 6-1.

Changes in noise levels are not significant. Traffic levels will rise with or without the project. As it takes a doubling of traffic to produce a perceptible noise level increase, the variation in noise levels between the proposed project and taking no action is small. Where the traffic is shifted closer to a receptor there is a potential for impacts, but a similar principle applies. Traffic must be half as close for a perceptible increase in noise. Only at the Michigan Milk Producers Receiving Station would a change be potentially perceptible (see below).

**Table 6-1
Potential National Register Eligible Cultural Resources – Adverse Effects**

Site Name	Location	Description	Eligibility Criteria	Effect
Dawley Residence / Stone Store	850 Ortonville Road. West side M-15 north of Wolfe Road	Former residence, now gift shop with stone pillars in existing right-of-way, circa 1916	C	New right-of-way would be about 40' into yard for wider road.
Michigan Milk Producers Receiving Station	126 N Ortonville Road. East side M-15 N of Myron Street	Example of small Art Moderne style industrial facility	A & C	New right-of-way line would be about 10' from building.
Rhodes-Green Farm Historic District	10448 Green Road. West side M-15	Association with an early settler and agriculture, circa 1860/1881	A	New right-of-way would be about 20' to 30' into yard for wider road.
Henry Hawes Residence Historic District	8083 State Street. East side M-15 in Goodrich	Italianate architectural example, circa 1870	A & C	New right-of-way would be about 30' into front yard, including two large trees.
Freeman Sweets Residence / Louhelen Baha'i Center	3208 State Road. West side M-15 north of Bristol Road	House circa 1885. Retreat founded in 1931 as Baha'i faith school and center	A & C	Existing right-of-way line maintained, but trees may be removed.
Goodenough Townsend Residence	2430 State Road	Example of residential Gabled-Ell architecture, circa 1875	C	New right-of-way would be 20'+ into front yard with smaller trees likely removed, but larger yard trees remaining.
200K480	East side M-15 south of Oak Hill Road	Archaeological remains of farmstead	Unknown	Phase II testing required to determine National Register eligibility. New right-of-way would extend over much of site.

Source: Commonwealth Cultural Resources Group

At the **Dawley Residence / Stone Store**, the two entrance pillars are near the existing right-of-way line. The preferred narrow boulevard section (with its 172-foot right-of-way, compared to 120 feet of right-of-way for a five-lane sections) would remove these stone pillars and encroach on about 40 feet of yard. This is considered an adverse effect because it would alter the property's setting.

The narrow boulevard section would carry north past the **Michigan Milk Producers Receiving Station**, with the new right-of-way passing very close to the building - on the order of ten feet. The Ortonville Cemetery on the other side of the road forces road widening to the Milk Producers Station side of the road. The extensive intrusion into the Receiving Station yard is considered an adverse effect. Due to the close proximity of the future road pavement relative to the existing road, this is the sole location where a perceptible noise increase is expected. The future noise level with the project could be 3 decibels higher than if the road improvements were not made. Three decibels is typically the minimum noise level increase that can be detected outside of laboratory conditions. Despite this increase, the projected noise level with the project would be 66 decibels, well within the applicable criterion for commercial uses of 71 decibels. The wider roadway would also change the setting. The view from the south is obscured by vegetation on a vacant lot that would be acquired. Also, the commercial uses to the south would be acquired and removed. The result would be greater visibility for the Milk Producers Station.

At the **Rhodes-Green Farm Historic District**, the new right-of-way would extend about 20 to 30 feet beyond the present right-of-way into the yard. The Green Road intersection and wetlands at Kearsley Creek control the alignment, and make it imprudent to shift the alignment to the east. The farm's boundary along M-15 has been changed by the construction of two new homes that front onto M-15, but the entry lane that leads to the house is intact. This lane, which provides access to the house, will require altering. For safety reasons, the drive will not be allowed to connect with the reconstructed M-15 at the intersection of Green Road and M-15, as it does today. Altering the driveway/lane will change the setting of this farm historic district.

The **Hawes House**, on the east side of M-15 in Goodrich, would experience a 27-foot encroachment resulting from extending the road's right-of-way limit to the east, while maintaining the west right-of-way line in its present position to avoid impacts to 20+ residences with very minimal setbacks on that side of the road. Two large mature evergreen trees are located at the proposed right-of-way limit in the front yard of the Hawes House. Given that most of the proposed right-of-way expansion will be pavement, it is uncertain whether the trees would survive construction. The trees are of an age that they were likely planted as yard trees for the Hawes House. The encroachment into the yard and the likelihood that the yard trees will be taken are considered to result in an adverse effect on the Hawes House, due to the change in setting.

The **Freeman Sweers Residence / Louhelen Baháí Center** includes a line of evergreen trees that appear to be in the existing right-of-way (along the south section of the property abutting M-15). These trees were probably not extant at the time of the founding of the Louhelen Center, but may have been planted to screen the Center from the road. It is uncertain whether these trees could be preserved because of the need for drainage improvements associated with widening M-15. Because of the likelihood of the removal of the trees, the effect of the proposed project on the Center is considered adverse.

The **Goodenough-Townsend Residence** at 2430 State Road is now 90 feet from the edge of the right-of-way and 115 feet from the pavement. These distances would reduce to 63 and 96 feet, respectively, if the right-of-way centerline remains the same. The proximity of the reconstructed road to the house is considered an adverse effect because of the change in setting.

6.5 Avoidance Alternatives

Build alternatives were considered, as well as the Transportation System Management (TSM), Mass Transit, and No-Build alternatives. The build alternatives considered paving other roads to divert traffic from M-15, building bypasses at key locations, and widening M-15 in various ways. The development of alternatives and their evaluation are discussed in Technical Reports 1, 2, and 3 for the project and in Section 3 of the EIS.

The TSM, Mass Transit, and build bypass alternatives do not meet the project need. In each case travel modeling found a need for four through travel lanes. Consideration of a standard boulevard section found the impacts, including impacts to historic resources, could be lessened with a narrower cross section, a "narrow" boulevard, without compromising traffic flow and safety. Therefore, the wider, standard boulevard was dropped from consideration, and narrower typical sections were considered. This step was specifically taken to develop avoidance alternatives. The No-Build Alternative does not meet the need for the project for four through travel lanes. Public comments received at meetings and in correspondence and email indicated some believed that if growth were stopped, the project would not be necessary, at least in the Goodrich/Atlas Township area. Please see **Section 7.3** of this document for comments and responses to public

concern. Because of this sentiment, alternative land use scenarios were examined. One scenario shifted growth from that projected locally, moving it from Oakland County north along M-15 towards I-69. Another reduced the expected growth in Atlas Township by 75 percent. Even under these alternative “No-Build” land use scenarios computer modeling showed a need for four through lanes throughout the project length.

Even after the standard-width boulevard was dropped from further consideration, the build alternatives were designed to avoid effects on Section 106 properties. Potential historic resources were identified early in the analysis process. Those that were deemed to have some potential for the *National Register* were avoided, where prudent and feasible. These properties, together with wetlands acted as design layout “controls.” Avoidance and then minimization guided the development of the alternatives.

6.6 Measures to Minimize Harm

The alternatives that survived the practical alternatives stage to comprise, ultimately, the Technically and Environmentally Preferred Alternative were a five-lane typical section and a narrow boulevard. The five-lane section fits in a 120-foot right-of-way and the narrow boulevard fits in a 172-foot right-of-way. The boulevard was favored where its construction appeared prudent and feasible due to its greater safety. (The public in weighing evaluation criteria, scored safety as the number one priority.) The five-lane alternative had the advantage of a smaller footprint. As the project evolved, a third cross section was developed to minimize impacts. The “very narrow boulevard” was suggested as an alternative to the five-lane section where access needs were minimal, such as where M-15 passes between two wetlands, or next to some historic resources. With no driveways, there is no need for a center turn lane or substantial median width (to accommodate U-turns) and the very narrow boulevard can meet the traffic and safety needs.

In the end, a mix of five-lane, narrow boulevard, and very narrow boulevard sections was used to avoid as many of the historic resources (and wetlands) as was prudent and feasible. The proposed action has minimized right-of-way impacts in recognition of historic resources. Comments related to specific properties follow.

At the **Dawley Residence / Stone Store**, a portion of the yard area and the stone entry pillars would be acquired. There was a very strong feeling on the part of citizens at meetings and the leadership of Ortonville and Brandon Township to maximize the extent of boulevard section in the vicinity of Ortonville. The boulevard is desired for safety reasons because of the presence of the Brandon elementary, middle, intermediate and high schools in the area, and the resultant auto and pedestrian activity. This activity includes busy intersections at Granger Road and South Street, which are just to the north. At the same time the Stone Store has not been permitted to have driveway access from M-15. The owner would prefer to have the stone pillars moved to the entrance off of the “side” road (Wolfe Road). This is the area where pedestrian traffic now approaches the resource. Another influence on the location of the proposed road (the centerline would be maintained in approximately its present location) is the presence of wetlands associated with Duck Creek. Shifting the road to the east to avoid the Stone Store would take more of the wetland area bordering the Brandon Middle School.

Because of the presence of the Ortonville Cemetery and its *National Register* potential section, the minimization option at the **Michigan Milk Producers Receiving Station** was limited. Safety remained a concern in the Ortonville area and so the boulevard section was perpetuated in this

area. Minimization of harm would occur through landscaping. The greater visibility of the property from the south may improve its viability as a commercial property.

At the **Rhodes-Green Farm Historic District**, it is proposed that the drive be relocated to the west on Green Road approximately 150 feet, so that it does not enter M-15 in the middle of an intersection. There is vegetation along the drive, but it tends to be nearer the house, where several mature fir trees roughly line the east side of the drive. Other more mature trees are scattered in the yard. Some immature trees are clumped in the area just west of where the drive intersects Green Road. These would be preserved if the new drive were curved around them to the west, then north, to join Green Road. No historic features have been found that would have to be removed or altered to allow this driveway change, or any associated with the right-of-way acquisition for M-15 itself. The existing fence is a standard livestock fence of recent vintage.

A minimal cross section, based on safety standards, has been proposed through Goodrich, where the **Henry Hawes Residence** Historic District is located. Measures to minimize harm in this case could take the form of replacing the yard trees, if necessary, matching the evergreen species planted originally.

At the **Freeman Sweers Residence / Louhelen Baha'i Center**, the row of evergreens along the south portion of the property would likely be taken. The minimal typical section (5-lane) is proposed in this section, and so a narrower cross section is not considered prudent. New right-of-way acquisition necessary in this section is proposed for the east side of the road, so avoidance has already been taken into account. The minimization of harm proposed at the Baha'i Center is the replacement of the row of evergreen trees at the right-of-way edge, if the existing trees cannot be preserved.

At the **Goodenough Townsend Residence**, the minimal typical section (5-lane) is also proposed. Shifting the alignment east would likely take at least one additional residence (opposite) and would roughly double the depth of the land needed from the Seelye House, which is also *National Register* eligible, but was determined not to experience an adverse effect. A shift east away from the Goodenough Townsend Residence could result in the Seelye House suffering an adverse effect.

A number of measures to minimize harm apply to all sites. Prior to construction MDOT will establish a permanent record of the history and current conditions of sites determined to be eligible for the *National Register of Historic Places* in conjunction with the SHPO. This consultation will also guide the appropriate level of detail of the documentation. MDOT will provide original copies of the documentation with photos to the SHPO and appropriate local archives designated by the SHPO.

MDOT will ensure that properties identified in consultation with the SHPO are landscaped in accordance with a landscape plan designed in conjunction with the SHPO and property owners. MDOT will retain an historian meeting the Secretary of the Interior's "Professional Qualifications Standards" (48 FR 44738-9) and trained in historic landscape analysis and design to assist in plan development.

6.7 Coordination

Effects of the proposed action, the alternatives considered, and the proposed measures to minimize harm have been reviewed by and developed in consultation with the SHPO, the public, and the property owners (almost all of whom have been contacted in the course of the analysis). FHWA has provided information to the Advisory Council on Historic Preservation for their review and comment. MDOT has conducted extensive owner interviews to complete the historic property inventory and held the following meetings, to which the public was invited:

- November 15, 2000 – Meeting devoted to historic resources, both to inform citizens about process, make them aware of known resources and solicit their comments. Brandon Township “Old Town Hall.” (Total attendance 34.)
- January 24, 2001 – Workshop/Open house display of information on the practical alternatives and to discuss historic resources. Lakeview Community Church. (Total attendance 229.)
- April 3 & 4, 2001 - Presentation of the results of the evaluation of the practical alternatives and to discuss impacts to historic resources. Brandon Township Middle School and Goodrich High School Cafetorium. (Total attendance 350.)

There were virtually no comments on cultural resources at these meetings other than incidental conversations. A member of the Goodrich Historical Society did ask about conclusions regarding the original home of Enos Goodrich, founder of Goodrich. Research for this M-15 EIS determined that the home traditionally believed to be Goodrich’s original residence at 8049 State Road (M-15) was not. The original residence is several blocks west of M-15 and is unaffected by the project.

All the property owners are aware of the project.

Public hearings were held February 26 and 27, 2002 after publication and distribution of the Draft EIS / Draft Section 4(f) Evaluation. Attendance at the two hearings was approximately 175 and 150, respectively. The sole comment from the public hearing process was a request to avoid taking the two large evergreen trees in front of the Hawes House.

This document is being distributed to the appropriate federal, state, and local agencies, and will be made available for public review and comment.

6.8 Conclusion

Based on the above considerations, there is no prudent alternative to the use of land from the properties listed in Table 6-1, and the proposed action includes all possible planning to minimize harm to these historic properties resulting from such use.

SECTION 7

EARLY COORDINATION, PUBLIC MEETINGS, PUBLIC HEARING, AND COMMENTS RESULTING FROM DEIS CIRCULATION

This section traces the public and agency input that was vital to the development of the Technically and Environmentally Preferred Alternative, the analysis of its impacts, and the measures to minimize harm that have been developed to mitigate project impacts. The first section covers early coordination, wherein those with a review or regulatory role, or special interest in the project, were specifically invited to participate in a dialogue about the project. The next section covers the six public meetings held during the course of the project that led to the public hearing. The third section summarizes comments received from the public at the public hearing and during the comment period, and responses thereto. The final section covers the comments of agencies and other entities and provides responses to their concerns.

7.1 Early Coordination

Scoping meetings were held September 20, 2000, in Lansing and Ortonville for agencies and local entities, respectively. Prior to the meeting, a scoping packet was mailed to those invited. A listing of those invited, those who attended, and those who responded to scoping materials is found in Appendix C of the DEIS. Pertinent correspondence received by MDOT is also included in Appendix C of the DEIS, as are minutes of the scoping meetings.

Comments received from federal and state agencies in response to early coordination are listed below.

7.1.1 Federal Agencies

- U.S. Fish & Wildlife Service – noted no records of federally-listed species and called for a detailed conceptual, comprehensive wetland habitat mitigation plan.
- U.S. Environmental Protection Agency – concurred with the need for the project and called for: 1) a clear statement of purpose and need; 2) a detailed discussion of the selected alternatives; 3) a section describing the affected environment; 4) a description of direct and indirect wetland impacts and other impacts; 5) a description of stormwater runoff; 6) mitigation for unavoidable wetland losses; and, 7) mitigation strategies for other impacts.

7.1.2 State Agencies

- Michigan Department of Natural Resources, Wildlife Division – noted the potential presence of a state-listed rattlesnake (Michigan Natural Features Inventory list). A later letter added the Poweshiek Skipper and Blazing Star Borer. It also noted that a statement of “No Effect” will be needed before work on this project begins and states how this requirement can be met.

- Michigan Department of Environmental Quality, Surface Water Quality Division – noted concern for soil erosion and sedimentation, water flow volumes, and pollutant impacts of discharges of construction activities.
- Michigan Department of Environmental Quality, Land and Water Management Division – noted: 1) a purpose and need statement needed to be developed; 2) a four-lane typical section should be evaluated to minimize wetland impacts; 3) other design elements should be considered to minimize impacts and stipulated several points regarding wetland mitigation; 4) impacts to a fen wetland area noted during scoping should be minimized; 5) replacement structures must be evaluated hydraulically; 6) several recommended design elements of new or replacement structures; and, 7) copies of the environmental document should be forwarded to MDEQ’s Environmental Response Division and the Storage Tank Division.
- Michigan Department of State, State Historic Preservation Office – concurrence with the Area of Potential Effects (APE) and the recommendations regarding *National Register* eligible properties.

7.2 Public Meetings

Many meetings were held during the course of the study to solicit information from the public, interested groups and agencies. The study has been guided by a Steering Committee comprised of representatives of a number of disciplines within MDOT. An Advisory Committee comprised of local elected officials, representatives of community-based organizations and businesses and interested local citizens also provided significant input. Finally, the public was directly involved at all stages, with six rounds of meetings prior to the public hearing.

- June 7 and 8, 2000 – Kickoff meeting to introduce the project, discuss the schedule, and solicit initial ideas regarding solutions. Independence Township Library, Village of Ortonville Board Room, and Lions Club. (Total attendance 52.)
- August 24, 2000 – Open house display of information on illustrative alternatives and traffic projections. Brandon Township “Old Town Hall.” (Total attendance 103.)
- October 25, 2000 – Presentation of the results of the evaluation of the illustrative alternatives. Brandon Township “Old Town Hall” and Goodrich High School Cafetorium. (Total attendance 282.)
- November 15, 2000 – Meeting devoted to historic resources, both to inform citizens about process, make them aware of known resources and solicit their comments. Brandon Township “Old Town Hall.” (Total attendance 34.)
- January 24, 2001 – Workshop/Open house display of information on the practical alternatives and covering cultural resources. Lakeview Community Church. (Total attendance 229.)
- April 3 and 4, 2001 - Presentation of the results of the evaluation of the practical alternatives and covering cultural resources. Brandon Township Middle School and Goodrich High School Cafetorium. (Total attendance 350.)
- April 15 and 16, 2003 – Presentation of the conclusions after the Public Hearing. Brandon Township Intermediate School and Goodrich High School Cafetorium. (Total attendance 43.)

The typical pattern for each round of meetings was an Advisory Committee meeting midday or early afternoon, one or two public meetings that afternoon and evening, or another the next day. Meetings were held throughout the corridor. There was a free flow of information at all meetings. Generally, a brief presentation was provided, followed by questions/answers and

discussion. Graphics were present at all meetings to allow informed discussions. Attendance for any given round of meetings ranged from 30 individuals to over 300, with average attendance about 150 persons. Attendance was encouraged by means of notices mailed about two weeks in advance of the meetings. A toll-free phone number (1.800.900.2649) was available to sign up for mailings and to make any comments. Almost 1500 names are on the mailing list. A log of email (the email address is www.mdot.state.mi.us/m15) and other correspondence was kept during the course of the project. Emails (138 received through October 2002) and correspondence were responded to promptly. Local officials were visited numerous times to understand the interests and concerns of their constituents.

Logs of email and phone calls are on file at MDOT.

7.3 Public Hearing and Public Comments

Public hearings were held February 26 and 27, 2002 in Goodrich and Ortonville, respectively. Approximately 175 persons attended the February 26th hearing and 150 the February 27th hearing. The comments have been summarized in Table 7-1. The number of responses was as follows:

- Goodrich – 41 comment forms received
- Ortonville – 23 comment forms received
- Goodrich – 29 individuals recorded comments in the transcript
- Ortonville – 19 individuals recorded comments in the transcript
- Faxes received – 19
- Letters received – 14
- Emails received – 21

A comment form often had multiple comments. Similarly, when an individual recorded comments in the transcript, there were often multiple comments. Comments were systematically classified into the following categories:

- General Opposition
- General Support
- Alternatives
- Operational or Local Conditions
- Environmental Impacts
- Project Relationship to Sprawl
- Safety
- Miscellaneous

Responses are provided to the summarized comments.

All the responses in Table 7-1 were coded in a way that they could be tracked, to ensure all comments were noted properly. The capital letter(s) in each cell in the table, indicate the origin of the comment. For example, G = a received on a Goodrich public hearing comment form; O = an Ortonville hearing comment form; PG = a public hearing transcript comment from Goodrich; PO = a public hearing transcript comment from Ortonville; E = an email received during the comment period; F = a fax received during this period; and, M = a comment received by mail. The number following the capital letter simply allowed a coding of comments as they came in to keep them organized.

Table 7-1

M-15 Public Hearing Comments

Note G = Goodrich hearing comment form; O = Ortonville hearing comment form; PG = public hearing transcript comment from Goodrich; PO = public hearing transcript comment from Ortonville; E = email; F = Fax; M = mail. See explanation in text.

General Opposition	G21	G25									
Project not needed / Leave M-15 as it is.	G1	G8	G31	G34	O2	O3	O8	O12	O13	O19	
(continued)	PG4	PG6	PG9	PG10	PG12	PG13	PG14	PO7	PO14	PO17	
(continued)	PO20	M5	M6	M12	M14	E5	E6	E7	E14	E20	
(continued)	E21										
Don't widen through Goodrich.	G4	G8	G10	G16	G17	G23	G34	PG2	PG23	PG24	
(continued)	M6	E8									
Direct impacts to businesses and residences are bad.	G1	G4	G10	G16	G18	G29	G33	G34	O1	O3	
(continued)	O5	O8	PG2	PG8	PG14	PO5	PO7	PO11	PO14	PO20	
(continued)	M6	M13	M14	E5	E7	E20	E21				
Project will decrease property values.	G15	G23	G25	O5	O10	PG3					
Difficulty in selling house. Can't you purchase property now or at least tell us?	G23	O5	PG13	PO11	F3	M10	M11	E7	E15		
Destroy my view / will lose trees. Will trees be planted as mitigation?	G15	G25	O1	O5	O10	PG8	PG28				
Traffic is/will be too close to house - salt, garbage, plowed snow, safety.	G1	G23	O1	O5	PG3	PG6	PG28	PO1	PO13	E7	
Wells in front yards will be affected.	PG28										
Truck traffic will increase.	G4	E19									
M-15 will be a super highway.	G16	G18									

General Support											
Project is needed for traffic.	G2	G6	G13	G30	G33	G35	G41	O14	O15	PG1	
(continued)	PG15	PG19	PG29	PO21	F1	F2	E2	E3	E9	E10	
(continued)	E11										
Project is needed for safety.	G6	G11	G22	G27	G30	G32	O1	O6	O14	PG1	
(continued)	PG7	PG15	PG20	PG21	PG29	PO6	PO19	M4	M8	F1	
(continued)	E3	E9	E13								
Build project sooner.	G13	O18	PO21	M8	M9	M16	F2	F3	E9	E10	

Alternatives											
Low-cost & No-Build alternatives not adequately considered. Make M-15 only 3 lanes.	G4	O2	O10								
Widen M-15 a few feet in Goodrich for four lanes	M12										
Gravel roads should be paved with a left-turn lane the full length of M-15. MDOT should insist on some local paving.	G39	E4	E12	E16							

Add turn lanes and signals where needed.	G35	O2	O8	O19	PG12	PG22	PO7	PO17	M6	M12
(continued)	M13	E1	E6	E18	E20	E21				
Build a bypass around Ortonville.	PG21									
Whatever happened to the plan proposed by the Goodrich Village Council?	E14									
A loop road around Goodrich is the only real solution.	G17	PG21								
Make M-15 a boulevard from Maple to I-69.	PG25									
Come up with a new road or thruway from I-75 to I-69.	G24	G37	PG21							
Improve M-24.	G7									
Improve other roads like Sashabaw.	PG8									
Widen I-75 and fix the SB on ramp.	G30	PO3	PO17							
A median wastes space, is a litter magnet, and costs money to maintain.	G35									
Add safety paths/sidewalks.	O6	O9	O11	O16	O23	PO4				
Make M-15 a scenic rural route @ 25 mph.	G7									
Reevaluate roadway needs when construction year gets nearer.	G12	M5								

Operational / Local										
My home has same setback as others that would be taken. Township will not allow home to be built on back of lot.	O5									
Shift alignment to avoid homes Hubbard to Rattalee Lake Road and in curve at Seymour Lake Road.	O15									
At Oak Hill shift alignment east to avoid businesses or make 5-lane.	O4	PO11								
A signal is needed at Oak Hill now.	PO11									
Left turn is needed into Nickelodeon Restaurant for semis. School buses turn now. Access to my drive will be difficult with the boulevard. Tom's Market should have a direct entrance from M-15. Accommodate safer exit from driveways north of Ortonville Cemetery.	O21	PO2	PO9	PO12					M3	
Glass Road is a bottleneck.	G2	PG17	PO3							
Homes on west side M-15 south of Glass will have no driveways. Planning consultant for Brandon Township supports ROW acquisition on east to improve operation, even though MDOT has adequate ROW for five-lane.	PG11	PG26	F4							
North of Ortonville, I will have to pass my house to the north and come back south.	O10									
Groveland needs signal.	G2									
Green Road needs turn lanes or a signal.	G6	PG14	E11							
Connect Valley Creek Drive in Goodrich to M-15 instead of via Rhodes Road.	G40	PG16								
The turn radius is so tight at Park it will be right up against my house.	PG22									
Signalize E. Hegel as soon as possible for safety.	O22									

It will be unsafe for children to cross M-15 at Hegel.	PG10	PG14	PG24	E14
Take more ROW to west of M-15 at Jan's Sport & Marina, rather than to the east; straighten the unsafe curve.	G19	G20		
Two houses on the NE corner of Maple and M-15 don't show.	PG3			
From the first house north of Maple on the east side, how does one go south?	G36			
Enclose Cummings Drain north of Maple for safety and ROW minimization.	G36			
Is the ROW take split evenly on both sides north of Atherton?	E6			
Return M-15 to 35 mph in Goodrich. Set speed limits throughout at 35 mph.	G6	G7	G8	
Enforce speed limits.	G6	O7	PG22	
Have speeds been measured on M-15 or M-24?	O7			
Improve timing of lights. Use flashers at night.	PG8	PG9		

Environmental Impacts					
There is concern for wetlands, farmland and minority/low income, but not those relocated.	O7				
There will be Increased air pollution.	G15	O3			
There will be increased noise.	G23	O3	PG4	PG8	PO1
A closer road could increase vibrations and cause building damage.	PO18				
Trees will be lost: shade, beauty, air and noise pollution protection.	O5	E17			
How can organic soils be "manageable"?	O3				
Waterways will be adversely affected.	O3				
Wetlands will be affected and cannot be moved.	O8	PO20	E20	E21	
Wetland impacts will affect the entire ecosystem, wildlife and aesthetics. Will MDEQ/MDNR be involved?	G35	PO5	E16		
Wetlands at site 25 were satisfactorily avoided.	O20				
No plan for flow changes in Kearsley Creek is identified.	G29				
The project will affect wildlife.	O3	M14			
The project will affect historic sites.	O3	PG8			
The home taken opposite W. Hegel in Goodrich is the oldest in town.	PG14				
Correct business and employee totals at Oak Hill Corners.	O4	PO8			
There is nothing on where businesses would relocate in the area.	PO8				
I would rather be taken than remain so close to the road.	PO13				

Sprawl Related											
I moved to get away from traffic.	G1	G4	G5	G9	O2	PG6	PG10	M13	E19	E20	
(continued)	E21										
Build and they will come.	G3	PO3									
The project encourages more traffic.	G1	G34	PG4	PO3	PO17	M13	E8		E19		
I-75 at gridlock and M-15 is a feeder.	G3										
The project won't reduce traffic congestion.	G4										
Money should be used for other, more beneficial projects.	G1	O2	M12								
Housing starts are down in last five years and zoning is more restrictive.	M12										

Safety										
Children and others in yard will not be safe; the road will be too close to house.	G1	G23	O5							
Where will mailboxes go for safety of mail carriers?	G14									
Project would increase M-15 speeds.	G25	O7	O8	PG10	PG13	E6				
Rate may go down, but accidents will be more severe.	O7									
Video said accidents would decrease 10% each year, but it would vary.	G35									
Will not the narrow boulevard increase rear-end crashes?	E16									

Miscellaneous										
Need better aerials to understand impacts.	G26	G28								
Goodrich Schools would like input in traffic light and turn lane design for school buses.	G38									
The recent paving of M-15 caused problems.	O1	O5								
Owner rights and pricing for land has not been presented. When will I know something?	O5									
How is M-15's Heritage Route status affected?	O7	PO20	M12	E12						
Can sewers be put in at same time as road construction in Ortonville?	O18	E12								
We don't want paving of gravel roads during construction if they crumble right away.	PO3									
Why isn't the southernmost 2 miles, which is most congested, addressed?	E12									
What is % of those living N and traveling S, vs. those S and traveling N?	E12									
How will traffic/access be handled during construction?	E12									
Air quality study did not indicate whether seasonal extremes were reviewed. If so, what were the results? If not, then why be concerned?	E12									
Who would fund the M-15 project?	E12									

Would landscaping be included for noise abatement?	E12
What was response from the MDEQ and the MDNR regarding federal and endangered species?	E12
Please save trees at the Hawes House.	M10
School buses should not be allowed to stop every 200 yards to pick up children.	E16
Is there a plan to ensure the road will not be torn up right away for utilities?	E16
Oppose widening into cemetery.	E17

COMMENT SUMMARY

Goodrich comment forms = 41

Ortonville comment forms = 23

Goodrich transcript commenters = 29

Ortonville transcript commenters = 19

Faxes = 19

Letters = 14

Emails = 21

7.3.1 General Opposition

Comment: Two comments indicated opposition to the project without citing any specific reason (G21 and G25). Others stated the project is not needed. Most of these stated directly, or implied, that M-15 should be left as it is (G1, G8, G31, G34, O2, O3, O8, O12, O13, O19, PG4, PG6, PG9, PG10, PG12, PG13, PG14, PO7, PO14, PO17, PO20, M5, M6, M12, M14, E5, E6, E7, E14, E20, and E21).

Response: Section 2 of the EIS establishes the purpose and need for the project, based on:

1. Land use and growth;
2. Current road conditions;
3. Transportation system linkages;
4. Projected traffic volumes and level of service; and,
5. Safety concerns

Comment: Don't widen M-15 through Goodrich (G4, G8, G10, G16, G17, G23, G34, PG2, PG23, PG24, M6, and E8).

Response: MDOT is committed to the safety and mobility of the traveling public. It has a mandate to provide safe highways with adequate capacity. Traffic modeling indicates a need for four through lanes in Goodrich, even when land use scenarios that examine reduced growth are tested (see EIS, Appendix A, page A-2). The proposed right-of-way has been reduced to a minimum of 93 feet through the village, where only 66 feet of right-of-way is now available. A careful evaluation of impacts on residences, businesses, historic structures, and wetlands, among other issues, indicates the right-of-way acquisition should occur primarily on the east side through the village. The trunkline was established prior to the founding of the Village of Goodrich.

Comment: The direct impacts to businesses and residents are not acceptable. Comments ranged from regret at this situation to strong opposition to any relocations (G1, G4, G10, G16, G18, G29, G33, G34, O1, O3, O5, O8, PG2, PG8, PG14, PO5, PO7, PO11, PO14, PO20, M6, M13, M14, E5, E7, E20, and E21).

Response: The roadway's "footprint" was developed to minimize displacements while recognizing the constraints of wetlands and historic properties. Some residences and businesses will require relocation. As stated in the DEIS (Section 1.2.6), the Technically and Environmentally Preferred Alternative is a blend of five-lane road, narrow boulevard and very narrow boulevard that incorporates the strengths of each cross section to minimize impacts to wetlands, historic resources, and residential properties, while maximizing safety and traffic flow.

Comment: The road widening will result in a decrease in property values (G15, G23, G25, O5, O10, and PG3).

Response: Data presented in the DEIS (Section 4.4.1) for ten homes in Atlas Township fronting onto M-15 indicates the State Equalized Value (SEV) of the homes increased 45 percent from 1980 to 1990 and another 125 percent from 1990 to 2000. During this same period traffic has grown more than it is expected to in the next twenty-five years.

Comment: With the project some years away and the road expected to move closer to my home, the house will be difficult to sell. Can you purchase homes now, or at least tell us (G23, O5, PG13, PO1, PO11, F3, M10, M11, E7, and E15)?

Response: In cases of a hardship, MDOT has the authority to acquire properties through advance acquisition.

Comment: The project will destroy my view and change the setting of my house through loss of trees and yard. Will trees be planted as mitigation (G15, G25, O1, O5, O10, PG8, and PG28)?

Response: Impacts vary depending on whether trees are in MDOT right-of-way or on private property. The DEIS (Section 5.4) explains conditions related to existing vegetation, as follows:

"The existing natural and ornamental vegetative cover will be retained wherever and whenever possible within the right-of-way limits. Where the existing ground cover must be removed, replacement vegetation will be established in a timely manner, using seed and mulch or sod.

Trees in front of residences within MDOT right-of-way will be saved as long as safety requirements are met. All property owners will be notified before any trees in front of their residences are removed and will be offered replacement trees to help offset the aesthetic and/or functional loss of trees.

Replacement tree species, numbers, and planting recommendations will be made jointly by MDOT's Roadside Development Section or the Region Resource Specialist as part of the project design process following contact and coordination with adjacent property owners. For those owners who request replacement trees, the trees are to be replaced

(with the property owners' approval) on their property as close to the right-of-way line as possible. The property owners will then assume the responsibility for maintaining these trees.”

Comment: The road and traffic will be too close. Various comments noted garbage in the yard, salt spray from the highway, snow plows throwing snow onto vehicles parked in the driveway and the overall safety of living in such close proximity to high speed traffic (G1, G23, O1, O5, PG3, PG6, PG28, PO1, PO13, and E7).

Response: Safety considerations require a “clear zone” for the safety of those who travel on the roadway. Where slopes descend from the roadway into a yard at a ratio of greater than 4-to-1, guard rails would be necessary to prevent vehicles from leaving the road. In most instances, a drainage ditch falls between the pavement edge and right-of-way edge. There is no regulatory or legal provision for those who live close to roads.

Comment: Wells in front yards will be affected, and the septic tanks are in the back yards (PG28).

Response: These issues will be addressed during the right-of-way acquisition stage.

Comment: The project will increase truck traffic (G4 and E19).

Response: M-15 has a low percentage of trucks (less than 4 % in 1998) relative to most state trunklines. Most serve local destinations, or are generated by construction in the corridor, including a ready-mix plant on M-15. This pattern is not expected to change. Regardless, M-15 is a state trunkline and one of its functions is to serve truck traffic.

Comment: M-15 will become a superhighway/expressway (G16 and G18).

Response: M-15 will become a boulevard or 5-lane urban section, consistent with its role as a state trunkline. Its posted speed limit will be set at 55 miles per hour, except where circumstances dictate lower speeds.

7.3.2 General Support

Comment: The project is needed because of the increasing traffic, which will get worse over time (G2, G6, G13, G30, G33, G35, G41, O14, O15, PG1, PG15, PG19, PG29, PO21, F1, F2, E2, E3, E9, E10, and E11).

Response: The project need is established in the DEIS (Section 2 - Purpose and Need).

Comment: The project is needed to improve safety (G6, G11, G22, G27, G30, G32, O1, O6, O14, PG1, PG7, PG15, PG20, PG21, PG29, PO6, PO19, M4, M8, F1, E3, E9, and E13).

Response: The project need is established in the DEIS (Section 2 - Purpose and Need).

Comment: The project should be built sooner than planning now indicates (G13, O18, PO21, M8, M9, M16, F2, F3, E9, and E10).

Response: It is likely the project will not be constructed for at least ten years.

7.3.3 Alternatives

Comment: The Low-Cost and No-Build alternatives were not considered adequately (G4, O2, and O10). M-15 should be constructed to three lanes only (O10).

Response: The analysis of these alternatives is reported in the DEIS (Sections 3.2 and 3.3), and covered more fully in Technical Memoranda Nos. 2 and 3. All analysis indicates the need for four through travel lanes from I-75 to I-69. The No-Build Alternative was carried forward through the public hearing stage and circulation of the DEIS. However, no information has been presented through the hearing or circulation that indicates the No-Build Alternative can meet the purpose and need of the project. Therefore, the Preferred Alternative as presented in this DEIS has been selected as the Technically and Environmentally Preferred Alternative.

Comment: Widen M-15 in Goodrich a few feet and make it four lanes (M12).

Response: MDOT avoids construction of four lanes as a typical roadway type because of turn conflicts.

Comment: Gravel roads should be paved, and left-turn lanes should be added (G39, E4, and E12). MDOT should insist that local roads be paved (E16).

Response: The alternatives analysis found that paving local roads would not substitute for the need for four through lanes along the entire length of the corridor (Section 3.2 of the DEIS). Local roads could be paved if the design phase indicates that detour routes are required during construction. At this point, however, partial-width construction is planned that will not require paving of gravel roads for detour routes. Regarding turn lanes, specific locations are addressed below in the section titled “Operational or Local Conditions.”

Comment: A number of comments suggested that just adding turn lanes and signals would be adequate (G35, O2, O8, O19, PG12, PG22, PO7, PO17, M6, M12, M13, E1, E6, E18, E20, and E21).

Response: These improvements do not meet the purpose and need of the project (see Section 3.2 of the DEIS). Because project construction is at least ten years away, MDOT will monitor traffic and safety on an ongoing basis to determine when warrants (procedures applied within the traffic engineering profession) are met for traffic signals and turn lanes. Turn lanes and signals may be added over time (such as recently done in Goodrich and at Glass Road), before the Technically and Environmentally Preferred Alternative is implemented.

Comment: Build a bypass around Ortonville (PG21).

Response: Many alignments were considered as alternatives were originally developed. A Lake Louise bypass was considered, but rejected due to substantial impacts (see Table 4-10 in Technical Memorandum 2) and its failure to serve the purpose of the project by attracting sufficient traffic from M-15. A bypass of Ortonville was never analyzed specifically, but would clearly by extension have even greater impacts than a Lake Louise bypass and also fail to pull adequate traffic off M-15.

Comment: What ever happened to the plan proposed by the Goodrich Village Council (E14)?

Response: A response to that letter is contained in this FEIS in Section 7.4.11.

Comment: A loop road around Goodrich is the only real solution (G17 and PG21).

Response: Both a bypass around Goodrich and a one-way pair within Goodrich (Figures 3-2 and 3-3, respectively in the DEIS) were found to have impacts that were too significant to carry them forward as practical alternatives (Section 3.2 of DEIS).

Comment: Make M-15 a boulevard from Maple to I-69 (PG25).

Response: The number of residences that would have to be relocated was judged to be too great. This analysis was presented in Technical Memorandum 3.

Comment: Come up with a new thruway/expressway between I-75 and I-69 (G24, G37, and PG21).

Response: Travel demand did not indicate the need for a new roadway on new alignment. Most travel demand is closely linked with the existing alignment of M-15.

Comment: Improve M-24 (G7).

Response: Improvements to M-24 are the subject of a separate Environmental Impact Statement. M-24 will be reconstructed as a boulevard from one mile north of the Oakland/Genesee County Line to I-69.

Comment: Improve other roads, like Sashabaw (PG8).

Response: Sashabaw is not a state trunkline and is too far removed from the corridor to serve the project purpose and need.

Comment: I-75 needs another lane and the southbound on-ramp needs to be upgraded (G30, PO3, and PO17).

Response: A feasibility study completed in 1999 called for such I-75 widening. The ramp improvement is noted in the DEIS (Section 1.1)

Comment: The median area is a waste of space, a litter magnet, and costs money to maintain. Give the land back to either side of the road (G35).

Response: The DEIS notes the median is both an aesthetic and safety element of roadway design (Section 2.2.5). For these reasons MDOT supports the development of boulevards with such medians, where impacts are not significant. Public involvement at the time of MDOT's 1995 "Preliminary Project Statement," that called for repaving the entire corridor and widening M-15 in Oakland County, found a preference for a boulevard design. Independence Township's Master Plan calls for M-15 to be a boulevard (see DEIS Section 3.4, page 3-12). The Village of Ortonville is also on record as favoring a boulevard.

Comment: The project should include safety paths (sidewalks) (O6, O9, O11, O16, O23, and PO4).

Response: The DEIS (Section 4.2.2) indicates the following:

"Independence Township calls for safety paths along M-15 in their Master Plan. Such paths are planned with the project. Safety paths (sidewalks) are also likely in Ortonville and Goodrich and in sections with curb and gutter design (a wide outside lane may be provided as an alternative in non-urban areas). In the remainder of the corridor paved shoulders will be provided. Funding has been secured for a safety path in Brandon Township along the east side of M-15 near the high school and middle school. The proposed project will take this path into account.

New sidewalks will be designed to accommodate people with disabilities and will be in compliance with the 1992 Americans with Disabilities Act (ADA). Walk/wait signalization locations will be determined during design.

The planned shoulders and safety paths will accommodate bicycles. M-15 is the first Recreation Heritage Route in Michigan. Another goal of the organization that achieved this designation is to have M-15 become the first numbered bike route in the state."

Comment: Make M-15 a scenic rural route with a speed limit of 25 mph (G7).

Response: As a state trunkline, M-15 functions to move people and goods as part of the state highway network. Where safety allows and there are no other conflicts, the speed limit will be posted at 55 mph.

Comment: If the project is not slated to begin for at least 10 years, the proposal should be reevaluated later with more actual traffic data (G12 and M5).

Response: There is a formalized structure to reevaluate projects when time has passed between planning and design. Once they advance to design, projects are built to accommodate travel demand for the foreseeable future, usually a 20- to 25-year horizon.

7.3.4 Operational or Local Conditions

Comment: My home in north Independence Township (east side) has the same setback as others that are shown as relocations. Independence Township does not allow construction of houses on back lots (O5).

Response: More detailed engineering will be associated with the final design of M-15 to determine actual setbacks, areas to be disturbed during construction, slopes and drainage patterns, value of property before and after the project, and other considerations and circumstances that influence which properties will be relocated. With respect to building to the rear of lots, Independence Township has indicated that the lot appears wide enough and is certainly deep enough for a home to be built further back on the lot.

Comment: The alignment between Hubbard and Rattalee Lake Roads should be shifted west to avoid impacts to the east. South of Seymour Lake Road the alignment should be shifted to the east to avoid homes and businesses on the west side of the road in that area (O15).

Response: The alignments shown balance impacts of potential relocations, historic structures and wetlands. In the case of the Hubbard to Rattalee Lake Roads section, there are homes on the west side of M-15 north of Rattalee Lake Road that would be affected by a shift to the west. South of Seymour Lake Road, hillside homes on the west side and wetlands to the north favored the alignment as proposed. Further review of the proposed alignment will be conducted during the design phase.

Comment: The alignment near Oak Hill Road should be shifted to the east or reduced to a five-lane section to avoid homes and businesses on the west side of the road in that area (O4 and PO11).

Response: The alignment at this location will be determined during final design. The preliminary alignment was set based on the presence of wetlands. A shift to the east must consider the grades of driveways in the area, including those of businesses, and the potential of controlling driveway access in close proximity to the intersection.

Comment: A signal is needed now at Oak Hill Road (PO11).

Response: Traffic analysis indicates a number of new signals will be needed along M-15 over the next 25 years (see Table 2-1 in the DEIS). A signal is not presently justified at Oak Hill, based on traffic data.

Comment: A turn slot is needed at the Nickelodeon Restaurant to allow semis to enter the parking lot. School buses turn around there now (O21 and PO2). Access will be difficult with

the boulevard (PO9). Tom's Market needs a direct entry from M-15 (PO12). The plan needs to accommodate safer exits from driveways north of Ortonville Cemetery (M3).

Response: The locations of U-turn channels and access points for the Technically and Environmentally Preferred Alternative as now shown will be the subject of more detailed analysis during final design. If necessary, loons will be constructed to accommodate truck turn movements (see Section 3.4.2 of the DEIS).

Comment: Glass Road is a bottleneck (G2, PG17, and PO3).

Response: During the repaving accomplished in the summer of 2001, the paved area was expanded on M-15 at Glass Road. MDOT is now designing other improvements that would be constructed in the short term (prior to the construction of the M-15 project) at this location.

Comment: Homes on the west side of M-15 south of Glass Road will have no driveways, causing safety problems. The consultant for Brandon Township supports right-of-way acquisition on the east to improve operations, even though MDOT has adequate right-of-way for a five-lane section (PG11, PG26, and F4).

Response: MDOT's does not buy right-of-way where adequate right-of-way exists for a planned project. For MDOT to consider such an alignment shift, right-of-way would have to be made available by others.

Comment: A homeowner living north of Ortonville in the very narrow boulevard section indicated he would have to go past his house an undefined distance to the north and come back south to get to his driveway (O10).

Response: The very narrow boulevard is proposed for this section to avoid impacts to wetlands on the west side and the Mills Farmstead on the east. The Mills Farmstead is considered eligible for the *National Register of Historic Places*. Access to the property in question could require driving to a point north of Auten Road to accomplish the turn back. Transition areas such as these will undergo careful analysis during final design.

Comment: Groveland Road needs a signal (G2). Green Road needs turn lanes or a signal (G6, PG14, and E11).

Response: Traffic analysis indicates a number of new signals will be needed along M-15 over the next 25 Years (see Table 2-1 in the DEIS). A signal does not appear warranted at either Groveland or Green Road, and the need for turn lanes at Green Road will be monitored by MDOT as time goes on.

Comment: Valley Creek Drive (part of the subdivision in south Goodrich now under development) should connect directly to M-15, rather than to Rhodes Road, which then connects over a very short distance to M-15 (G40 and PG16).

Response: Rhodes Road and Valley Creek Drive are private roads. When M-15 is designed, a direct connection could be pursued with the owner of these roads.

Comment: The turn radius at Park Road (in Goodrich) will be right up against my house (PG22).

Response: The turn radius will become greater with the project to allow for smoother turns from M-15. This reduces rear-end collisions when vehicles turn.

Comment: A signal is needed at East Hegel as soon as possible for safety (O22).

Response: Traffic analysis indicates a number of new signals will be needed along M-15 over the next 25 Years (see Table 2-1 in the DEIS). A signal does appear warranted at East Hegel Road.

Comment: It will be unsafe for children to cross M-15 at Hegel (PG10, PG14, PG24, and E14).

Response: The crossing will be equipped with walk/wait signals. Also, coordinated signals will be present at both West and East Hegel.

Comment: Shift the alignment to the west in the vicinity of Jans Sport Shop and Marina to avoid the new building that doesn't show on the aerial and to straighten the curve in M-15 (G19 and G20).

Response: The final alignment at this location will be determined during the design phase. The preliminary alignment was set based on maintaining the present centerlines. A shift to the west must consider any further development that may occur in the area.

Comment: Check the location of two homes on the northeast corner of Maple and M-15, lot 400-009 that don't show (PG3).

Response: The homes are set back so far that they do not appear in the aerial photograph.

Comment: How does a homeowner go south from the first house north of Maple on the east side (G36)?

Response: Several homes in this area are in the transition zone between a boulevard section and five-lane section where left turns to the south are to be blocked by the median. There is no U-turn channel to the north because the five-lane section begins. Portions of transition areas such as these may be constructed flush with the driving surface, and be stripped, so that turns can be made. This detail will be examined during final design.

Comment: The Cummings Drain north of Maple should be enclosed for safety reasons and to minimize property taking (G36).

Response: Drains are sometimes considered regulated wetlands. A permitting process is involved that includes an alternatives analysis. This means there is a justification process indicating why the drain must be enclosed. Generally, enclosure is not favored.

Comment: Is the right-of-way acquisition split evenly on both sides of the road in the area north of Atherton Road (E6)?

Response: Yes.

Comment: The speed limit in Goodrich should be returned to 35 mph (G6 and G8). Set speed limits throughout M-15 at 35 mph (G7).

Response: Speed limits are set by the Michigan State Police at the 85 percentile of measured drivers speed. MDOT has a responsibility to maintain speeds on state trunklines at rates consistent with safety.

Comment: Enforce the speed limits (G6, O7, and PG22).

Response: Enforcement of speed limits is the function of local and state police. Speed limits are being enforced.

Comment: Have speeds been measured on M-15 or M-24 (O7)?

Response: Yes, by the state police.

Comment: The timing of lights should be improved. Flashers should be used at night (PG8 and PG9).

Response: These improvements do not meet the project need established in the DEIS (Section 2 - Purpose and Need).

7.3.5 Environmental Impacts

Comment: There is concern for wetland, farmland and minority/low income persons, but not for those who will be relocated (O7).

Response: In the evaluation of alternatives, relocations were ranked as the single most important factor in determining impacts (see Table 3-2 in the DEIS).

Comment: The project will cause increased air pollution (G15 and O3).

Response: The project will reduce congestion, thus reducing air quality emissions from idling (Section 4.7 of the DEIS).

Comment: The project will increase noise (G23, O3, PG4, PG8, and PO1).

Response: Noise impacts are documented in the DEIS (Section 4.8). Noise levels above guidelines will be experienced by more homes with the project (175) than without (145). No feasible or reasonable mitigation measures are available to reduce these impacts because homes face the roadway. Walls in front yards are not considered desirable and the gaps needed for driveways compromise their effectiveness.

Comment: A closer road will cause damage to buildings (PO18).

Response: There would be no substantial change in vibration as a result of the project.

Comment: Trees will be lost and with them the benefits of shade and protection from air and noise pollution (O5 and E17).

Response: See the comment above under the “General Opposition” section related to taking and replacement of trees.

Comment: What does the study consider a manageable situation with respect to organic soils (O3)?

Response: As stated in the DEIS (Section 4.17):

“Organic soils are present at a number of locations in the corridor, especially in wetland areas. The presence of these soils increases project costs, as special techniques are required to provide a stable roadbed. Depending on the depth and breadth of these soils, techniques range from total soil removal within the influence of the proposed pavement to partial removal. High-quality geotextile fabrics may be used for additional strength to support the proposed roadway.”

Comment: There will be an adverse effect on waterways (O3).

Response: The effects on waterways are noted in the DEIS (sections 4.10 and 4.11).

Comment: Wetlands will be affected and cannot be moved (O8, PO20, E20, and E21).

Response: True. Wetland mitigation is covered in the DEIS (Section 5.12).

Comment: Wetland impacts will affect the entire ecosystem, wildlife and aesthetics. Will MDEQ/MDNR have requirements? (G35, PO5, and E16).

Response: There is a broad recognition of the impacts that can occur to wetlands and wetland systems. Together laws, regulations and regulatory review afford protection to wetland resources. MDEQ/MDNR and others agencies have, and will be involved in ongoing mitigation. One consideration in evaluating wetland impacts and mitigation programs is the function and value of wetlands that are impacted. The mitigation plans in Section 5.12 are designed to replace these values and functions. See also the final wetland mitigation plan in Appendix M.

Comment: Wetlands were satisfactorily avoided at the Michigan Nature Association's sanctuary (Site 25 on Figure 1-6b) (O20).

Response: Correct.

Comment: There is no plan for flow changes in Kearsley Creek (G29).

Response: A hydraulic analysis will be performed during design.

Comment: The project will affect four endangered/special species. Why do we want more traffic, noise, and emissions to adversely affect this (O3 and M14)?

Response: This issue is addressed in the DEIS (Section 2 - Purpose and Need).

Comment: Twelve historic sites will be affected. Why are we destroying our heritage to encourage traffic (O3 and PG8)?

Response: Twelve historic sites are affected as noted in the DEIS (Section 4.12.1), some adversely (Section 6). The reason for the project is addressed in the DEIS (Section 2 - Purpose and Need). The project responds to present and forecast travel demand.

Comment: The home on the east side of M-15 in Goodrich opposite West Hegel is the oldest in town (PG14).

Response: Additional research in Goodrich and contact with the individual making the comment confirms the conclusions in the supporting documentation for the DEIS regarding the early settlement of Goodrich and the homes lived in by Enos Goodrich (see letter dated February 28, 2001 in Appendix A of Volume I of the "Phase I/II Above-Ground Survey of the Proposed M-15 Improvement Between I-75 and I-69."

Comment: The business and employment relocation numbers at Oak Hill Corners should be revised to three businesses and 60 to 70 employees (O4 and PO8).

Response: There are two similar buildings on this site. The businesses in the building nearer to M-15 would be affected, if the alignment remains as proposed in the DEIS, affecting approximately half the employees.

Comment: There is nothing on where businesses would relocate (PO8).

Response: Relocation is addressed in the DEIS (sections 4.1 and 5.1 and Appendix D).

Comment: I would rather be taken than remain so close to the road (PO13).

Response: Relocation is based on right-of-way need.

7.3.6 Sprawl

Comment: I moved to the area to get away from traffic (G1, G4, G5, G9, O2, PG6, PG10, M13, E19, E20, and E21).

Response: So many people have done this that travel demand reflects the need for four through lanes from I-75 to I-69.

Comment: “Build and they will come” seems to be the best slogan for this project (G3 and PO3).

Response: The project originated due to forecasts of travel demand. Travel demand is generated by growth. Growth is controlled by local jurisdictions. Even when travel scenarios were simulated wherein growth was limited, the need for four through travel lanes between I-75 and I-69 was sustained.

Comment: The project will encourage more traffic (G1, G34, PG4, PO3, PO17, M13, E8, and E19).

Response: The project will provide more capacity. It will serve the projected traffic demand in the planning horizon year (2025).

Comment: I-75 is at gridlock and M-15 is a feeder (G3).

Response: As noted above, MDOT is studying a plan to add capacity to I-75 throughout Oakland County.

Comment: The project won't reduce traffic congestion (G4).

Response: Analysis shows the project will reduce traffic congestion. Table 2-1 shows the level of service along M-15 with and without the project.

Comment: There are other projects that would have greater community benefit (ball fields and hockey rinks – police and fire departments) (G1 and O2) or other roads that have greater need for improvement (M12).

Response: MDOT is responsible for the state trunkline highway system. The resources to be used to improve M-15 cannot be diverted to the items suggested.

Comment: Housing starts are down in the last five years and zoning is more restrictive (M12).

Response: SEMCOG uses small area forecasts of population (among other factors) that are prepared by local jurisdictions. These forecasts are the best estimates of growth and are designed to account for such conditions.

7.3.7 Safety

Comment: Children and others in the yard will not be safe with the road so close to the house (G1, G23, and O5).

Response: M-15 is and has been a state trunkline serving all road users. Adjacent land uses are not under the control of MDOT, nor are building setbacks. The right-of-way limit extends beyond the pavement limit to provide a “clear zone” for motorists and adjacent land uses.

Comment: Where will mailboxes be placed to protect mail carriers (G14)?

Response: Mailboxes would be replaced at the road edge as they are today. However, a full-width paved shoulder would be part of the design. Mail delivery will be safer in boulevard sections because there will be fewer turning conflicts.

Comment: The project will increase speeds on M-15 (G25, O7, O8, PG10, PG13, and E6).

Response: Speeds are controlled by enforcement agencies. If enforcement levels were unchanged, then speeds would not change either.

Comment: Accident rates may go down, but the severity of accidents will increase (O7).

Response: With the boulevard, a driver enters one-directional traffic flow and the boulevard’s median reduces the potential for head-on crashes and opposite-direction side-swipe crashes. With the five-lane section, there is a refuge lane in the center from which vehicles can make left turns, thereby reducing rear-end accidents.

Comment: The video said accidents would be reduced 10 percent each year, but it would really vary (G35).

Response: The 10 percent figure represents an average for the entire roadway. It would vary by roadway segment and year.

Comment: Will not the narrow boulevard increase rear-end collisions (E16)?

Response: No.

7.3.8 Miscellaneous

Comment: We need better aeriels to understand impacts better. New buildings at Jans Sport and Marine don't show (G26 and G28).

Response: The mapping for Genesee County is dated 1998. It is the most recent comprehensive mapping available.

Comment: Goodrich Schools would like to have input at the design stage regarding traffic lights, turn lanes and getting school buses through the boulevard (G38).

Response: MDOT will contact the school systems in the corridor again during the design phase to coordinate needs.

Comment: Recent paving of M-15 caused problems (O1 and O5).

Response: MDOT attempts to operate within its right-of-way or acquires temporary or permanent right-of-way, if needed, for construction. Traffic delays, congestion, dust and other temporary effects are unavoidable. MODT strives to anticipate and mitigate these impacts.

Comment: Owner rights and pricing for land has not been presented (O5).

Response: Representatives of the MDOT Real Estate Division were present at the following public meetings.

- June 7 & 8, 2000 – Kickoff meeting to introduce the project, discuss the schedule, and solicit initial ideas regarding solutions. Independence Township Library, Village of Ortonville Board Room, and Lions Club. (Total attendance 52.)
- August 24, 2000 – Open house display of information on illustrative alternatives and traffic projections. Brandon Township “Old Town Hall.” (Total attendance 103.)
- October 25, 2000 – Presentation of the results of the evaluation of the illustrative alternatives. Brandon Township “Old Town Hall” and Goodrich High School Cafetorium. (Total attendance 282.)
- November 15, 2000 – Meeting devoted to historic resources, both to inform citizens about process, make them aware of known resources and solicit their comments. Brandon Township “Old Town Hall.” (Total attendance 34.)
- April 3 & 4, 2001 - Presentation of the results of the evaluation of the practical alternatives. Brandon Township Middle School and Goodrich High School Cafetorium. (Total attendance 350.)

Meeting attendees were encouraged to ask questions and interact with MDOT and consultant representatives at these meetings to learn more. Representatives were also at the public hearings in Goodrich and Ortonville on February 26 and 27, 2002 from 4 p.m. to 9 p.m. each day.

Comment: How will M-15's heritage route status be affected (O7, PO20, M12, and E12)?

Response: There will be no effect on M-15's designation as a Heritage Recreation Route.

Comment: Can sewers be put in at the same time as road construction in Ortonville (O18 and E12)?

Response: The timing of M-15 construction is not known at this time. Coordination will occur whenever possible.

Comment: We don't want paving of gravel roads as construction detours, if they are going to crumble right away (PO3).

Response: Paving of local roads for detours would be done in conjunction with local elected officials. No such detours are presently planned.

Comment: Why isn't the southernmost two miles, which is most congested, addressed (E12)?

Response: This section is addressed. The proposed design there meets the forecast traffic needs (Table 2-1 of the DEIS).

Comment: What is the percentage of persons living in the north and traveling to the south and the percentage of those living in the south and traveling to the north (E12)?

Response: Data from the Genesee County Metropolitan Planning Commission traffic model that were an input to the modeling developed for this EIS indicates that only three percent of the trips on M-15 north of I-69, or on I-69 east and west of M-15, use M-15 to connect to Oakland County.

Comment: How will traffic and access be handled during construction (E12)?

Response: The DEIS notes that partial width construction will be used, with the road constructed on one side at a time (sections 4.2 {introductory paragraph and 4.2.4} and 5.8). Individual driveways will be closed for short periods as construction occurs on that side of the road.

Comment: The air quality study did not indicate whether seasonal extremes were reviewed. If so, what were the results? If not, then why be concerned (E12)?

Response: Air quality is covered in the DEIS (Section 4.7). The microscale analysis of carbon monoxide uses worst-case conditions for that pollutant, which occur during cold weather. The broader scale, regional analysis that tests the project for air quality conformity will occur when the project is incorporated into the Transportation Improvement Programs of SEMCOG and the Genesee County Metropolitan Planning Commission. "Worst case" meteorological conditions are represented in the computer modeling that tests project conformity.

Comment: Who will fund the M-15 project (E12)?

Response: Typically, a project like M-15 is funded using 80 percent federal and 20 percent state dollars.

Comment: Would landscaping be included for noise abatement (E12)?

Response: Landscaping will be included, but not specifically for noise abatement.

Comment: What was the response from the MDEQ and the MDNR regarding federal and endangered species (E12)?

Response: See the responses to letters received from: the Division of Fisheries of the Michigan Department of Natural Resources, dated February 12, 2002; the Resource Management Deputy of the Department of Natural Resources, dated March 11, 2002; and the US Department of Interior, dated April 24, 2002 in Section 7.4.

Comment: Please save the 130-year old trees at the Hawes House (M10).

Response: The disposition of the trees and any mitigation are included in the Memorandum of Agreement in Appendix L.

Comment: School buses should not be allowed to stop every 200 yards to pick up children (E16).

Response: MDOT does not have regulatory authority over school bus routes or stops. During final design, MDOT will consult with the local school districts and, where appropriate, will provide space for school buses to pull out of the traffic stream to load or discharge passengers.

Comment: Is there a plan to ensure the road will not be torn up right away for utilities (E16)?

Response: Road construction is likely at least ten years in the future. Construction of the road and utilities will be coordinated at that time to the extent feasible.

Comment: Don't widen into the cemetery in Ortonville (E17).

Response: Current planning maintains the roadway edge where it is today.

7.4 Agency Comments

Comments were provided to MDOT through interagency coordination resulting from the circulation of the DEIS. Table 7-2 lists agencies that received the DEIS and those that commented, with the date of the response. These letters are included in Appendix C. Also included in that section are letters written by MDOT to the Village of Goodrich and Atlas Township in response to letters sent by those communities.

Federal

7.4.1 United States Department of Commerce, National Geodetic Survey

Comment: In a letter dated March 12, 2002, the United States Department of Commerce, National Geodetic Survey, asked that its website (<http://www.ngs.noaa.gov>) be reviewed to ensure that its geodetic control monuments are identified for possible effect. They require at least 90 days' notification in advance of the disturbance of a monument.

Response: A new section 5.13 has been added to the mitigation section to this effect.

7.4.2 Department of Health and Human Services

Comment: In a letter dated March 19, 2002, the Department of Health and Human Services stated that the DEIS adequately addresses potential health and safety issues to the public, but believes the FEIS should specifically address safety during construction and contain a "statement of compliance with appropriate criteria and guidelines to ensure worker safety and health."

Response: A statement to this effect has been added to Section 5.16.

7.4.3 United States Department of Interior, Office of the Secretary

In a letter dated April 24, 2002, the Office of the Secretary of the Department of Interior (DOI) made a number of comments, which are individually addressed here.

Comment: The Department of Interior (DOI) concurs in the finding that there are no feasible and prudent alternatives with respect to impacts on Section 4(f) properties, but cannot concur that all possible planning needed to minimize potential harm to the resources have been employed. The final Section 4(f) evaluation should reflect all consultation with the SHPO and include a copy of the executed agreement.

Response: Appendix L includes the executed Memorandum of Agreement that includes measures to avoid resources, and minimize impacts. The final Section 4(f) Evaluation is included in Section 6.

Table 7-2 Agencies Sent DEIS Copies and Comments Received

	Comments	
	Requested	Received
Federal Agencies		
US Department of Commerce, National Oceanic & Atmospheric Administration	X	12-Mar-2002
Department of Health & Human Services, Centers for Disease Control	X	19-Mar-2002
US Department of Interior, US Fish & Wildlife Service	X	10-Apr-2002
US Department of Interior, Office of Environmental Policy and Compliance	X	24-Apr-2002
US Environmental Protection Agency, Region V	X	29-Apr-2002
US Environmental Protection Agency, EIS Filing Station, Washington	X	
US Army Corps of Engineers	X	
US Department of Agriculture, National Resource Conservation Service	X	
US Department of Housing and Urban Development	X	
State Agencies		
Department of Natural Resources, Fisheries Division	X	12-Feb-2002
Department of State, State Historic Preservation Office	X	27-Feb-2002
Department of State, State Historic Preservation Office	X	31-May-2002
Department of Natural Resources, Resource Management	X	11-Mar-2002
Department of Environmental Quality, Land and Water Management Division	X	1-May-2002 25-Feb-2003
Department of Agriculture	X	
Department of Community Health	X	
Michigan Environmental Science Board	X	
Local Jurisdictions and Agencies		
Oakland County Development and Planning Services		1-Mar-2002
Road Commission for Oakland County	X	19-Mar-2002
Southeast Michigan Council of Governments	X	22-Mar-2002
Village of Goodrich	X	16-Jul-2001 12-Apr-2002 17-Feb-2003
Atlas Township	X	5-Feb-2002 22-Apr-2003
Charter Township of Independence	X	
Groveland Township	X	
Brandon Township	X	
Village of Ortonville	X	
Genesee County Road Commission	X	
Genesee County Metropolitan Planning Commission	X	
Senator Mat J. Dunaskiss	X	
Senator John D. Cherry, Jr.	X	
Rep. Ruth Johnson	X	
Rep. Rose Bogardus	X	
Michigan United Conservation Clubs	X	
Sierra Club	X	
Clean Water Action	X	
Michigan Environmental Council	X	

Comment: The FEIS should provide additional discussion on potential impacts to wildlife; particularly wildlife associated with the wetlands and other water bodies.

Response: Additional information has been provided with respect to the potential for impacts and the nature of wildlife that may be affected. See Section 4.9.

Comment: We recommend that compensatory mitigation be provided to fully offset unavoidable impacts to all wetlands, not just those regulated by the Michigan Department of Environmental Quality (MDEQ).

Response: Compensatory mitigation will be provided to fully offset unavoidable impacts to all wetlands. See Section 5.12.

Comment: In Subsection 4.10, “Waterways/Water Quality/Floodplains,” the DEIS does not provide a description of the physical setting of the perennial and intermittent streams, nor discharge information where connections across the roadway will be made by culverts and bridges, nor the effects of expanding stream crossing structures. More detailed descriptions of the streams and stream flow records should be provided with the criteria that will be used to determine bridge and culvert size.

Response: Table 4-7 indicates for each named perennial and intermittent stream crossing, the nearby land use, the type of structure, and the change in length of such structures. Stream flow data is sparse. What is available is found in Table 4-8. In general, structures that exist today will be replaced by like-sized culverts and bridges. Hydraulic analysis will be performed during the design phase to determine final structure sizes.

Comment: In Subsection 4.10, more information should be provided on the aquatic life that inhabit these water bodies and the potential for impact to this wildlife, including direct loss of habitat and indirect effects of increased volumes of salts and other constituents that may be carried in the runoff from road surfaces.

Response: Section 4.10 has been expanded to add new information.

Comment: In Subsection 4.10, the DOI recommends the FEIS include a discussion of the groundwater system in the affected area, the number and location of septic tank systems, and the water quality of groundwater and surface water in chemical terms.

Response: Much of the corridor has adjacent housing in deep lots. The most common pattern is for a septic system to be present in the front yard and a water well in the rear yard. Figure 4-18 shows a sewer service coverage map indicating where sewer service is available today and where it is planned in Oakland County (similar information is not readily available for Genesee County). Section 4.10 now includes a discussion of groundwater and well water, where data are available. Duck Creek is noted in the MDEQ “Clean Water Act Section 303(d) List” submittal to US EPA in compliance with the federal Clean Water Act as a “stream recovered from past manure losses” and now meets water quality standards.” No other streams in the project area are referenced in this report, which identifies those water bodies that are known to be out of compliance with water quality standards.

Comment: Subsection 4.11, “Wetlands,” should include a discussion of:

- the shallow groundwater system;
- possible modifications of this system caused by highway expansion;
- possible effects of the alteration of the shallow groundwater system on the surrounding wetland ecology; and
- mitigation measures that address potential impacts on groundwater and wetlands.

Response: The groundwater discussion in Section 4.10 has been expanded. Section 4.10.2 states the planned approach is to prevent direct flow of the surface stormwater runoff into water bodies. Today all water runoff flows directly through sheet flow into adjacent water bodies. With the project, curb-and-gutter design would be employed where there are adjacent water bodies. Water will be carried beyond the limit of the water body to an area where it could be held in detention or dispersed through sheet flow over grassy areas. Thus, stormwater runoff will be filtered more with the project than it is today. On the other hand, there will be an increase in impervious surface and, hence, deicing and roadway contaminants.

Comment: In Subsection 5.12, Wetland Mitigation, the DEIS addresses avoidance, minimization, and compensation. We believe the section-by-section design of the preferred alternative along with the post-construction control practices will accomplish most of the avoidance and minimization of direct wetland impacts deemed to be feasible in light of other project constraints such as safety and avoidance of historic properties; however, Subsection 5.12 fails to make any mention of Executive Order 11990 and we believe that compensatory mitigation should be provided to offset all unavoidable wetland impacts, and that Subsections 4.11 and 5.12 in the final EIS should be revised accordingly.

Response: These sections have been revised to reflect mitigation of all wetlands.

Comment: The DOI understands there may have been a misunderstanding of the 20 percent credit referred to the MDEQ letter of September 26, 2001. Final wetland mitigation acres should be revised following further coordination.

Response: Further coordination has occurred and updated acreages are now provided (see Tables 1-1, 4-12 and 5-1).

Comment: The DOI recommends that a wetland mitigation plan be prepared to include:

- a commitment to create wetland replacement habitat before highway construction begins;
- a commitment to monitor the success of created wetland habitat for at least five years;
- identification of performance criteria for measuring the success of wetland habitat creation;
- identification of and commitment to correct or improve biological productivity of created wetlands based on the results of monitoring;
- a plan to control the establishment of invasive or non-native plant species;
- site plans that include a 100-foot buffer adjacent to the wetland mitigation sites;
- submittal of annual monitoring reports; and
- establishment of protection and management plans to remain in place.

Response: These points are addressed in the final wetland mitigation plan (Appendix M).

Comment: In Subsection 4.9, “Threatened and Endangered Species,” the DEIS concludes no federally-listed threatened or endangered species would be adversely affected as a result of the preferred alternative. The impact of the preferred alternative on potential Eastern massasauga rattlesnake habitat, a federal candidate species, was not described. Additional information on this specie and the potential impacts of the preferred alternative on other wildlife resources would provide a better understanding of the total environmental consequences of the action.

Response: The impacts on the rattlesnake habitat are now described in Section 4.9.

Comment: With respect to Section 4(f), the Department of Interior has no objection to Section 4(f) approval of this project, contingent upon resolution among FHWA, MDOT, the SHPO and the Advisory Council on Historic Preservation of all consultation issues for historic structures. Full documentation must be provided in the final statement of additional measures to minimize harm as recommended in the Section 4(f) evaluation comments.

Response: Appendix L includes the Memorandum of Agreement that outlines measures to minimize harm. The final Section 4(f) Evaluation is included in Section 6.

7.4.4 U.S. Department of Interior, Fish and Wildlife Service

Comment: In a letter dated April 10, 2002, the U.S. Fish and Wildlife Service concurs with the first and second decision points in the NEPA/404 merging process: 1) the purpose and need and 2) the alternatives carried forward. Although the DEIS describes only the Preferred and No-Build alternatives, the April 4, 2002 interagency meeting and the Technical Memoranda supporting the DEIS provided sufficient information on which to base concurrence.

7.4.5 United States Environmental Protection Agency

In a letter dated April 29, 2002, the U.S. EPA concurs with the purpose and need of the proposed project and with the practical alternatives advanced in the DEIS. The U.S. EPA identified issues relating to: alternatives evaluation, wetland impacts, wetland mitigation determination, characterization of existing surface water quality, impacts to Duck Creek, surface water quality impacts, the biological assessment, groundwater quality, and cumulative impacts. They assigned the DEIS a rating of “EC-2” (environmental concerns, insufficient information).

Comment: The alternative evaluation section provides evaluation data used to score each of 10 sections of M-15 for a five-lane and narrow boulevard alternative but does not show how the evaluation data translated to the resulting scores. The information provided in Technical Memorandum No. 3 (Corradino Group, March 2000) must be included in the FEIS, perhaps in summary form.

Response: This information has been included in Section 3.2.

Comment: The practical alternative scoring results in Table 3-4 indicate the five-lane road is preferable to a narrow boulevard for subsections A2 and E2. EPA believes the five-lane road is preferable to a narrow boulevard from a wetlands protection perspective, as it requires less right-of-way. The narrow boulevard is selected over the five-lane for these two subsections. According to the DEIS, the narrow boulevard is preferred for safety reasons, but the five-lane road still has a higher rating in these sections. Under Section 404 of the Clean Water Act, project proponents are required to avoid wetland impacts where feasible. In addition, certain wetlands may provide groundwater recharge to cold water streams in the project area and support trout fisheries. Given the above, the FEIS must justify why the wider roadway was chosen in spite of the extra impacts to wetlands and the practical alternative scoring results.

Response: An explanation was provided on page 3-12 of the DEIS of the treatment of sectors A2 and E (see Figure 1-5). Sectors A2 and E were subdivided in such a way that a portion of A2 (A2b) could be a boulevard with relatively minor impacts. Likewise, the original Sector E was subdivided into E1 and E2 to maximize the extent of boulevard with minimal impacts. In both cases, the primary factor to be avoided in the original sectors was concentrations of residences. And, in both cases, the five-lane typical is proposed where there is a heavy concentration of homes, but the boulevard was applicable in the sub sectors where fewer homes are present. With respect to areas near cold water streams, the roadway section proposed along Kearsley Creek is as narrow as feasible, because the roadway width is minimized as it enters Goodrich, which is immediately to the north. In Sector D a narrow boulevard is recommended, rather than a five-lane section. Several factors led to this decision. The principal reason was safety. The presence of a high school, middle school, intermediate school, and grade school, as well as associated vehicular and pedestrian traffic supported the maximum separation of pedestrians and vehicles and the minimization of vehicle conflicts. There are many young drivers and young children present in the vicinity of Duck Creek. This condition and the fact that there are several commercial establishments that provide service to school-aged children, led to the recommendation for the boulevard alternative, rather than the five-lane alternative at this location. Motorists and pedestrians, particularly teenagers and young adults, can function more safely with the boulevard alternative, because there are fewer conflicting vehicular movements, especially left turns. There is considerable school bus activity in the area. Besides the signalized entrance to the high school, there are signals at Groveland Road and at South Street. The proximity of the last two intersections to each other adds to the potential of conflicts and the argument for segregating movements with the boulevard concept. Finally, the boulevard alternative has also been strongly supported by the local community so that landscaping can be provided along with safety benefits. Even with the five-lane alternative, the relocation of Duck Creek would be very difficult to avoid. Though the five-lane design would not need new right-of-way, Duck Creek is partially within the existing right-of-way and forms the roadside ditch. The wider pavement within the existing right-of-way would encroach into this area,

Comment: The DEIS should provide impact percentages for each wetland.

Response: These percentages have been added to Table 4-11.

Comment: We recommend that the project proponents continue to coordinate with MDEQ to determine the appropriate mitigation acreage for this project.

Response: This has been done.

Comment: The DEIS does not provide quantitative water quality information from waterways in the study area; therefore, it is not possible to adequately assess the quality of waterways. We recommend the FEIS include current and historic pollutant loading concentrations and the uses of the different drainage basins in the study area (example: Duck Creek).

Response: These data are limited. See Section 4.10.2.

Comment: The proposed M-15 should be narrowed as much as possible in the vicinity of Duck Creek to spare habitat. If this is not feasible, Duck Creek should be relocated in a manner that would maintain the existing creek's habitat. Impacts to Duck Creek such as loss of trout habitat must be documented in the FEIS and the FEIS should account for mitigation of such impacts.

Response: A detailed analysis was conducted on the Duck Creek site, and resulted in the finding of no practicable alternative to relocating this segment of Duck Creek. During the summer of 2000, the James Lumber Company moved to the lot adjacent to Duck Creek and redeveloped it into buildings, parking, a septic field, and a detention basin. To create adequate detention, the lumber company expanded an existing detention pond under Oakland County standards. A letter dated September 14, 2000, was sent to Mr. Dave Dortman of the Michigan Department of Environmental Quality (MDEQ) requesting a "letter of no jurisdiction." The "letter of no jurisdiction" was issued by MDEQ on November 9, 2000.

Because the lumber company's lot has been fully developed, there is no land available on the site to relocate the detention pond. Additionally, a sliver of land, including the embankment separating Duck Creek from the detention pond and nine parking spaces that face M-15, would have to be acquired to construct the proposed boulevard. (Note that the August 2000 site plan shows a requirement for 65 parking spaces, but provides 77 spaces; so, if the project took nine spaces, the site would appear to continue to meet zoning requirements).

If M-15 is reconstructed as a boulevard, the proposed west pavement edge of M-15 will fall in the middle of the creek. The boulevard alternative requires 172 feet of right-of-way, whereas the existing right-of-way is 120 feet. The five-lane alternative proposed for other locations within the M-15 corridor will fit within the existing 120-foot right-of-way. However, its presence would, at a minimum affect the bank of Duck Creek, which is partially in the right-of-way. As noted in the earlier response related to Duck Creek, decision-making favored the narrow boulevard, largely because of safety, but also because the community felt the boulevard had superior aesthetics.

As the Technically and Environmentally Preferred Alternative will require relocating approximately 320 feet of Duck Creek, several options are listed in Section 5.7 for the relocation of this segment of Duck Creek.

Comment: We recommend that the FEIS supplement the water quality impact analysis section with estimated resultant pollution concentration data to estimate the water quality impacts of the practical alternatives.

Response: The discussion of water quality in Section 4.10 has been expanded.

Comment: We believe a description of mussel species within the study area may be a critical topic. The FEIS should document any project impact to mussels and commit to mitigation of such impacts.

Response: The results of the mussel survey are found in Section 4.9. Mitigation is discussed in Section 5.7.

Comment: The DEIS does not include a description of individual and municipal groundwater wells within the study area; therefore, it is not possible to determine which groundwater wells could be adversely affected by groundwater contamination for the project. The FEIS should include this information.

Response: See Section 4.10.

Comment: With respect to cumulative impacts, the DEIS indicates there will be an increasing amount of impervious surfaces due to rapid economic expansion in the area. The study area would likely experience an increase in stormwater flow rates, petroleum-based spills and leaks, and air pollution sources. The proposed project contributes to these impacts as part of the urbanization of the study area; therefore, the FEIS must include a cumulative impact analysis for the proposed project.

Response: An expanded analysis of cumulative impacts is covered in Section 4.18.

State Agencies

7.4.6 Michigan Department of Natural Resources

Comment: In a letter dated March 11, 2002, the Michigan Department of Natural Resources (MDNR) notes that the comments submitted by their endangered species specialist have been addressed. They note that responding to their concerns will help safeguard any endangered or threatened species of concern that may be impacted by the project. They commend MDOT on development of a separate report which addresses threatened and endangered species.

7.4.7 Department of Natural Resources, Fisheries Division

Comment: In a letter dated February 12, the Fisheries Division finds fisheries impacts only minimally addressed and request greater consideration in the FEIS. In particular, the Fisheries Division is concerned with potential fishery impacts resulting from loss of groundwater recharge areas (wetlands), expanded stream crossings, and increased surface water discharge to cold water streams. In particular, Fisheries recommends the inclusion of the linear footage of stream bank fish habitat affected.

Response: The linear footage of streambank fish habitat is included in Section 4.10.1.

Comment: Although no federal or state threatened and endangered fish species will likely be affected, Kearsley and Duck Creeks are the only known tributaries of Flint River where mottled sculpin are found. Additionally brown trout (stocked) are known to inhabit Kearsley and Duck Creeks and are of local concern.

Response: The discussion of Kearsley and Duck Creeks as cold-water streams has been included in Section 4.10.1 along with references to the existence of stocked trout and native mottled sculpin in these creeks.

Comment: The statement in the DEIS that “intercepted water will be discharged into an available roadside ditch, watercourse or storm sewer” is of great concern to Fisheries Division due to potential effects on thermal fish habitat in Kearsley and Duck Creeks. Fisheries would recommend a statement of precaution against intercepted waters being discharged directly into Kearsley or Duck Creeks or via storm drains that directly discharge to the creeks.

Response: The statement related to “intercepted water” relates to seepage under the roadway sub-base, not stormwater in general. Areas have been identified at the crossings of Duck Creek and Kearsley Creek to be used to indirectly discharge water to these creeks and provide for thermal cooling in the process. This statement has been added in Section 5.7.

Comment: Fisheries Division recommends a continued search for mitigation areas located in the upper Kearsley Creek watershed to provide mitigation with respect to groundwater inflow to upper Kearsley Creek.

Response: Although being used primarily for the M-24 project, the Oakwood Road site serves this function, so, while being credited to the M-24 project in large part, the value of the Oakwood site as a groundwater recharge area remains a benefit to the M-15 project, even though limited wetland credit will come from this site.

Comment: Fisheries recommends inclusion of the value of wetlands as groundwater recharge areas important for maintaining thermal fish habitat to upper Kearsley Creek.

Response: Language has been added to Section 4.11 to this effect.

Comment: Language in the Threatened and Endangered Species Investigation Report inaccurately identifies the dominant substrata of upper Kearsley Creek and its tributaries.

Response: This language has been corrected to indicate that sand is the dominant substrate and that a moderate level of gravel exists.

Comment: Fisheries Division has no information on mussel communities, but given the number of mollusk species listed in the area and the presence of suitable habitat, Fisheries feels a more exhaustive search should be conducted.

Response: The results of the mussel survey are found in Section 4.9.

7.4.8 Michigan Department of Environmental Quality

Comment: In a letter dated May 1, 2002, The Michigan Department of Environmental Quality (MDEQ), in its discussion regarding concurrence as to purpose and need, suggests dropping the statement “M-15 needs four through travel lanes for the entirety of the corridor,” and suggests that further detail be given in the DEIS as to why the Super 2, three-lane, and four-lane sections do not meet the purpose and need.

Response: The purpose and need is properly demonstrated in Section 2 of the DEIS and is supported by the Traffic Analysis Report prepared for the project. As explained at the April 4, 2002, interagency meeting, this information was provided in earlier Technical Memoranda and is included in Appendix A of the DEIS, which summarizes the Traffic Analysis Report. Table A-2 in Appendix A has been modified to indicate which roadway segments will be over-capacity under each of the alternatives. This table has also been included is a more extensive discussion of the decisions leading to the Technically and Environmentally Preferred Alternative in Section 1.

Comment: Is it appropriate to list a preferred alternative in the DEIS?

Response: Yes. Where sufficient documentation has been performed through an iterative evaluation process that involves the public directly and repeatedly, the identification of a preferred alternative is appropriate. This is made clear in the Federal Highway Administration guidance Technical Advisory T 6640.8A, page 16, “where the HA” (Highway Authority) “has officially identified a ‘preferred’ alternative based on its early coordination and environmental studies, the HA should so indicate in the draft EIS.”

Comment: The distinction between regulated and unregulated wetlands should be dropped.

Response: This distinction has been dropped.

Comment: The proposed road section in the vicinity of wetlands W37 and W36C is identified as four-lane with very narrow boulevard. The use of a four-lane section with no boulevard should be evaluated to reduce potential wetland impacts in these areas.

Response: This is, in fact, the case. The narrow boulevard would be narrowed as much as feasible, consistent with safety and driver expectation. It is the intent to provide the narrowest possible cross-section at the point noted.

Comment: The DEIS indicates a permit is required from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. This is not the case in Michigan where the state has assumed administration of the 404 Program.

Response: This language has been corrected.

Comment: Figure 3-5 shows the typical cross-section dimensions for the five-lane and narrow boulevard alternative. A similar cross-section including right-of-way should be shown for the very narrow boulevard.

Response: The typical section is very similar to that of the five-lane, except for the median, and Figure 3-5 has been modified to reflect this.

Comment: The statement in Section 4.10.3 related to a one-tenth-foot increase in flood water levels in floodplains is not a criteria listed in Part 31 of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. It states that in Michigan for any stream with a drainage of more than two square miles, regardless of whether floodplain has been mapped, new or replacement bridges or culverts may not cause a harmful interference.

Response: This language of Section 4.10.3 has been modified to reflect Part 31.

Comment: Table 4 of the Wetland Report should be modified to reflect the appropriate consideration of wetland credits.

Response: These changes have been made in the Wetland Report and incorporated into the FEIS.

Comment: MDOT is encouraged to continue looking for other mitigation sites within the Kearsley Creek watershed.

Response: MDOT continued to search for such mitigation sites. Another potential site was found in Section 32, Spaulding Township, Saginaw County.

Comment: Based on an April 24, 2002 site inspection with various resource agencies, it was determined that Duck Creek should be relocated and not enclosed along the western side of M-15 opposite the Brandon Middle School south of the Village of Ortonville.

Response: Relocation options for Duck Creek are presented in Section 5.7.

Comment: Once a final alternative is selected, the effort should be made to secure the mitigation sites. A mitigation plan should be developed and approved by the MDEQ prior to the permit application.

Response: A mitigation plan is included in Appendix M.

Local

7.4.9 SEMCOG (Southeast Michigan Council of Governments)

Acting as regional clearinghouse, SEMCOG coordinated comments with the Oakland County Planning and Economic Development Services. They additionally contacted the City of Clarkston, the Village of Ortonville, Independence, Springfield, Brandon and Groveland

Townships, the Clarkston and Brandon School Districts, and the Clinton River Watershed Council.

Comment: In a letter dated March 1, 2002, Oakland County Development and Planning Services indicated concern for the designated trout stream, Kearsley Creek. Their concern is that stormwater runoff may adversely affect the quality of the stream and its tributaries and that best design practices should be used in order to protect water quality and maintain the wildlife habitat associated with this resource.

Response: At Kearsley Creek, M-15's roadway section was designed to be narrow as possible as it approaches the south side of Goodrich. A field review meeting held April 24, 2002, included attendance by FHWA, US EPA, US Fish and Wildlife Service, MDOT, MDEQ, MDNR – Fisheries Division. At this meeting discussion led to a proposed design including:

1. curb and gutter through the section along the creek, carried to a dedicated detention area;
2. steel sheeting or a Gabion retaining wall to support M-15; and,
3. riprap at base of the sheeting or Gabion wall to interface with stream to prevent scour along the base of the wall.

This language has been added in Section 5.7.

Comment: The Oakland County Development and Planning Services indicates the project does not conflict with their plans and/or policies and they recommend project approval.

Comment: SEMCOG staff note that the M-15 project is programmed in the 2025 Long-Range Regional Transportation Plan (RTP) as a study only. If the project moves forward to be a recipient of federal aid, it must be included in the 2025 RTP through an amendment or be incorporated into the 2030 RTP, which is now under development. At that point, it will be subject to regional level reviews of air quality conformity, public involvement, and environmental justice.

Response: This comment is noted.

Comment: The M-15 study should be coordinated with intersection improvements planned at Glass Road.

Response: This coordination is ongoing.

Comment: Incorporating additional Transportation System Management (TSM) concepts including an access management plan under the preferred alternative will reduce the number of turning points onto the roadway, enabling traffic to operate better and provide a safer environment.

Response: A number of TSM concepts were recently included along M-15 as it was repaved. Further improvements in the form of signalization and turn lanes will be added, as warranted. The number of turning points onto the roadway has been minimized by use of boulevard, wherever possible. Boulevards provide much better control of turn movements and so are safer.

Comment: It is not clear if an increase in truck traffic was considered in the analysis of future travel.

Response: The truck traffic percentage was considered. It is low now and will continue to be low with the project (less than 5%). M-15 will present an increasing number of traffic signals to truck traffic. Trucks using M-15 will continue to have a local origin or destination within the project length.

Comment: The project does not appear in the Build Michigan III project list, but the study does appear in MDOT's five-year Road and Bridge Program. This should be reviewed and clarified.

Response: This clarification has been made in Section 1.7.

7.4.10 Road Commission for Oakland County

Comment: In a letter dated March 19, 2002, the Road Commission for Oakland County makes a number of comments. The proposed boulevard as currently planned is very narrow and the outside shoulders as well as the "bull nose" of the median should be paved to facilitate u-turn movements for truck traffic.

Response: Paving of shoulders is planned and bull-nosed areas of medians will be paved to facilitate access to adjoining properties.

Comment: MDOT may wish to consider a change to carry two southbound lanes through on M-15 over the I-75 bridge.

Response: This is one of several issues in the corridor that are under active monitoring by both the MDOT and the M-15 Task Force. The long-term solution may be included as part of the final design for M-15, or it may be addressed as part of the upgrade of I-75 in Oakland County.

Comment: The boulevard should continue to Deer Ridge and Hubbard instead of a conflicting center left-turn lane.

Response: The five-lane section is required in the Deer Ridge/Hubbard area to provide access to the large subdivisions served by these roadways.

Comment: South Street should curve directly into M-15 with Varsity tying into South, rather than vice versa.

Response: This option will be examined more fully in the design phase. The opportunity exists for access to M-15 via the Willow Point Flowers parcel, which is planned for acquisition.

Comment: Due to the speed of traffic on M-15, a boulevard section with an indirect left turn at Grange Hall Road would be safer than the proposed direct left turn.

Response: Detailed analysis at this intersection will be performed during the design phase.

Comment: Grave relocation should be avoided at the Ortonville Cemetery.

Response: Grave relocation is avoided by the proposed project.

Comment: A larger gap in the very narrow boulevard should be provided for deceleration into the left-turn lane northbound near Groveland Road.

Response: Modifications at this level of detail will be examined in the design phase.

Comment: The turnaround crossovers near Oakwood should be designed to accommodate heavy truck movement.

Response: Heavy truck movements have been taken into consideration at this location as can be noted by the partial loon on the west side of M-15 north of Oakwood Road.

Comment: In general, we feel a five-lane road is more practical than a very narrow boulevard.

Response: Safety considerations and the desires of the public have led MDOT to conclude that a boulevard is the desired road type, except where impacts to homes, businesses, wetlands and/or historic properties outweigh the benefits of the boulevard.

Comment: The cost of right-of-way in Oakland County has risen drastically in recent years. The cost estimates for right-of-way are likely too low.

Response: Right-of-way estimates will be updated periodically as the project advances. Such a reevaluation of right-of-way costs has been included in the FEIS.

7.4.11 Village of Goodrich

Comment: In letters dated July 16, 2001 and April 12, 2002, the Village of Goodrich transmitted resolutions adopted by the Village of Goodrich Council at its regular meetings of July 9, 2001 and April 8, 2002, respectively. These resolutions opposed MDOT's recommendation for a five-lane section through Goodrich. Their belief was that the current three-lane roadway with some intersection improvements and continued application of sound access management can provide acceptable traffic operations without the severe negative impacts associated with a five-lane section. A resolution withdrawing opposition was passed February 17, 2003, based on the ongoing good faith activities of MDOT to seek opportunities to reduce impacts.

Response: MDOT responded to the first two letters in a letter dated June 27, 2002 in Appendix C, and has continued efforts to work with the community.

7.4.12 Atlas Township

Comment: In a letter dated February 5, 2002, Atlas Township provides some information related to growth and the future level of service at intersections and expressed opposition to the project.

Response: MDOT responded in a letter dated June 27, 2002 in Appendix C, and Atlas Township responded to that letter April 22, 2003 stating that they would continue to work with MDOT.

SECTION 8

LIST OF PREPARERS (2002 FEIS)

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Mark Fisher, Traffic, Safety, and Geometrics (engineering) review
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Tom Peek, Air/Noise Analysis review
David Schuen, Threatened and Endangered Species review
Fred Sewell, Relocation Report – Conceptual Stage review
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The consultants performing the analysis for this environmental document have no financial or other interest in the project or its outcome.

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8.1 List of Preparers for Revised FEIS (2010)

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SECTION 9

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Davison Township
Village of Clarkston
Village of Ortonville
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Appendix A
Traffic Analysis Report Summary

M-15 EIS Traffic Analysis Report Summary

The Traffic Analysis Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project between I-75 and I-69 in Oakland and Genesee counties. The three main purposes of the analysis were to:

- Determine the existing (1998) traffic conditions along M-15;
- Estimate the traffic performance of M-15 in 2025 for several alternatives; and,
- Evaluate possible changes in land uses along the corridor that might affect the use of M-15.

Existing conditions were analyzed first to serve as the baseline for comparisons. The capability of M-15 to handle 2025 traffic in view of its present configuration of a two-lane facility (“No-Build” scenario) was analyzed next. Additionally, nine other scenarios that consider improvements in the M-15 corridor were evaluated. Alternative 3 is the Technically and Environmentally Preferred Alternative. These scenarios are listed below:

**Table A-1
M-15 Alternatives**

Year 2025 Alternatives	Description
Baseline	No-Build
Alternative No. 1	TSM plus Pave Gravel Roads
Alternative No. 2A	Improve Irish Road to Boulevard
Alternative No. 2A + SLAM	Improve Irish Road plus Land Use Reallocation
Alternative No. 2B	Build Goodrich Bypass
Alternative No. 2C	Build Lake Louise Bypass
Alternative No. 3	Widen M-15 (Technically and Environmentally Preferred Alternative)
Alternative No. 4 ¹	Improve Hadley/Washburn Roads
Alternative No. 5 ¹	Control Atlas Township Growth
Alternative No. 6 ¹	Combine Alternatives 4 and 5

Source: The Corradino Group

¹Alternatives analyzed late in the study in response to public input.

In addition, mass transit and other non-automobile modes/options (e.g., telecommuting, demand management) were considered from the standpoint of the maximum potential diversion from personal vehicles that might be achieved. Today, no such transit system approach is evident. And, even under the most favorable conditions it is unlikely that more than five percent of the travel on M-15 could be diverted from the auto. This diversion would not affect the need for more lanes on M-15. Therefore, the non-auto alternative was not considered a viable option and was not the focus of additional analysis.

Traffic volume projections for the scenarios listed above are obtained by using the Southeast Michigan Council of Government’s (SEMCOG’s) travel model. It covers a seven-county region that includes Oakland County, but not Genesee. The SEMCOG model was “extended” into Genesee County by using the zonal structure and data from the Flint area model. Traffic volumes along M-15 provided by the model, along with the current (1998) volumes, are listed on Table A-2. A brief analysis of the data contained in Table A-2 is provided next.

At the outset it is important to set standards by which to measure the effectiveness of the alternatives. The Transportation Research Board (Special Report 209) recommends “level of service” as the measure of traffic performance. Levels of service range from free-flow conditions with insignificant delays (LOS A) to extremely congested conditions with large delays and low speeds (LOS F). The latter condition indicates the most a two-lane road can handle in an M-15 environment (more rural than urban) is 15,600 vehicles per day (vpd) (Table A-3). However, transportation agencies strive for LOS C or a maximum volume of 14,400 vpd on a two-lane road in a rural setting.

Existing (1998) Conditions

Traffic volumes reported for 1998 indicate that, with the exception of its southern segments, M-15 currently operates adequately. Between Groveland Road and I-75, however, M-15’s performance is below the desirable LOS C (i.e., daily volumes greater than 14,400, see bolded values in Table A-2).

Year 2025 Conditions

M-15 in the study area needs capacity-enhancing improvements to be able to accommodate the expected traffic in year 2025 and still provide adequate performance. In particular, a widening to at least four through lanes will be needed, as traffic cannot be diverted to other arteries.

Of the alternatives that do not call for widening M-15 (Nos. 2A, 2B, 2C, 4, 5 and 6), all have a positive but limited effect on reducing traffic on M-15. But, overall, the relief of any alternative is not enough to reduce forecast traffic along M-15 so that widening is not needed (bolded values in Table A-2 show overcapacity conditions). Even if the expected growth in the area were shifted to the north of the corridor from Oakland County (Alternative No. 2A), or the expected growth in Atlas Township were held to just 25 percent of what was forecast originally by local planners (Alternative No. 5), widening M-15 is still needed. The Technically and Environmentally Preferred Alternative, No. 3, would include four through lanes plus a fifth for turning vehicles in a configuration of simply an all-paved five-lane road to a boulevard, which includes a landscaped median. It can provide daily capacity of more than 30,000 vpd (Table 4-3). This will handle the 2025 forecast on M-15. Note that in the southernmost section of the corridor the volumes are higher under all scenarios, but additional lanes are provided.

Intersection Analysis

To further examine the need to improve M-15, an analysis of the performance of each of 28 intersections was conducted. The results indicate that, currently, nine intersections along M-15 are operating lower than LOS C (Table A-4). Six of those intersections appear to warrant a traffic signal to handle 2025 traffic even if M-15 were not widened. But, even if those signals were installed, 15 of the 28 intersections would operate in 2025 at lower than LOS C; 12 would be at LOS E or F. However, if the Technically and Environmentally Preferred Alternative were implemented, not one intersection would operate lower than LOS C.

Again, the need to widen M-15 is key to addressing the travel demand forecast by 2025. Widening in most sections to a narrow boulevard and to five-lanes in other sections is the only alternative that meets the project purpose and need.

**Table A-2
Additional 2025 Traffic Projections**

Location	1998 Existing	2025 Scenarios									
		No-Build	Alt. No. 1	Alt. No. 2A	Alt. No. 2A plus SLAM	Alt. No. 2B	Alt. No. 2C	(Technically and Environmentally Preferred) Alt. No. 3	Alt. No. 4 ¹	Alt. No. 5 ¹	Alt. No. 6 ¹
I-69	12,400	21,000	21,700	19,800	21,100	21,000	21,000	21,800	19,000	19,300	17,400
Atherton Road	12,600	20,800	20,800	18,500	18,000	20,800	20,800	21,400	19,400	19,600	18,300
Maple Road	10,900	19,700	19,300	16,400	16,300	19,700	19,700	20,100	18,900	18,900	18,100
Perry Road	11,300	18,400	18,000	13,000	12,800	14,900	18,400	18,800	17,700	17,600	16,900
Hegel Road	12,100	18,500	18,300	15,800	14,400	15,000	18,500	20,200	17,500	18,000	17,000
Horton Road	12,500	18,600	18,600	18,600	16,000	18,600	18,600	20,700	17,300	18,400	17,100
Groveland Road	17,000	21,900	21,900	21,900	18,600	21,900	17,000	22,900	21,200	21,700	21,100
Seymour Lake Road	19,000	25,100	25,100	25,100	21,100	25,100	25,100	25,100	25,100	25,000	25,000
Rattalee Lake Road	27,300	35,200	35,100	35,200	29,500	35,200	35,200	35,200	35,200	35,100	35,100
I-75											

Source: The Corradino Group
Alternative 1.....TSM Improvements plus pave local roads
Alternative 2A.....Improve Irish Road
Alternative 2A plus SLAM.Improve Irish Road plus Land Use Reallocation proposed by the Simplified Land Allocation Model
Alternative 2B.....Build Goodrich Bypass
Alternative 2C.....Build Lake Louise Bypass
Alternative 3.....Widen M-15 to four lanes for through travel
Alternative 4.....Pave Hadley Road from Rattalee Lake to Sawmill Lake Roads
Alternative 5.....No-Build, plus limit 1995-2025 trip growth in Atlas Township to 25 percent
Alternative 6.....Alternative 4 and 5

All values shown in **bold** exceed roadway capacity
¹Alternative analyzed late in the study in response to public input.

**Table A-3
General Annual Average Daily Capacity
of Several Typical Roadways
in Areas Transitioning into Urban Areas**

STATE TW O-WAY ARTERIALS UNINTERRUPTED FLOW						FREEWAYS					
Unsignalized Lanes/ Divided	Level of Service					Lanes	Level of Service				
	A	B	C	D	E		A	B	C	D	E
2 U ndivided	8,400	13,000	17,700	23,300	31,000	4	20,000	32,400	46,900	58,600	69,000
4 D ivided	20,800	34,500	47,800	57,000	66,800	6	30,800	49,800	72,100	90,100	106,000
6 D ivided	30,800	51,700	71,600	85,600	99,500	8	41,000	66,500	96,100	120,200	141,400
						10	52,500	85,100	123,100	153,900	181,000

INTERRUPTED FLOW						NON-STATE ROADWAYS MAJOR CITY/COUNTY ROADWAYS						
Class I (>0.00 to 1.00 signalized intersections per mile)	Lanes/ Divided	Level of Service					Lanes	Level of Service				
		A ^{***}	B	C	D ^{***}	E ^{***}		A ^{***}	B ^{***}	C	D	E
	2 U ndivided	N/A	10,000	14,400	15,600	15,600	2 U ndivided	N/A	N/A	8,000	13,500	14,800
	4 D ivided	N/A	22,000	30,500	32,800	32,800	4 D ivided	N/A	N/A	18,500	29,300	31,400
	6 D ivided	N/A	33,500	46,000	49,200	49,200	6 D ivided	N/A	N/A	28,700	44,200	47,200

Class II (200 to 4.50 signalized intersections per mile)	Lanes/ Divided	Level of Service					OTHER SIGNALIZED ROADWAYS (signalized intersection analysis)					
		A ^{***}	B ^{***}	C	D	E	Lanes	A ^{***}	B ^{***}	C	D	E
	2 U ndivided	N/A	N/A	9,100	13,700	14,900	2 U ndivided	N/A	N/A	4,400	10,200	11,300
	4 D ivided	N/A	N/A	21,100	29,900	31,600	4 D ivided	N/A	N/A	10,900	22,500	24,000
	6 D ivided	N/A	N/A	32,800	45,000	47,600						

Class III (more than 4.50 signalized intersections per mile)	Lanes/ Divided	Level of Service					ADJUSTMENTS DIVIDED/UNDIVIDED (after corresponding two-way volume indicated percent)			
		A ^{***}	B ^{***}	C	D	E	Lanes	Median	Left Turn Bays	Adjustment Factors
	2 U ndivided	N/A	N/A	3,100	11,200	14,700	2	Divided	Yes	+5%
	4 D ivided	N/A	N/A	7,200	25,900	31,200	2	Undivided	No	-20%
	6 D ivided	N/A	N/A	11,300	40,300	47,000	Multi	Undivided	Yes	-5%
							Multi	Undivided	No	-25%

Source: The Florida Department of Transportation Systems Planning Office 605 Suwannee Street - Mail Station 19 Tallahassee, Florida 32399-0450 http://www.dot.state.fl.us/planning	ONE-WAY (after corresponding two-way volume indicated percent)		
	One-Way Lanes	Equivalent Two-Way Lanes	Adjustment Factors
	2	4	-40%
	3	6	-40%
	4	6	-25%

^{*} The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are annual average daily volumes (based on K100 factors, not peak-to-daily ratios) for levels of service, and are based on the 1997 Update to the Highway Capacity Manual and Florida traffic, roadway, and signalization data. The table's input value assumptions and level of service criteria appear on the following page.

^{***} Cannot be achieved.

^{****} Volumes are comparable because intersection capacities have been reached.

September 1996

Note: M-15's existing 2-lane section is represented in the left column, under Class I, 2 Undivided.
M-15's 4-lane boulevard is represented in the left column, under Class I, 4 Divided.

**Table A-4
M-15 Intersection Traffic Analysis**

Growth Rates		M-15			Cross Road	Level of Service		
No-Build	Technically and Environmentally Preferred Alternative	Proposed Condition	Existing Signalization	2025 Potential Signalization		Existing Level of Service	No-Build w/2025 Traffic	Technically and Environmentally Preferred Alternative w/2025 Traffic
1.69	1.76	5-lane	Signal	Signal	Lippincott	B	C	A
1.69	1.76	5-lane	None	Signal	Atherton	F	A	A
1.69	1.76	5-lane	Flasher	Signal	Bristol	F	D	A
1.65	1.70	5-lane	None	None	Maple	C	F	B
1.65	1.70	Boulevard	None	Signal	Hill	C	B	C
1.81	1.84	Boulevard	None	Signal	Perry	C	B	B
1.81	1.84	Boulevard	None	None	Coolidge	C	E	B
1.63	1.66	5-lane	Flasher	Signal	East Hegel	D	B	A
1.63	1.66	5-lane	Signal	Signal	West Hegel	B	C	A
1.53	1.67	5-lane	None	None	Green	D	F	A
1.53	1.67	Boulevard	None	None	Kipp	B	C	B
1.49	1.66	Boulevard	None	None	County Line	C	D	B
1.49	1.66	Boulevard	None	None	Groveland	B	D	B
1.49	1.66	Boulevard	None	Signal	Oakwood	F	C	B
1.29	1.35	Boulevard	Signal	Signal	Mill	B	B	B
1.29	1.35	Boulevard	Signal	Signal	South	B	C	A
1.29	1.35	Boulevard	Signal	Signal	Granger/Kent	A	B	A
1.29	1.35	Boulevard	None	None	Wolfe	C	E	B
1.29	1.35	Boulevard	Signal	Signal	Brandon High School En.	A	B	B
1.29	1.35	5-lane	Signal	Signal	Glass	B	F	A
1.29	1.35	5-lane	Signal	Signal	Seymour Lake	C	E	C
1.32	1.32	Boulevard	None	None	Oak Hill	F	F	C
1.32	1.32	Boulevard	None	None	Hadley/Ratalee Lake	F	F	B
1.32	1.32	Boulevard	Signal	Signal	Hubbard	B	E	B
1.29	1.29	Boulevard	Signal	Signal	Deer Ridge	C	E	B
1.29	1.29	5-lane	None	None	Berry Point	E	F	A
1.29	1.29	5-lane	Signal	Signal	Cranberry Lake	B	B	A
1.29	1.29	5-lane	None	None	Amy	F	F	B

Source: The Corradino Group

Note that No-Action includes addition of signals and turn lanes and other minor improvements, so that, for example Atherton Road could go from LOS F to A with signalization.

Appendix B
Engineering Report Summary

M-15 EIS Engineering Report Summary

The Engineering Report, provided under separate cover, is a companion document to the Environmental Impact Statement prepared for the M-15 project between I-75 and I-69 in Oakland and Genesee counties. The purpose of the Engineering Report is to offer graphics of sufficient detail to support the EIS and to clarify the basic engineering concepts that have been assumed at this point in project development. Whereas the drawings contained in the Engineering Report represent a considerable effort to portray accurately the characteristics of a reconstructed M-15, additional engineering work remains. For example, final determinations regarding which portions of the corridor would be built with rural drainage (a ditch) and with curbs and gutters have not yet been made. Likewise, determinations have yet to be made on where safety paths would be constructed. The presence of safety paths may influence whether the roadway design is rural with ditches, or urban, with curb and gutter. So, the reader is reminded that the lines representing roadway limits are subject to change. Nevertheless, the drawings in the Engineering Report provide a reasonable representation of the layout of a reconstructed M-15, and are of an appropriate detail for planning purposes and environmental analysis.

