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US-31 Holland to Grand Haven

FINAL ENVIRONMENTAL IMPACT STATEMENT

Submitted pursuant to 42 U.S.C. 4332 (2) (c) and, 49 U.S.C. 303

U.S. Department of Transportation
Federal Highway Administration
and
Michigan Department of Transportation
Cooperating Agencies
U.S. Coast Guard
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This Final Environmental Impact Statement (FEIS) describes the social, economic and natural environmental impacts associated with proposed improvements to US-31 in Holland and Grand Haven, and a new route (M-231) west of 120th Avenue in Robinson and Crockery Townships, Ottawa County, Michigan. The improvements to US-31 are from East Lakewood Boulevard north to Quincy Street in Holland, and from south of Franklin Street to north of Jackson Street in Grand Haven. The new M-231 will be constructed west of 120th Avenue from M-45 to the I-96/M-104 interchange; including a new crossing of the Grand River, improvements to M-104 near I-96, new ramps at the I-96 and M-231 interchange, and improvements to the I-96/112th Avenue interchange. This document includes a summary of the planning basis, the process used to determine the recommended alternative and the associated impacts. Mitigation of the impacts is also included. The estimated cost of the proposed project is \$170 million in 2014 dollars. This document addresses the comments received on the social, economic, and environmental issues and provides substantiation for selection of the Preferred Alternative.

PREFACE

This Final Environmental Impact Statement (FEIS) has been prepared in compliance with the National Environmental Policy Act (NEPA), federal regulations on procedures for preparing environmental documents, and the Michigan and federal environmental laws and regulations.

The NEPA, enacted in 1969, requires that an Environmental Impact Statement (EIS) be prepared for all major federal actions significantly affecting the quality of the human environment. The EIS must discuss the environmental impacts of the federal action it covers and all alternatives to that action. Such actions include federal projects, state and local programs funded by federal assistance and private development authorized by federal permits.

Part 771 of 23 Code of Federal Regulations (Highways) states that alternative courses of action must be evaluated and decisions should be made in the best overall public interest. The decisions should be based upon a balanced consideration of the need for safe and efficient transportation, social, economic, and environmental impacts of the proposed transportation improvement, and national, state, and local environmental protection goals. In addition, the alternatives should connect logical termini and be of sufficient length to address environmental matters on a broad scope. Technical Advisory T 6640.8A of the Federal Highway Administration (FHWA) states that all reasonable alternatives under consideration must be developed to comparable level of detail so that their comparative merits may be evaluated. The US-31 FEIS complies with these requirements.

The original study area in the Draft Environmental Impact Statement (DEIS) included most of Ottawa County, southern Muskegon County and northern Allegan County. The study area for the FEIS no longer includes Muskegon or Allegan Counties because the Preferred Alternative is not located in, nor does it have impacts in, either of the counties. The current study area includes the western half of Ottawa County. The data collected for analysis in this section is from a variety of governmental sources, which may include different years for the most recent data.

A re-evaluation of the DEIS was completed as required by NEPA because the time between Federal Actions (FHWA signing of DEIS and issuance of the Record of Decision) was more than 3 years. Based on the proceeding analyses, FHWA determined, there are no significant changes that would warrant preparation of a supplemental EIS. MDOT is ready to proceed with the Final EIS and is requesting FHWA's concurrence with this finding. See **Appendix F**.

In addition, in keeping with FHWA regulations and guidelines, an extensive public involvement program was developed and implemented for this project. Early coordination and scoping activities have informed the public and appropriate agencies about the proposed US-31 EIS in Ottawa County, Michigan. The public involvement programs continues and affords the public and agencies opportunities for further review and comment.

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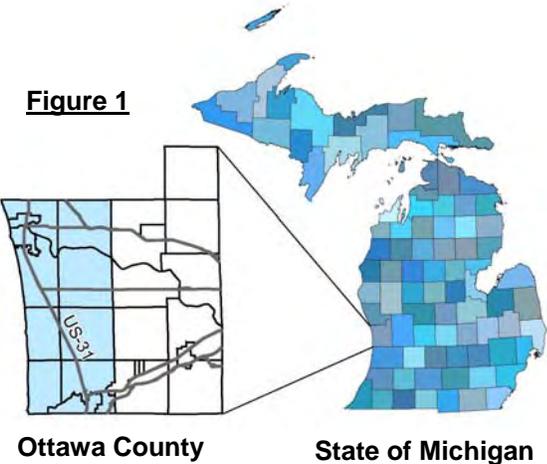
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- Appendix B – Farmland Conversion Impact Rating Forms
- Appendix C – Consultation and Coordination
- Appendix D – Conceptual Stage Relocation Plan
- Appendix E – Methodology of Environmental Justice
- Appendix F – Final US-31 DEIS Re-evaluation
- Appendix G – Wetland Mitigation/Public Interest Finding Statement

1.0 EXECUTIVE SUMMARY

Where is the US-31 Project Located?



This Final Environmental Impact Statement (FEIS) includes the study and evaluation of alternatives on US-31 between the cities of Holland and Grand Haven in Ottawa County, Michigan (**Figure 1**).

The study area in the Draft Environmental Impact Statement (DEIS) and FEIS includes most of Ottawa County, southern Muskegon County and northern Allegan County. The Preferred Alternative corridor study area includes the western half of Ottawa County. It is not located in, and does not directly impact, Allegan or Muskegon counties. The data collected for analysis in this section is from a variety of governmental sources, which may include different years for the most recent data.

Why is the US-31 Project Important?



Traffic along US-31 in Grand Haven, Michigan

US-31, a principal arterial road on the National Highway System, parallels Michigan’s west coast. It begins in Michigan at the state border, near South Bend, Indiana, and stretches northerly nearly 390 miles to its northern terminus near the Mackinac Bridge. The arterial provides access to numerous recreational attractions along the Lake Michigan coastline; including over 15 state parks public and private harbor, and numerous other tourist-oriented businesses and recreational opportunities. US-31 is also an important commercial corridor linking state and regional commercial and agricultural businesses. The Michigan Department of Transportation (MDOT) recently published the MI Transportation Plan, which is the state’s 2005-2030 Long Range Transportation Plan (MI Transportation Plan). US-31 is recognized as a statewide corridor of highest significance in this plan. This proposed project is also included in this plan.

In response to local concerns about traffic volumes and access, MDOT prepared a preliminary assessment of conditions on US-31 in Ottawa County in 1990. The results contained in the report entitled “*A Feasibility Study Report for the Improvement of US-31 from the City of Holland to the City of Grand Haven through Ottawa County, Engineering Report #1932*” recommended development of a detailed study of on-alignment and off-alignment alternatives.

Based on the findings of the 1990 Engineering Report, MDOT began preparing the DEIS in 1993. After releasing the DEIS and conducting the Public Hearing in 1998, MDOT continued working closely with local units of government, resource agencies, the public and other

interested parties to develop an acceptable Preferred Alternative. These discussions and meetings led to the identification of an alternative which minimized impacts to wetlands, farmlands, land development, and addressed the most important transportation needs in the corridor. Another influencing factor in the development of the Preferred Alternative was the limited amount of funds projected to be available to design and construct the project. All of these discussions and reviews led to the selection of the Preferred Alternative as described in this FEIS.

MDOT pursued innovative options and met extensively with concerned citizens and public agencies, and took time to address the concerns raised in response to public and agency comments during and after the development of the DEIS and after the Public Hearing. MDOT led the development of an assessment of indirect impacts through an innovative research study conducted by Michigan State University's (MSU) Basic Science and Remote Sensing Institute. The study paired observations of historic land use changes with anticipated population and employment growth projections to determine potential land use changes in the future (2020). The study concluded that the intense pressure for growth and development in the area is due to the robust regional economy. The corridor alternatives evaluated in the study have a limited impact on the future location of land development, due to the fact that local governments control land use through zoning and master plans. In addition, location decisions are based more on economic conditions and proximity to regional activity centers than any one transportation facility.

What is the Preferred Alternative?

The Preferred Alternative (F-1a), as presented in this FEIS, best meets the stated Purpose and Need of the project, complies with the National Environmental Policy Act (NEPA) and is within the funds expected to be available over the next 20 years. The Preferred Alternative is shown on **Figure 2** and described below.

A new route (M-231) will be constructed near 120th Avenue from M-45 north to the I-96/M-104 interchange; including a new Grand River crossing, improvements to M-104 near I-96, new ramps at the I-96 and M-231 interchange, and improvements to the I-96/112th Avenue interchange. M-231 will be constructed as a two-lane limited access roadway with controlled access at intersections. See **Appendix A** for detailed maps of the Preferred Alternative. These actions to limit and control the access will help protect the corridor from development. Acquisition of the right-of-way (ROW) for the roadway will also preserve the potential for expansion to a four lane divided facility, when warranted.

Improvements will be made to segments of US-31 in Grand Haven, from south of Franklin Street to north of Jackson Street and from Lakewood Boulevard north to Quincy Street in the Holland area. Improvements include adding an additional lane in each direction and intersection modifications.

In addition to its identification in the MI Transportation Plan, the Preferred Alternative is in MDOT's Five-Year Transportation Program (2009-2013) for preliminary engineering, purchase of ROW, and construction.

The Preferred Alternative is located within two Metropolitan Planning Organizations (MPOs): the West Michigan Shoreline Regional Development Commission (WMSRDC), which is the MPO for the Muskegon area and the Macatawa Area Coordinating Council (MACC), which is the MPO for the Holland area. During 2007, the Preferred Alternative was included in the two approved 2035 MPO Long Range Transportation Plans (LRTP). The design/engineering and ROW phase were also added to the 2005-2011 MPO TIPs in 2008. The project is included in the recently approved LRTP. Construction is included in the Five-Year Transportation Program, beginning in 2010, and will be added to the MPO TIPs upon receipt of a ROD on this FEIS from the FHWA.

What is the Purpose of the Project and Why is it Needed?

Purpose of the Proposed Action

The purpose of the proposed action is to develop a financially feasible transportation improvement to reduce traffic congestion and delay, improve safety, and increase access to improve the movement of people and goods in the corridor study area.

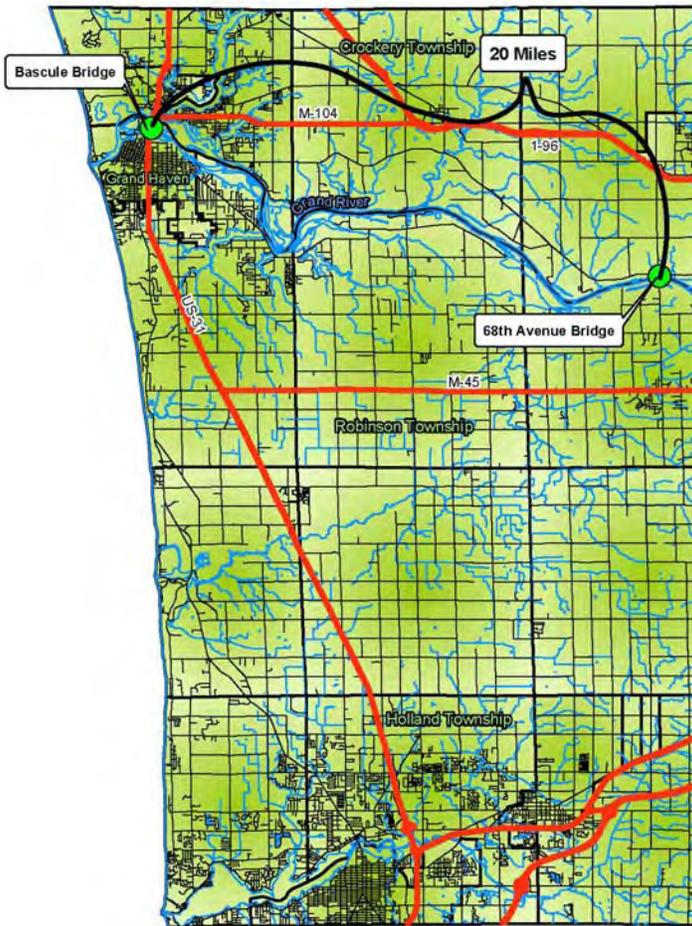
Need for the Proposed Action

There is a need to alleviate existing and future traffic congestion within the corridor to reduce vehicular delays that restrict the movement of people and goods. Several factors contribute to congestion in the corridor, including the widely spaced crossings of the Grand River in Ottawa County. The scheduled and unscheduled bascule bridge openings on existing US-31 in the City of Grand Haven further contribute to congested traffic conditions and delay.

Additional access across the Grand River is needed to provide alternative access options for area residents, businesses, and for the growing population, and commercial areas in Ottawa County. From existing US-31 the next nearest crossing of the Grand River is a two-lane bridge on 68th Avenue, in Eastmanville, located approximately 20 road miles east of the existing bascule bridge (**Figure 3**). As development continues to occur in

Figure 3

Ottawa County Grand River Crossing



the area, the ability to provide timely access to emergency services becomes more critical.

The bascule bridge on US-31 opens to allow boats to pass between March 15 and December 15 on the hour from 6:30 a.m. to 8:30 p.m. every day, except during the peak travel times. The bridge may also open on demand at any time for eligible commercial vessels including barges, Coast Guard vessels, and charter boats. Recurring instances of mechanical and electrical failures, routine maintenance, and openings for boat traffic cause the bascule bridge to open and stop traffic unexpectedly, sometimes for hours at a time.

Another important need is to enhance safety by reducing the potential for crashes by providing additional capacity, geometric improvements, and operational improvements on existing US-31. The crash rates for portions of US-31 (i.e. City of Holland, Holland Township and Grand Haven) are already above the average crash rates for similar facilities in the state. As traffic volumes increase, the potential for crashes will also increase.

Increasing instances of mechanical and electrical failures, causing the bridge to open/close improperly in the mid-1990's, led to rehabilitation of the structure in 1997 and 1998 by MDOT. Since then, the number of malfunctions has decreased, but has not been eliminated. MDOT completed additional maintenance work on the bascule bridge, and non-motorized improvements in 2006. These improvements extended the service life of the bridge up to 50 years. The work included rehabilitation of the electrical, mechanical, and structural systems. Painting and deck repairs occurred in 2007. However, frequent bridge openings will continue to be an issue, especially during the peak summer travel (roadway and water) months.

What are the Characteristics of the Corridor Study Area?

Ottawa County, located in southwestern Michigan, is approximately 150 road miles northeast of Chicago, Illinois and 170 road miles west of Detroit, Michigan. With its western boundary formed by the Lake Michigan shoreline, it is an attractive place to live and visit. As of 2006, there were over 257,000 residents in the county, ranking it as the 8th largest county in the state in population. The population in Ottawa County grew by 27% between 1990 and 2000 compared to 7% for the state of Michigan. There are 565 square miles of land in Ottawa County comprised of seventeen townships, six cities and one village. Thirty-eight (38%) percent of Ottawa County's land mass is farmland.

While Ottawa County is predominately rural, the Cities of Holland and Grand Haven have urban characteristics

typical of small cities. Development along existing US-31 in each of these cities has concentrations of commercial and office uses, which transitions to suburban shopping and commercial uses farther from the city center. The presence of Grand Rapids, a major regional economic center approximately 15 miles east of the corridor, also contributes to growth in the county. In addition to this local and regional development, tourist attractions add to the traffic congestion.



Traffic along US-31 in Grand Haven, Michigan

Another major contributor to traffic and access issues along the corridor in the study area is the six-lane US-31 bascule bridge over the Grand River which connects the Cities of Grand Haven, Ferrysburg, and the Village of Spring Lake. The bridge is two miles east of Lake Michigan. Marinas and commercial boating locations are located farther upriver. The bascule bridge opens periodically to allow boats to pass between March 15 and December 15. During these closures traffic either stops on existing US-31 or diverts to 68th Avenue, located approximately 20 road miles east of the bascule bridge. Recurring instances of mechanical and electrical failures, routine maintenance, and openings for scheduled boat traffic cause the bascule bridge to open and stop traffic unexpectedly, sometimes for hours at a time. These closures cause travel delays, and negatively impact the adjacent land uses and tourism traffic.

Bridge operations and closures can also pose potential concerns for Emergency Medical Services (EMS) access to the North Ottawa Community Hospital 1.5 miles away from the bridge.

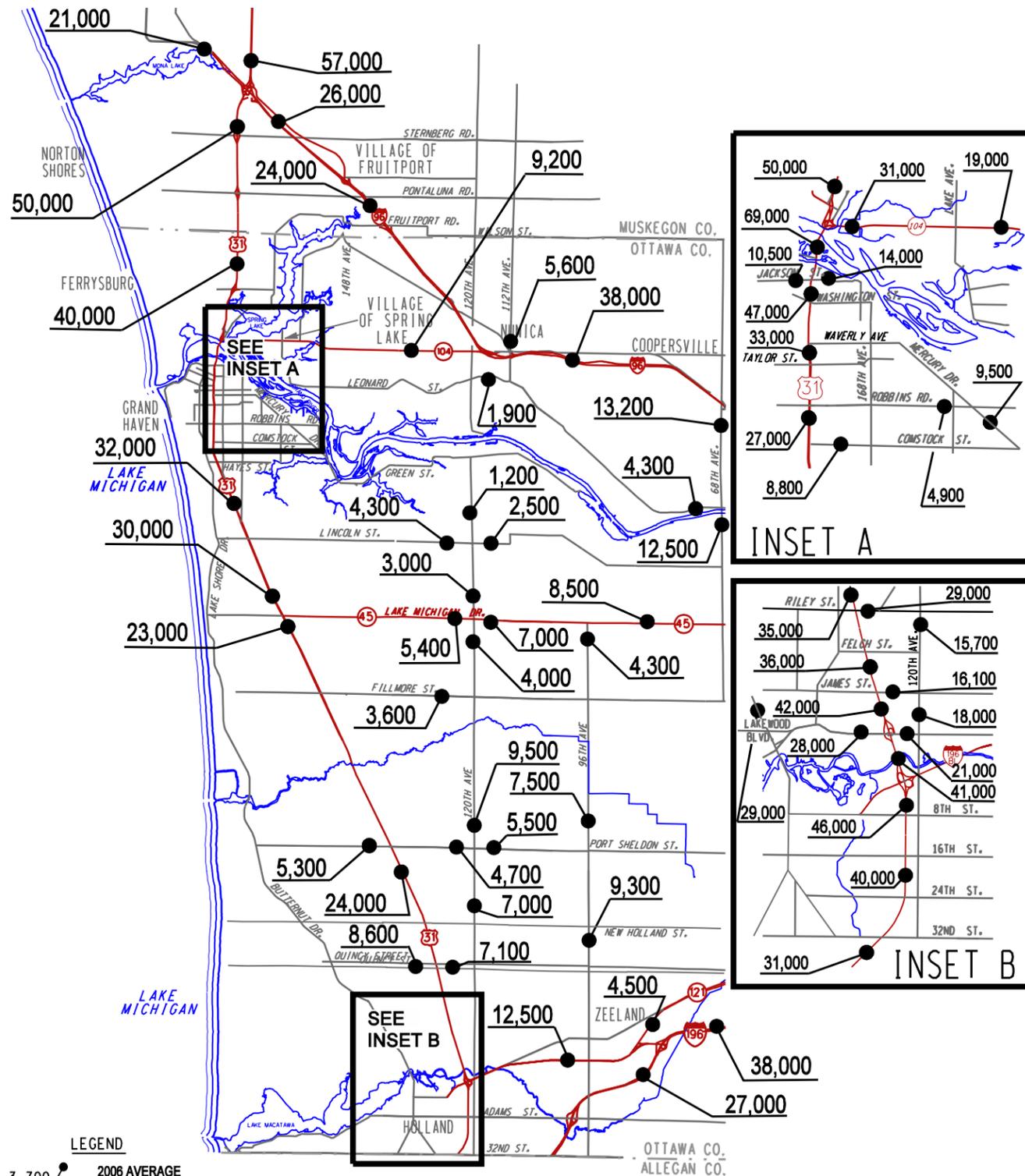
The existing crossing alternative to US-31, 68th Avenue Bridge, is a two-lane structure without a non-motorized path. The bridge directly connects Coopersville, Allendale (home of Grand Valley State University), and Polkton Township. 68th Avenue is a two-lane County Primary road running north-south in Ottawa County and also provides a connection between I-96 and M-45.

The 2006 Average Daily Traffic (ADT) on US-31 varied from 31,000 to 46,000 in the Holland area; 23,000 to 32,000 in the rural area between Holland and Grand Haven; 27,000 to 69,000 in the Grand Haven area; and 40,000 to 50,000 north of M-104 (**Figure 4**).

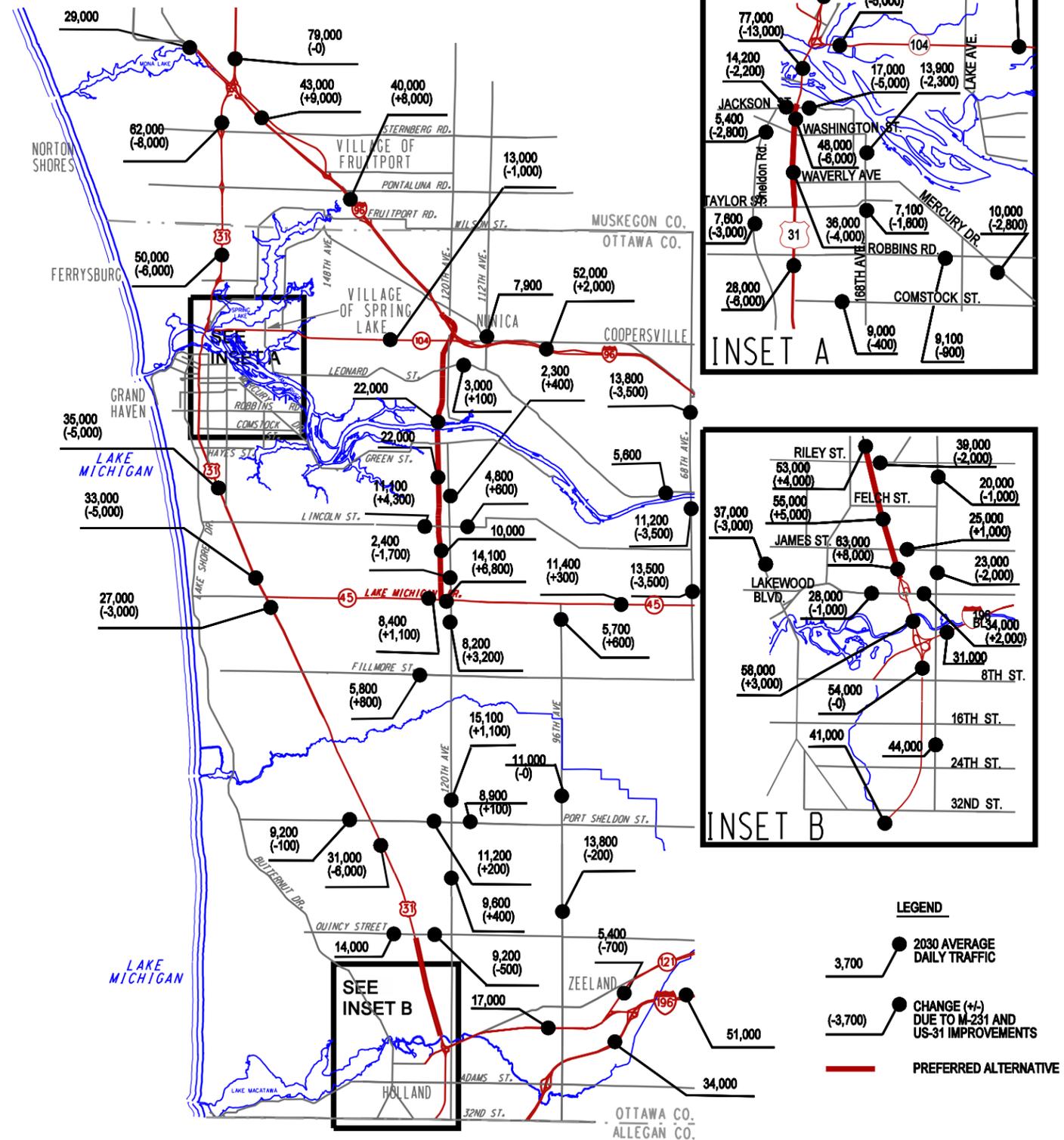
Crash rates for portions of US-31 (BL I-196 to James Street in Holland Township, and Robbins Road to Jackson Street in Grand Haven) are above the average crash rates for similar transportation facilities within the state. From 2002 through 2006 on US-31, thirty-seven percent (37%) of all crashes in the study area occurred in and near the City limits of Grand Haven.

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2006 AVERAGE DAILY TRAFFIC



2030 PREFERRED ALTERNATIVE AVERAGE DAILY TRAFFIC



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What Work Has Been Completed Since Publication of the DEIS?



Construction along US-31 in Holland

Since publication of the DEIS in 1998, MDOT completed several projects in the corridor study area that improved the condition and/or traffic operation of US-31. As a result, the majority of the corridor has eight to ten more years of remaining service life left in the pavement, according to MDOT's Pavement Management System.

MDOT completed maintenance work on the bascule bridge in 2006. These improvements will extend the service life of the bridge for up to 50 years. The work included rehabilitation of the electrical, mechanical, and structural systems. Painting and deck repairs occurred in 2007. Other improvements include: construction of a non-motorized path on the bridge, signal upgrades and intersection improvements.

Signal upgrades on US-31 in Holland as well as continued Transportation System Management (TSM) intersection improvements in the urbanized area of the MACC have been made since the DEIS was published. The TSM actions include operational improvements that will improve traffic flow, but not alleviate all congested conditions in the corridor.

Recommendations from the recently completed Intelligent Transportation Systems (ITS) Architecture Deployment Study will be initiated over the coming years. ITS initiatives are planned for US-31 in Grand Haven in 2009. Initial ITS deployment will occur in 2009 and will consist of one Dynamic Message Sign (DMS) and three Closed Circuit Television (CCTV) cameras. The DMS will be located on southbound US-31, approximately 1.5 miles north of the US-31 and I-96 interchange. The proposed DMS will allow MDOT to provide southbound motorists with advanced notification of traffic congestion on US-31 and I-96 as well as bascule bridge malfunctions. A DMS will be installed in the future just south of M-45 to notify NB US-31 traffic of congestion or bascule bridge malfunctions, to allow traffic to use the proposed M-231.

What Alternatives Were Considered?



Figure 5 – Practical Alternatives Evaluated after the DEIS

Alternatives Refined and Evaluated After the DEIS MDOT carried forward five Practical Alternatives (in addition to the No-Action Alternative) for further refinement after the publication of the DEIS and the Public Hearing (see Figure 5). After the public hearing, Alternative F/J-1 emerged initially as the alternative that would best meet the project’s Purpose and Need. Alternative F/J-1 included a new off alignment freeway between I-96 and I-196, and existing route improvements in Holland and Grand Haven.

As development of this FEIS continued, it became clear that funding would not be available to construct the entire F/J-1 Alternative at a cost of \$170 million (2014 dollars). It was determined that a new route south of M-45 (Lake Michigan Drive) was a longer term need, and was beyond the scope of this FEIS. MDOT began to evaluate conceptual practical alternatives from the DEIS that would address the critical traffic and access issues, reduce impacts identified by resource agencies, as well as address statewide financial issues. Therefore, the Preferred Alternative (F-1a) as presented in this FEIS, substantially meets the project Purpose and Need, and addresses local interests, by relieving congestion on existing US-31 and providing another crossing of the Grand River in Ottawa County.

Preferred Alternative The following describes the Preferred Alternative (F-1a):

New Route Construct a new route (M-231) west of 120th Avenue, between M-45 and the I-96/M-104 interchange area: including a new Grand River crossing. This route will include improvements to M-104 near the I-96 interchange and the I-96/M-104/112th Avenue interchange area, additional lanes will be added to M-104 in the vicinity of the new I-96/M-231 junction, new ramps will be added to the I-96/112th Avenue interchange, and a new Grand River crossing. In addition, there will be other stream and county drain crossings along M-231 including the Little Robinson Creek (Allen Pipple Drain), Stearns Creek, the North Beeline Drain, and the Parkhurst Drain (Black Creek Tributary).

M-231 will be constructed as a two-lane route. Property will be acquired to accommodate limited access right-of-way, with controlled access at intersections, to protect the corridor from development and to not preclude future expansion to a four-lane boulevard or for a non-motorized facility. Additional lanes on M-231 will likely

be needed, based on projected traffic levels, following the 20 year planning time-frame covered in this FEIS.

Existing US-31

Segments of US-31 in Grand Haven from south of the Franklin Street to north of Jackson Street, and segments in Holland from East Lakewood Boulevard north to the Quincy Street are included in the Preferred Alternative. Improvements include adding an additional lane in each direction and intersection modifications.

The Preferred Alternative (F-1a) is expected to impact 3.04 acres of wetland as compared to the 90 acres estimated in the DEIS for F-J1. The meetings with federal, state and local agencies resulted in alignment changes that significantly reduce the impacts to wetlands and reduce impacts to unique farmlands. A comprehensive discussion on why this Preferred Alternative meets the "Purpose and Need" is found in **Section 3**.

The costs for the improvements to US-31 and the new M-231 are estimated at \$170 million in 2014 dollars.

What Are the Environmental Effects of this Project and What Mitigation is Proposed?

Table 1 summarizes the environmental impacts for the Preferred Alternative. Direct impacts include the following.

Displacements

The Preferred Alternative will require 51 residential full displacements, 10 residential partial takes, 9 business full displacements, and 6 agriculture full displacements along the proposed new roadway. The majority of the full displacements are residential properties in Robinson Township. MDOT will make every attempt feasible to minimize and avoid displacements. However, if the purchase of a property is required, MDOT will follow all state and federal laws related to property acquisition. For further details, see **Section 4.1.3**.

Farmland

Farmland and residential displacements comprise the majority of the impacts from the project, as a portion of the Preferred Alternative is located along a new alignment through a rural portion of Ottawa County. There are 14.4 acres of prime farmland and 101.4 acres of generally classified farmland that are expected to be impacted by the Preferred Alternative. The Preferred Alternative will require 6 full agricultural displacements and 8 partial agricultural displacements. MDOT will make every attempt feasible to minimize and avoid displacements. However, if the purchase of a property is required, MDOT will follow all state and federal laws

Table-1 Summary of Impacts	
Impact	Preferred Alternative
Length (miles)	New Alignment: 7.1 Existing US-31: 3.8
Wetland Impacts (acres)	3.04
Prime Farmland Impacts (acres)	14.4
Unique Farmland Impacts (acres)	0
Locally Important Farmland (acres)	101.4
Residential Displacements	Full: 51 Partial: 10
Commercial Displacements	Full: 9 Partial: 6
Agricultural Displacements	Full: 6 Partial: 8
Vacant Land Displacements	Full: 4 Partial: 3
New Roadway Separations (Number)	4
New Railroad Grade Separations (Number)	0
Major Stream Crossings (Number)	2
Environmental Justice Impacts/Title VI Populations	No Disproportionately High & Adverse Impacts
Noise Impacts (NSAs)	34
Air Quality Impacts	None
Potential Historic Architectural Impacts (Number)	0
Potential Archaeological Impacts (Number)	0
Natural Areas Sites (Number)	1
Threatened & Endangered Species (Number)	0
Potential Contaminated Sites (Number)	17
Total Costs (\$ Millions, 2014 dollars)	\$170

related to property acquisition. For further details, see **Section 4.1.3.**

Community Facilities and Cohesion

The Preferred Alternative does not impact community facilities. Portions of the residential community in Robinson Township may be impacted by the proposed M-231. However, all local roads in Robinson Township except Johnson Street will remain open. The proposed M-231 will also provide a critical link for emergency services between Robinson and Crockery Townships.

Environmental Justice

The Preferred Alternative will not have a disproportionately high or adverse effect on minority and low-income populations group. Environmental Justice population groups will be impacted in the same manner as the general population. If such impacts are identified, every effort will be made to involve impacted groups in the project development process to mitigate these impacts.

Economics

The economic impact on tax bases for municipalities due to the Preferred Alternative is less than 0.1 percent of their total tax base. These losses are anticipated to be short-lived and then offset by the potential increase in new business and its associated tax revenues along an improved existing US-31.

Non-Motorized Facilities

The Preferred Alternative will not permanently impact any existing or planned non-motorized facilities within the study area, and includes the option to add a new non-motorized facility on the new Grand River Bridge.

Air Quality

There are no direct impacts to air quality from the Preferred Alternative. Regional air quality conformity was determined with the MPO LRTP amendment process. The area is designated as attainment/maintenance for ozone and PM 2.5.

Noise

Thirty-two receivers in thirteen NSAs will have noise levels equal to or greater than 66-dBA for the future year (2030) due to the Preferred Alternative. Thirty-three receivers in twenty-one NSAs experienced a substantial increase of 10-dBA or more for the future year (2030) due to the Preferred Alternative. One of the twenty-one NSAs has both a noise level equal to or greater than 66-dBA for the future year (2030) build scenario and will experience a substantial increase of 10-dBA or more. However, noise abatement measures at these twenty-one sites are not considered feasible under the current MDOT Noise Policy and therefore not warranted.

Groundwater

Groundwater impacts are associated with the purchase and relocation of residents and businesses along the proposed new route. Nine wells are projected to be displaced and will be properly abandoned in accordance with Michigan Department of Environmental Quality (MDEQ) regulations (Groundwater Quality Control Act, Part 127, 1978 PA 368) and/or Ottawa County Health Department requirements. All uncapped water wells and/or sewer lines within the proposed ROW will be sealed according to MDOT specifications, and in accordance with MDEQ and/or local County Health Department requirements.



Wetland Mitigation Site in Robinson Township, Michigan

Wetlands

Refinements to the alignment of the Preferred Alternative have resulted in a significant reduction in wetland impacts (total wetland impacts are 3.04 acres) compared to F/J-1 (total wetland impacts were 90.0 acres) in the DEIS. MDOT has purchased property for the purpose of wetland mitigation, in accordance with the MDEQ regulations. The maximum required acreage of wetland mitigation was calculated for each watershed using MDEQ regulatory replacement ratios. Based on the mitigation to impact ratios, a total of 4.70 acres of mitigation will be needed. Any temporary wetland impacts related to construction will be restored.

Aquatic Issues

Impacts to fisheries and aquatic habitats will occur during construction of the new crossing of the Grand River. However, efforts to limit the type and timing of construction activities will minimize or avoid impacts.

The proposed new crossing of the Grand River has the potential to cause degradation in water quality due to increased runoff. However, extensive mitigation activities will be employed to reduce degradation during and after construction. Soil Erosion and Sedimentation Control (SESC) measures will be in place during construction. The bridge will be designed to span the floodplains adjacent to the river, and runoff will be discharged via enclosed drainage structures to detention basins.

Drainage and Hydrology

In addition to this major crossing, the Preferred Alternative crosses three waterways along the existing US-31 alignment and seven waterways along the proposed new alignment. While these waterways are less likely to contain sustainable, valuable fisheries, construction of the bridges or culverts will impact aquatic biota due to potential sedimentation during construction and modification of the streambed habitat. Bridges or culverts at these crossings will be sized to allow

sufficient space for fish passage and to minimize impacts to stream channels.

In order to avoid and minimize impacts to the Grand River and adjacent floodplain, the proposed bridge will span the entire floodplain. Two piers are proposed to be constructed within the river banks. The federal and state resource agencies will regulate these activities by the issuance of permits and other approval. Methods to minimize construction impacts such as the proper application of soil erosion and sedimentation control measures and restriction of construction activities during periods of above normal flow will also be undertaken.



Grand River Floodplain in Robinson Township

Floodplain

Since this study is of a north-south corridor and the Grand River flows east-west, avoidance is not possible. In addition, the width of the floodplain makes construction of a long single span structure without piers located in the floodplain impractical. At the proposed crossing site, The Grand River is about 580 feet wide and varies in depth up to 21 feet deep during normal flow. The 100-year floodplain varies from about 3,800 to 4,500 feet wide.

A hydraulic analysis was conducted to examine the upstream effect of the proposed bridge on the 100-year water surface elevation. The analysis used the FEMA HEC-RAS model, with the addition of four surveyed cross-sections near the proposed bridge. For the model, the bridge was assumed to be 3,998 feet long and 70 feet wide. When the bridge is added to the HEC-RAS model, the 100-year water surface elevation (WSEL) would increase by less than 0.01 feet. Piers were assumed to be seven feet wide. It was determined that for a 3,998-foot bridge, a maximum of 26 piers could be used while limiting the increase in backwater to less than 0.01 feet. This number of piers leaves room for the minimum required navigable channel clearance (160 feet). A calculated backwater increase of less than 0.01 feet is within the margin of error of this study's computational model. A final hydraulic study based on the actual construction plans will be required prior to the construction of the bridge. Final mitigation design plans will be developed in consultation with the appropriate agencies.

Threatened and Endangered Species

Based on site visits and coordination with the resource agencies, no state or federally threatened or endangered species are known to exist within the project area. Consequently, it is unlikely that any threatened or endangered species would be impacted by the Preferred Alternative.

Cultural Resources

The Preferred Alternative will not affect the Southside Historic District in the City of Grand Haven, which is the only National Register-eligible above-ground historic resource within the project area. Nor will the Preferred Alternative have any adverse effect on known archaeological resources.

Parks and Recreation

There are no impacts to parks or recreation facilities from the Preferred Alternative.

Potential Contaminated Sites

Sixteen known and/or potentially contaminated sites or hazardous waste generators were identified as being directly impacted by the Preferred Alternative. Prior to construction of the Preferred Alternative, a Project Area Contamination Survey (PACS), or Phase I Environmental Site Assessment, will be conducted before a contaminated property is acquired, unless previous assessments are adequate to investigate parcels of property potentially affected by the project for the presence of environmental contamination and to determine the need for further investigation and mitigation measures. Should any of these sites be disturbed, MDOT must follow all appropriate and applicable state and federal regulations relating to clean-up standards and proper disposal of contaminated materials.

Utilities

Utilities that are adjacent or cross the Preferred Alternative may be impacted. Any required temporary or permanent relocations will be identified and mitigated during the project design phase. Temporary direct impacts may occur during construction to the City of Grand Rapids' 42-inch watermain at the proposed intersection of M-45 and M-231. MDOT and its contractors will coordinate with the utilities and affected communities prior to beginning construction or implementation of new phases.

Aesthetics and Visual Character

The improvements on existing US-31 will not impact on the visual quality of the landscape. Existing US-31 is an urban roadway in both Holland Township and Grand Haven, and will remain urban following the proposed improvements.

The proposed M-231 will negatively affect the visual quality of the agricultural and wooded landscape surrounding it, as well as the view of the Grand River.

Mitigation for visual quality may vary based on the location. Mitigation for the existing alignment of the project is likely to differ from mitigation for the proposed

alignment. Visual quality and aesthetics are integral components of the planning process and conceptual design.

Indirect and Cumulative Impacts

The Preferred Alternative will have little overall cumulative or indirect impacts, but may influence the location of some of the cumulative impacts. For example, concentrated areas of development and traffic may occur along the proposed M-231 route at intersection locations.

How Does the Preferred Alternative Meet the Project’s Purpose and Need?

This alternative satisfies the “Purpose and Need” of the project better than the other Practical Alternatives presented in the DEIS within the funding expected to be available. The following summarizes why the Preferred Alternative satisfies the broad categories of “Purpose and Need”.

New Grand River Bridge

Construction of a new bridge over the Grand River provides improved regional access. Additional access for emergency services between Crockery and Robinson Townships will be available and help improve response time. The new bridge also provides an alternative to the existing bascule bridge in the City of Grand Haven, and will reduce existing congestion and travel time.

Reduce Traffic Congestion

The Preferred Alternative includes adding a lane in each direction on key segments of existing US-31 in the Holland Township and the City of Grand Haven. The new M-231 trunkline connection will relieve congestion, and provide improved regional access between M-45 and I-96 and over the Grand River.

Improve Safety

The Preferred Alternative includes a new state trunkline connection (proposed M-231) to provide an alternate regional and long-distance truck route from the existing boulevard, through the City of Grand Haven while addressing future capacity needs. The two-lane segment between M-45 and I-96 will be a limited access roadway with controlled access at the intersections with local roads. Limiting the access will not allow driveways, which reduces the potential for crashes caused by vehicles turning into or out of driveways into traffic. The Preferred Alternative also includes adding a third through lane in each direction and intersection improvements for existing US-31 in Holland Township and the City of Grand Haven.



Traffic in Grand Haven, Michigan

Access

The Preferred Alternative includes a new route (M-231) that parallels 120th Avenue and provides a new crossing of the Grand River. The new route serves area residents and businesses, provides another north-south trunkline route that helps to reduce congestion on existing US-31, and provides an alternate crossing when the existing bascule bridge is closed for operations or maintenance. It also provides a critical link for emergency services between Robinson Township and Crockery Township and the region.

What Issues Were Raised by the Public?

The initial public response to the alternatives presented at the Public Hearing for the DEIS centered on issues related to environmental impacts, development impacts, an additional Grand River crossing and need for additional ROW in the cities of Holland and Grand Haven. While there was agreement about the need for a new Grand River crossing, there was significant opposition to the proposed widening of US-31 outside the existing right-of-way in the cities of Holland and Grand Haven. Further, the public as well as public agencies expressed concern over the impacts to farmlands, wetlands and the potential for the project to entice additional development.

How Were the Issues Addressed?

The first step taken by MDOT after releasing the DEIS was to begin examining ways to mitigate impacts and respond to local concerns about the project, and address the concerns of resource agencies. Simultaneously, MDOT began meeting with township officials to make the alignment more compatible with local land uses.

One of the results of meeting with local officials was a reduction of impacts. Measures taken included the following: widening existing US-31 along the median side of the roadway in the Cities of Holland and Grand Haven. The alignment of F/J-1 was refined to the Preferred Alternative F-1a to minimize farmland impacts and other environmental impacts. Similarly, wetland impacts were also reduced through minor alignment changes.

MDOT contracted with MSU to complete a land use study to be used to assess indirect and cumulative impacts. The study concluded that the economic activities in the Grand Rapids, Holland, and Grand Haven urbanized areas have a greater influence on the development of open space than a proposed relocation of US-31.



Field in Crockery Township

MDOT met with concerned citizens and public officials extensively since the publication of the DEIS. This initial input formed the basis for preliminary changes, which were then re-presented for clarification, concurrence and ultimately support for the Preferred Alternative (F-1a). **Chapter 5** contains a comprehensive list of the agencies that met with MDOT and the dates that these meetings were held.

MDOT staff met with Ottawa County officials in June 2005, and then subsequently held over 15 meetings with over 100 people in affected local agencies in 2005 and 2006. A public meeting was also held in November 2006 with approximately 350 people in attendance. Individual meetings were also held with the MPOs to review local and state priorities and needs. The Preferred Alternative is included in each MPO's LRTP, as a result of these efforts. Design engineering was also included in the MPO TIP's.

How Were Other Agencies Involved?

In addition to periodic formal meetings convened to provide updates to the cooperating agencies, MDOT frequently met informally with representatives from the following agencies: Michigan Department of Environmental Quality, Michigan State Historic Preservation Office, Michigan Department of Natural Resources, Federal Highway Administration, the United States Fish and Wildlife Service, the United States Army Corp of Engineers, and United States Environmental Protection Agency.

Issue-specific meetings were held with US Army Corp of Engineers, and US Coast Guard to resolve issues related to the height of the bridge over the Grand River for the Preferred Alternative.

What Are the Next Steps?

This FEIS will be made available for public review and comment. A Notice of Availability will be published in the Federal Register. Following the public comment period, the Record of Decision (ROD) will be issued by the FHWA, which is FHWA's formal acceptance of this FEIS. This completes the EIS process and allows for subsequent processes such as design, ROW acquisition and construction to proceed.

In the future additional lanes on M-231 will likely be needed, based on projected traffic levels, following the 20 year planning time-frame covered in this FEIS.

2.0 PURPOSE AND NEED

This section demonstrates the “Purpose and Need” for the proposed action and summarizes the project history. The project’s purpose, as included in the Draft Environmental Impact Statement (DEIS), was “to reduce traffic congestion and improve safety for the traveling public”. This Final Environmental Impact Statement (FEIS) includes additional information that enhances and clarifies the Purpose and Need Statement in the DEIS, and reflects public and agency comments since the release of the DEIS.

2.1 PURPOSE OF THE PROPOSED ACTION

The purpose of the proposed action is to develop a financially feasible transportation improvement to reduce traffic congestion and delay, improve safety, and increase access to improve the movement of people and goods in the corridor study area.

Some specific objectives of the “Purpose” of the proposed project include the following:

- Improve safety,
- Enhance Grand River crossing efficiency,
- Increase transportation system capacity,
- Reduce vehicular delay,
- Reduce congestion,
- Meet access needs of regional growth and development, and
- Improve safety, emergency service access, incident management and traffic circulation in the study area.

2.1.1 Project Background

US-31, a principal arterial on the National Highway System, parallels Michigan’s west coast. It begins in Michigan along the state border line, near South Bend, Indiana, and stretches northerly nearly 390 miles to its northern terminus near the Mackinac Bridge. The arterial provides access to numerous recreational attractions along the Lake Michigan coastline such as over 15 state parks, public and private harbors, and numerous other tourist-oriented businesses and recreational opportunities. US-31 is also an important commercial and agricultural corridor, linking three urbanized areas. The Michigan Department of Transportation (MDOT) recently published the MI Transportation Plan, which is the state’s 2030 long range transportation plan (LRTP). US-31 is recognized as a statewide Corridor of Highest Significance (COHS) in this plan. This proposed project is included in the plan. It is considered a critical link in the regional (Allegan, Ottawa, and Muskegon Counties’) economy and development plans (See **Figure 2.1-1 and 2.1-2**). US-131, another north-south COHS for the state, is located approximately 30 miles east of US-31. I-96, I-196, M-45 and M-104 also crosses at, or terminates at, US-31 in or near the study area.

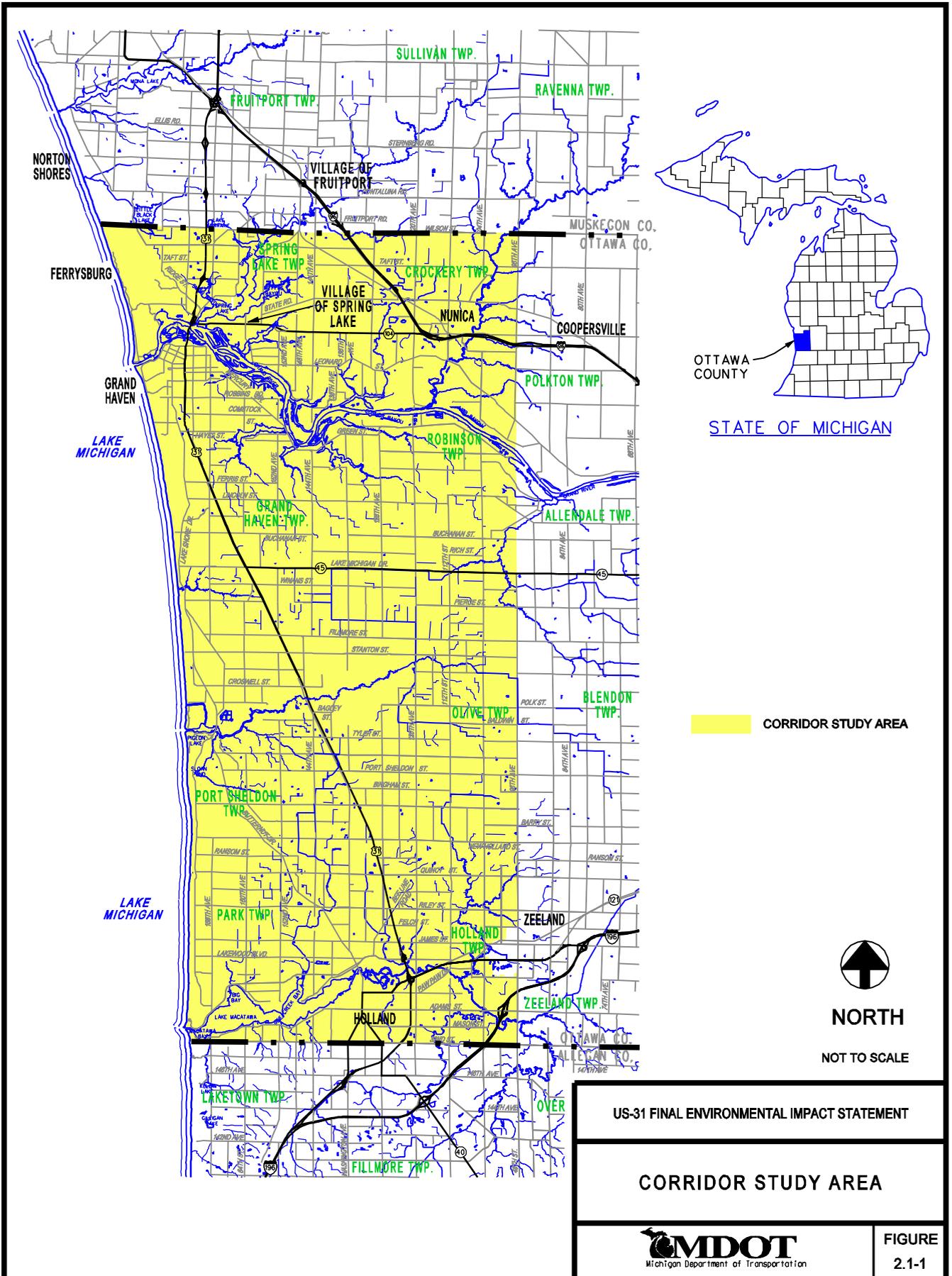
As of 2006 there were over 257,000 residents in Ottawa County, ranking it as the 8th largest county in the state in population. There are 565 square miles of land in Ottawa County comprised of 17 townships, six cities and one village. Thirty-eight (38%) percent of the county’s land mass is farmland. Eastern Ottawa County is also within the Grand Rapids urbanized area, the second largest in Michigan, which is located about 20 miles from US-31. This project is located within the Holland and Muskegon/Grand Haven urbanized areas.

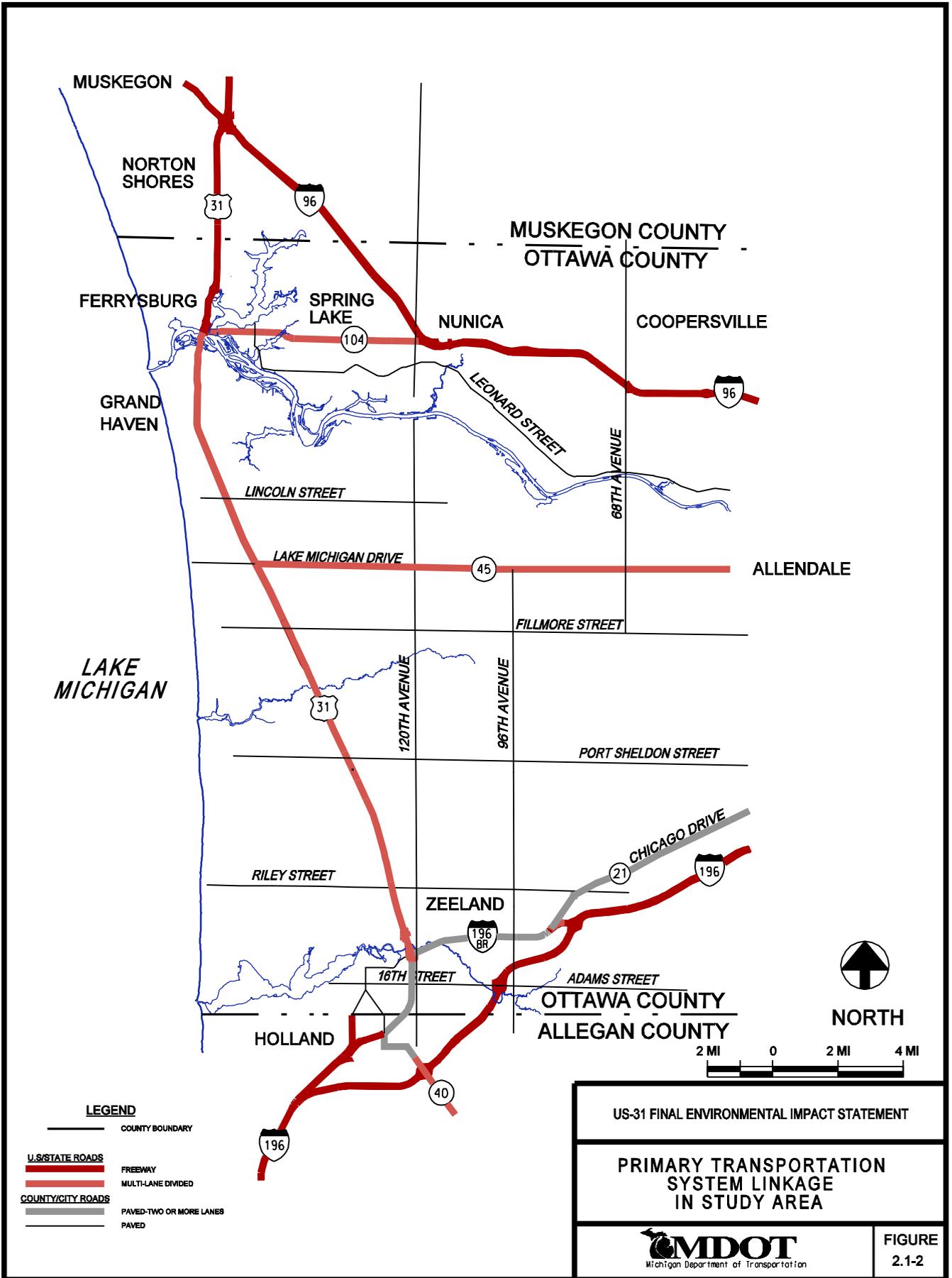
US-31 Study Area

The study area in the Draft Environmental Impact Statement (DEIS) and FEIS includes most of Ottawa County, southern Muskegon County and northern Allegan County. The US-31 Preferred Alternative corridor study area is located in the western half Ottawa County, which is along Michigan’s western boundary. Ottawa County is on the Lake Michigan shoreline, and it is comprised of 17 townships, six cities and one village. Crockery Township, Village of Spring Lake, Spring Lake Township, the City of Ferrysburg, the City Grand Haven, Grand Haven Township, Robinson Township, Olive Township, Port Sheldon Township, Park Township, Holland Township, and the City of Holland are all within the corridor study area. Based on discussions with stakeholders and data analysis through the environment review process, the transportation issues identified in the Purpose and Need were determined to be more focused within western Ottawa County.

Project History

In the 1950s and early 1960s, US-31 was widened from two lanes to four lanes and the present bascule bridge was constructed over the Grand River between Grand Haven and Ferrysburg. During this time, US-31 in the Holland area was relocated from River Avenue and 136th Avenue east to its current





location. In the Grand Haven area, US-31 was relocated from its previous route along 168th Avenue. US-31 has remained essentially unchanged since that time.

In response to local concerns about traffic volumes and access, MDOT prepared a preliminary assessment of conditions on US-31 in Ottawa County in 1990. The results contained in the report entitled *"A Feasibility Study Report for the Improvement of US-31 from the City of Holland to the City of Grand Haven through Ottawa County, Engineering Report #1932"* recommended development of a detailed study of on-alignment and off-alignment alternatives.

Based on the findings of the 1990 Engineering Report, MDOT began developing the DEIS in 1993. The DEIS was completed, published and a Public Hearing was held in 1998. As a result of issues raised during the DEIS comment period some minor modifications were made to clarify to the project's Purpose and Need. After releasing the DEIS and conducting the Public Hearing, MDOT continued working closely with local units of government, resource agencies, the public, and other interested parties to develop a Preferred Alternative that addressed the Purpose and Need. Alternative development is discussed further in Section 3.

2.2 NEED FOR THE PROPOSED ACTION

There is a need to reduce existing and future traffic congestion within the US-31 corridor in order to provide more efficient movement of people and goods. The bascule bridge openings on existing US-31 in the City of Grand Haven further contribute to congested traffic conditions and delay.

Efficient crossing of the Grand River is needed to provide access options for area residents and businesses, and for the growing population and commercial areas in Ottawa County. The next nearest crossing to the existing US-31 crossing of the Grand River is a two-lane bridge on 68th Avenue, which is a local road, located approximately 20 road miles east of the US-31 bridge. Bridge closures result in a 40 road mile detour for the public (20 road miles each way). As development continues to occur in the area, the ability to provide timely access to emergency services becomes more critical. Travel times and fuel consumption are also impacted by congestion, distances, and travel time to the limited existing river crossings.

Another need is to enhance safety by reducing the potential for crashes by providing additional capacity, geometric, and operational improvements on existing US-31 in the Holland area and the City of Grand Haven. The crash rates for portions of US-31 (i.e. City of Holland, Holland Township and Grand Haven) are already above the average crash rates for similar facilities in the state. As traffic volumes increase, the potential for crashes also increases.

Some specific "Needs" identified during the process include the following:

- Roadway capacity deficiencies and congestion in the US-31 corridor,
- Land use/growth within the study area,
- Lack of system linkages between state highways and local arterials,
- Less than desirable levels of service at some intersections,
- Less than desirable crash rates exceeding statewide averages at some locations, and;
- Delay and traffic interruptions caused by unscheduled openings or malfunctions of the bascule bridge in the City of Grand Haven.

Additional local needs identified in subsequent meetings with government units and as a result of public comments from the DEIS emphasized the need for the following:

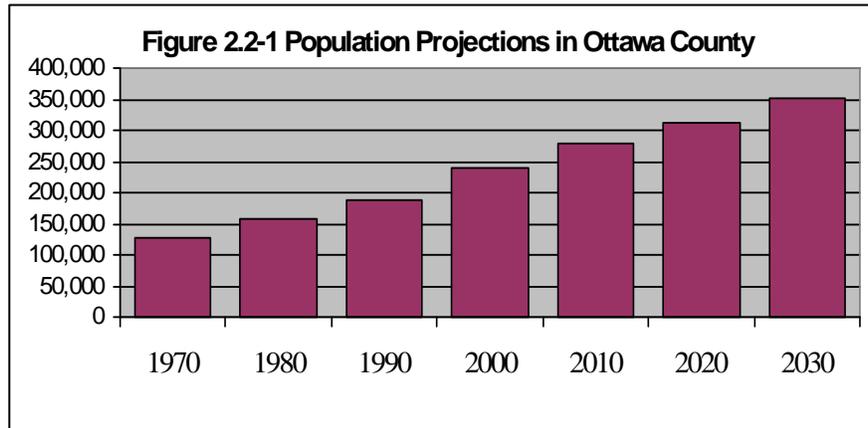
- A new Grand River crossing,
- Improved emergency access,
- North-south road continuity in Ottawa County,
- Maintain local road access to and through US-31, and;
- Relief of traffic growth on 68th Avenue and the existing Grand River crossing.

In addition, now that the entire study area is within one of two Metropolitan Planning Organizations (MPO) areas, the need to demonstrate financial feasibility has increased significance in the selection of a Preferred Alternative

2.2.1 Population Growth and Land Use Changes in the Area

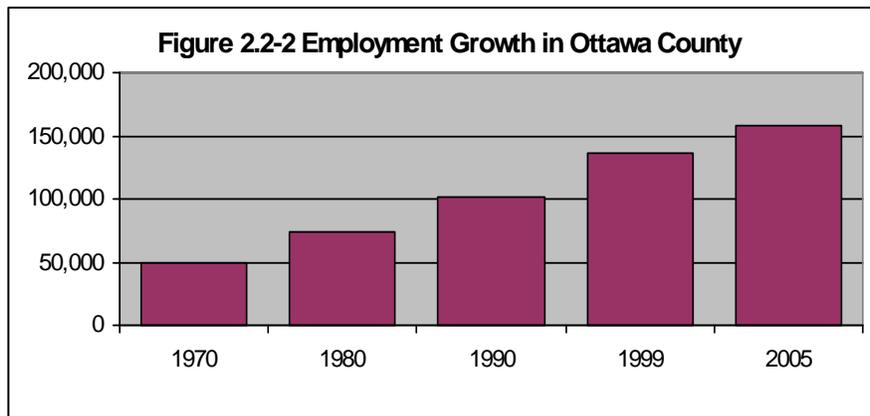
Population and Employment Growth

Ottawa County has experienced rapid population and employment growth since US-31 was first constructed in the 1960's. The population increased from 128,181 to 239,440 (+87 percent) from 1970 to 2000. In 2006, over 257,000 people resided in the county. The population is projected to increase by 112,482 people (+47 percent) from 2000 to 2030 (see **Figure 2.2-1**). This population growth is expected to continue independent of any significant expansion of the existing road system.



Sources: U.S. Census Bureau, University of Michigan.

Total employment in Ottawa County in 2005 was 158,559, according to the Michigan Department of Career Development (not including government employees). Employment in Ottawa County has outpaced the state population growth trends and has increased from 101,225 to 158,559 from 1990 to 2005 (+57 percent) (**Figure 2.2-2**).



Source: Michigan Department of Career Development

While the US-31 study area is still relatively rural and perceived as agricultural, less than one percent of the labor force is currently employed by farming operations. Approximately seventy-five percent (75%) of employment in Ottawa County is in manufacturing, services, and retail or wholesale trade. This results in long-distance commuting patterns between the residential developments, manufacturing and retail

centers on the northern and southern ends of the US-31 Corridor, as well as the City of Grand Rapids in the east.

US-31 Land Use Study

The US-31 Land Use Study was prepared by Michigan State University (MSU), in response to local and resource agency concerns over the potential for increased development. The primary purpose of the US-31 Land Use Study was to provide a mechanism for quantifying the indirect and cumulative land use impacts arising from the alternatives carried forward in this FEIS. The study found that due to its proximity, the Grand Rapids urbanized area is the dominant force in determining land use changes in the US-31 study area, and will continue to influence growth and development for the next two decades.

The analysis in the study focused on Ottawa County land use changes. Ottawa County had an increase of approximately 9,900 acres in built land between 1988 and 2001, according to data collected through Landsat satellite imagery. This amounted to an annual conversion of approximately 300 acres per year in Ottawa County over the 13 years observed. The overall increase in built land changed from 55,500 acres in 1988 to 65,400 acres in 2001, an approximate 18 percent (18%) change in land use.

According to the US-31 Land Use Study, the “growth triangle” (the area between Grand Rapids, Holland, and Muskegon/Grand Haven) is a critical area for western Michigan and will become more densely populated with or without improvements to US-31 or any other major road improvements. The positive economic conditions within the “growth triangle” will make the area attractive for residential and commercial development. The study indicated only minor changes in the type and location of developed land as a result of the US-31 alternatives studied.

2.2.2 Existing Traffic and Level of Service (LOS)

A review of existing and future traffic volumes and patterns confirms the need for improvements along existing US-31 in Holland Township and in Grand Haven.

Conventional analysis of signalized intersections involves the determination of a “Level of Service” (LOS). LOS range from “A” to “F”, similar to an alphabetic grading system, with each level describing a different set of operational characteristics for the intersection. LOS “A” describes intersection performance with minimal delay, while LOS “F” describes intersections with extensive delays and long traffic backups. LOS “C” and “D” are generally considered acceptable for peak-hour traffic operations. If LOS D cannot be achieved, the objective is to not further degrade LOS.

The analysis of signalized intersections for this study was conducted utilizing the operational analysis procedure as outlined in the *2000 Highway Capacity Manual (HCM)*. The HCM is nationally recognized as the standard for highway and intersection capacity analysis. HCM methodology defines LOS in terms of control delay per vehicle. Control delay includes all delay caused by traffic signal control, including deceleration delay, time spent waiting for the traffic signal to turn green, and acceleration delay. Control delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time.

The existing peak travel hours in Holland and Grand Haven along US-31 occur between 6:30 and 8:30 AM and between 3:30 and 6:30 PM. As depicted in **Table 2.2-1**, the signalized intersections along US-31 currently operate anywhere from LOS “B” (little delay and congestion) to LOS “F” (intersection failure with delays greater than 80 seconds per vehicle) during peak hours in both Holland and Grand Haven. LOS values worsened during the summer months due to increased tourism traffic.

Table 2.2-1			
Existing 2006 Peak-Hour Intersection Levels of Service			
Location on US-31		AM-Peak Hour	PM-Peak Hour
Holland Area	32 nd Street	D	D
	24 th Street	B	B
	16 th Street	C	C
	8 th Street	B	C
	James Street	D	D
	Felch Street	B	B
	Riley Street (median cross-over)	D	E
	Quincy Street	B	C
	Port Sheldon Street	B	B
	M-45	B	B
Grand Haven Area	Ferris Street	C	B
	Hayes Street	C	B
	Comstock Street	B	C
	Robbins Road	B	C
	Taylor Street	B	C
	Washington Street	B	C
	Jackson Street	C	F

Note: Intersections with LOS “E” or “F” are shown in **bold** and shaded.

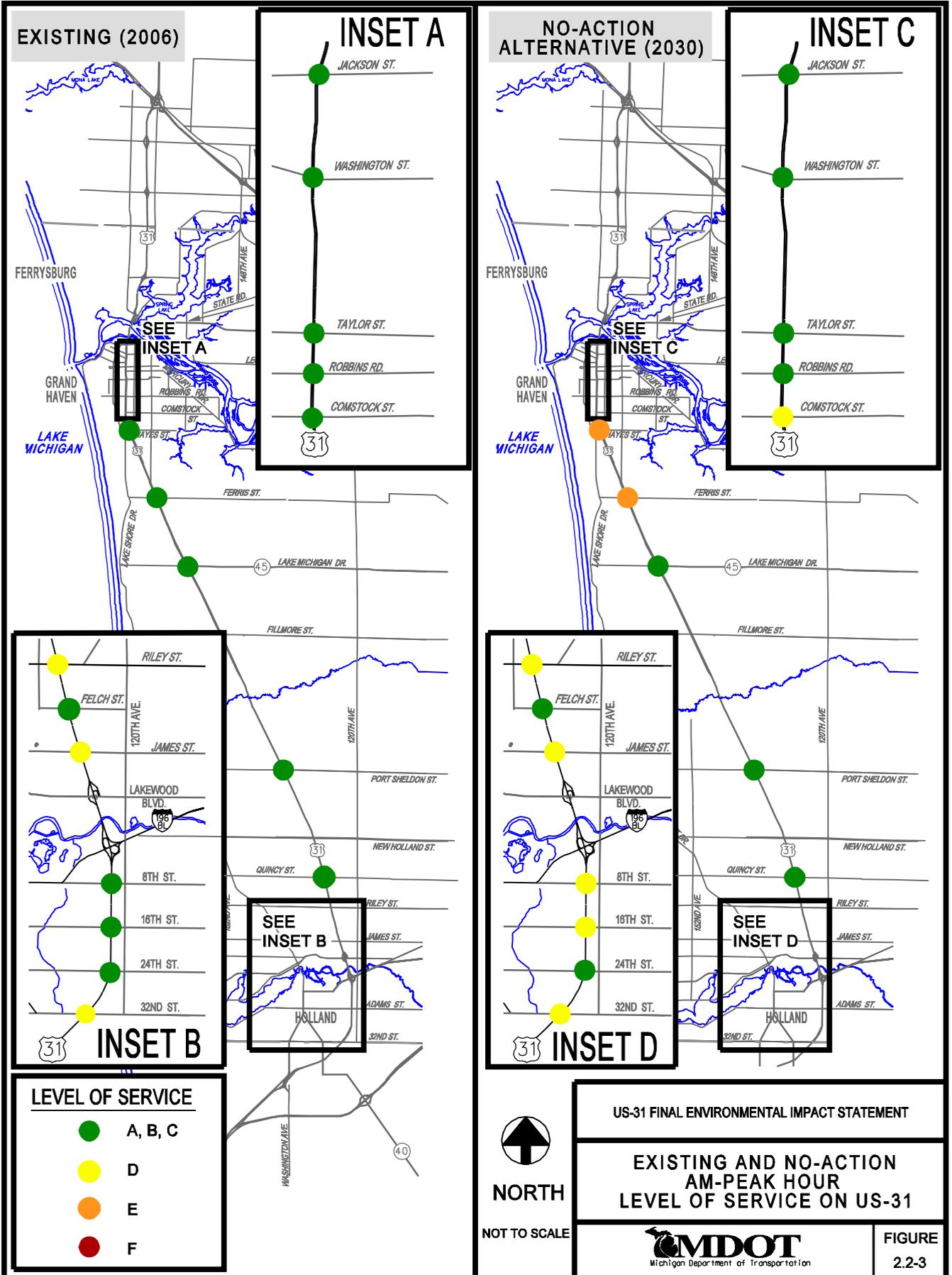
As shown in **Table 2.2-1**, peak-hour LOS values are poor (LOS “E” or LOS “F”) during the afternoon peak hour at the directional median crossover south of James Street and at Riley Street in Holland Township. Similarly, the existing afternoon peak-hour LOS at Jackson Street in Grand Haven is LOS “F”. Congestion at these intersections causes back-ups along US-31 throughout Holland Township and the City of Grand Haven. The peak-hour volumes associated with the LOS depicted in **Table 2.2-1** were collected during spring or fall months, not during the peak summer months. Peak-hour LOS values are generally worse than those depicted in **Table 2.2-1** during summer months due to increased tourism traffic.

2.2.3 Future Traffic and Level of Service (LOS)

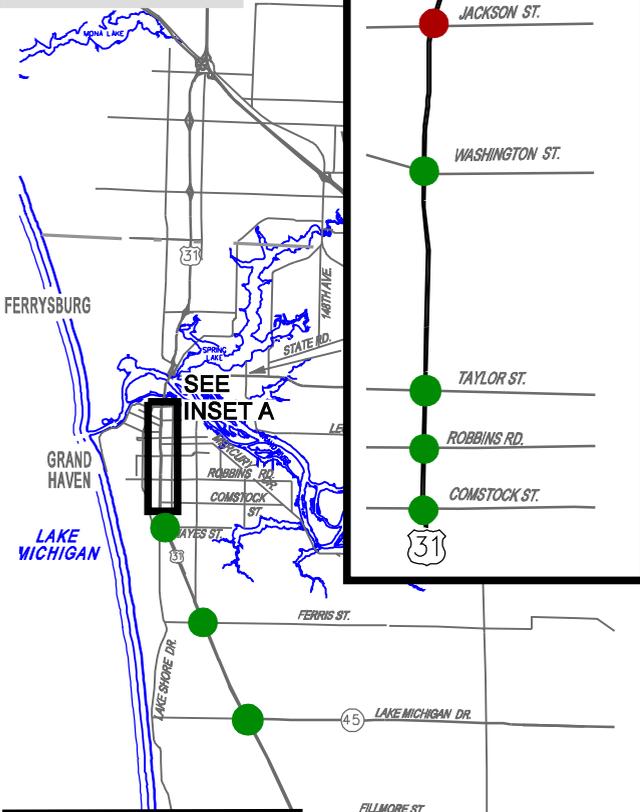
Future traffic volumes and LOS were projected to the design year 2030 for all intersections along US-31 in the study area for the Preferred Alternative as well as for the No-Action Alternative (**Table 2.2-2**). Computer models from the Macatawa Area Coordinating Council (MACC) area (which incorporates the Holland area) and from the West Michigan Shoreline Regional Development Commission (WMSRDC) area (which incorporates Grand Haven and connecting township areas within the Muskegon MPO) were used to generate traffic projections. These models incorporate data for future land-use and socioeconomic conditions. The MDOT Statewide model was used to provide data for areas not covered by the MPO models.

The No-Action Alternative assumes that no capacity improvements will be made along US-31 other than typical maintenance improvements through 2030. The year 2030 was selected as the design year, since projects constructed with federal funds must address traffic needs for at least 20 years into the future. As depicted in **Table 2.2-2**, if no capacity improvements are made along US-31, severe levels of congestion will occur throughout Holland Township and Grand Haven as intersections along US-31 become congested with traffic.

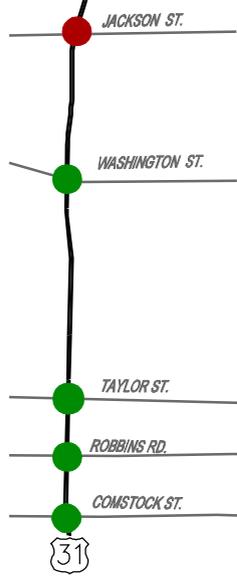
A comparison of existing peak-hour traffic conditions with traffic conditions for the No-Action Alternative is depicted in **Figures 2.2-3** and **2.2-4** for the morning and afternoon peak hours, respectively. A review of these figures reveals that peak-hour traffic operations are anticipated to deteriorate without improvements.



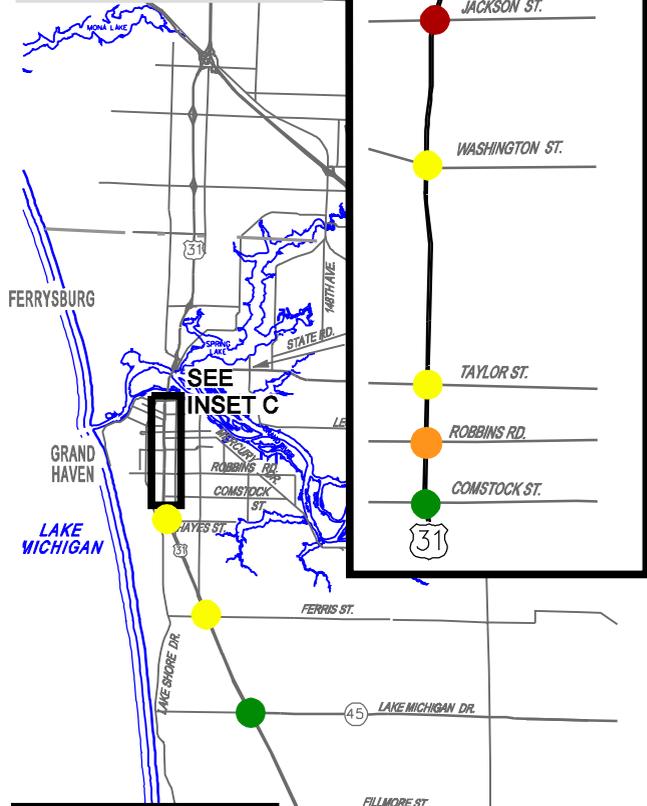
EXISTING (2006)



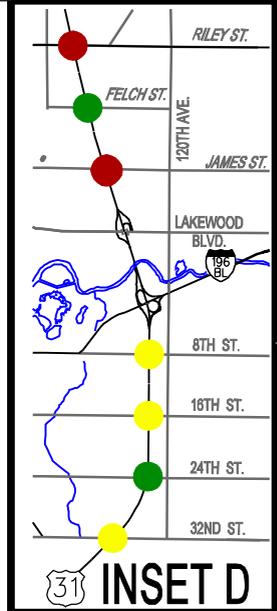
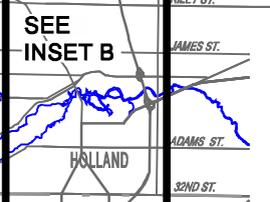
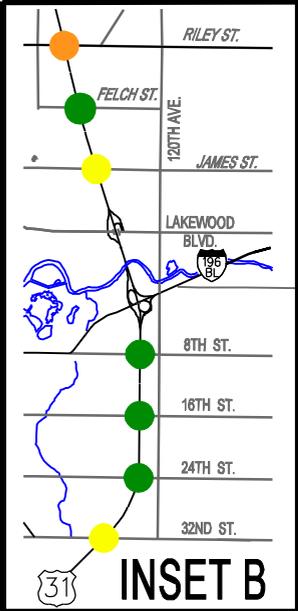
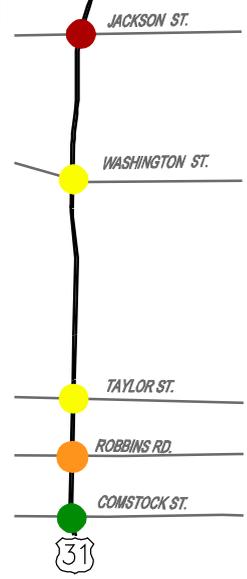
INSET A



NO-ACTION ALTERNATIVE (2030)



INSET C



LEVEL OF SERVICE

- A, B, C
- D
- E
- F


NORTH
 NOT TO SCALE

US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

**EXISTING AND NO-ACTION
 PM-PEAK HOUR
 LEVEL OF SERVICE ON US-31**



**FIGURE
 2.2-4**

Table 2.2-2 Existing (2006) and Design Year (2030) No-Action Alternative Peak-Hour Intersection Levels-of-Service					
Location on US-31		AM Peak-Hour		PM Peak-Hour	
		Existing (2006)	Design Year (2030) No-Action	Existing (2006)	Design Year (2030) No-Action
Holland Area	32 nd Street	D	D	D	D
	24 th Street	B	B	B	B
	16 th Street	C	D	C	D
	8 th Street	B	D	C	D
	James Street	D	D	D	F
	Felch Street	B	C	B	C
	Riley Street	D	D	E	F
	Quincy Street	B	C	C	D
Grand Haven Area	Port Sheldon St	B	B	B	B
	M-45	B	C	B	B
	Ferris Street	C	E	B	D
	Hayes Street	C	E	B	D
	Comstock St	B	D	C	C
	Robbins Road	B	C	C	E
	Taylor Avenue	B	C	C	D
	Washington Ave	B	C	C	D
Jackson Street	C	C	F	F	

Note: Intersections with LOS "E" or "F" are shown in **bold** and shaded.

2.2.4 Safety

Improving safety along US-31 is a clear need and is consistent with statewide goals. Crash rates for portions of US-31 in Holland and Grand Haven are above the average crash rates for similar transportation facilities within the state. The majority of crashes occurred in the more urbanized areas where traffic volumes are the highest. From 2002 through 2006 on US-31, twenty-five percent (25%) of all crashes in the study area occurred within the city limits of Grand Haven, twenty-three percent (23%) in Holland Township (8th Avenue to New Holland Street), and thirteen percent (13%) in the City of Holland.

Between 2002 and 2006, 3,550 crashes occurred on US-31 between 32nd Street in Holland and M-104 in Ferrysburg. This number includes 799 crashes causing 1,264 injuries and 10 fatalities. **Table 2.2-3** presents an overview of the total number of crashes from 2002 to 2006 along US-31 between 32nd Street and M-104. Also shown are the statewide average crash rates for each segment analyzed. The five-year crash rates indicated in bold are rates that exceed the statewide average.

Crash data for US-31 shows that the crash rates in two urban segments of existing US-31 are higher than the average for similar facilities in the state. The data in **Table 2.2-3** shows that the US-31 corridor has higher-than-average crash rates from BL I-196 to James Streets in Holland and Robbins Road to Jackson Street in Grand Haven when compared to statewide averages. Congestion and high commercial traffic (as much as 8 percent of volume) are two factors contributing to the higher-than-average crash rates in the urban segments of US-31.

US-31 Segment	Number of Crashes	Number of Injury Crashes	Number of Fatalities	5 –Year Crash Rate (A)	Average Crash Rate Statewide(1999)
<i>Holland Area</i>					
32 nd to BL I-196	470	122	1	274	449 (B)
BL I-196 to James	374	85	1	517	449
James to Quincy	408	129	3	339	449
<i>Rural Ottawa County</i>					
Quincy to Port Sheldon	189	49	1	137	259 (C)
Port Sheldon to M-45	354	76	2	129	259
M-45 to Hayes	428	99	1	205	259
Hayes to Robbins	247	38	0	398	449
<i>Grand Haven Area</i>					
Robbins to Jackson	590	129	1	560	449
Jackson to M-104	490	72	0	534	595 (D)
TOTAL	3,550	799	10		
Percent of Crashes	100.0%	22.5%	0.3%		

(A) - per 100 million vehicle-miles traveled

(B) - MDOT Statewide (4-lane divided, free-access, urban highway) 1999

(C) - MDOT Statewide (4-lane divided, free-access, rural highway) 1999

(D) - MDOT Statewide (6-lane divided, free-access, urban highway) 1999

Note: Crash rates greater than the statewide average crash rate are shown in **bold** and shaded.

Source: MDOT

The average number of crashes per year along US-31 within the study area decreased by nine percent (9%) (769 to 711 crashes per year) overall between the two most recent five-year time periods (1995-1999) and (2002-2006). Two segments, however, experienced an increase of crashes greater than 30 percent. The largest increase in crashes was in the segment on US-31 between James Street and Quincy Street, which went from an average of 59 crashes per year to an average of 82 crashes per year, including three (3) fatalities. A total of forty-six percent (46%) of the 82 crashes were rear-end collisions, while thirty percent (30%) of the 82 crashes were angle collisions. Angle collisions along a high-speed expressway like US-31 often result in injuries. **Table 2.2-4** compares the average number of crashes per year between the years 1995–1999 and 2002-2006.

US-31 Segment	Crashes/Year '95-'99	Crashes/Year '02-'06	Percent Change
32 nd to BL I-196	112	94	-16%
BL I-196 to James	95	75	-21%
James to Quincy	59	82	+39%
Quincy to Port Sheldon	39	38	-3%
Port Sheldon to M-45	60	71	+18%
M-45 to Hayes	64	86	+34%
Hayes to M-104	340	265	-22%
Total Crashes/Year	769	711	-9%

Source: MDOT

MDOT is actively addressing safety along US-31. Many intersection safety improvements such as construction of indirect left-turns, elimination of bi-directional median crossovers, and improved signal timings, have been implemented since the DEIS was issued. While these safety improvements provide incremental benefits, a long term and comprehensive solution is needed to improve safety and reduce congestion along US-31.

2.2.5 Increasing Access

Access across the Grand River, which bisects Ottawa County, is limited to only three crossing locations within the county compared to twenty-one crossings in Kent County. This limited north-south access causes longer and more circuitous trips, and delays at the existing crossing in Grand Haven. These travel delays, congested existing river crossing routes and current circuitous routing also impact fuel consumption and air quality in the study area.

A major contributor to traffic and access issues along the corridor in the study area is the six-lane US-31 bascule bridge over the Grand River that connects the cities of Grand Haven and Ferrysburg and the Village of Spring Lake (**Figure 2.2-5**). The bridge is two miles east of Lake Michigan and spans a heavy recreational boat travel corridor between marinas located on the Grand River channel and Lake Michigan.



Figure 2.2-5: Existing US-31 bascule bridge

The bascule bridge opens to allow boats to pass between March 15 and December 15 on the hour from 6:30 a.m. to 8:30 p.m. every day, except during the peak travel times on US-31. The bridge may also open on demand at any time for eligible commercial vessels including barges, Coast Guard vessels, and charter boats. Recurring instances of mechanical and electrical failures, routine maintenance, and openings for boat traffic cause the bascule bridge to open and stop traffic unexpectedly, sometimes for hours at a time.

Increasing instances of mechanical and electrical failures, causing the bridge to open/close improperly in the mid-1990's, led to rehabilitation of the structure in 1997 and 1998 by MDOT. Since then, the number of malfunctions has decreased, but has not been eliminated. MDOT completed additional maintenance work on the bascule bridge, and non-motorized improvements in 2006. These improvements extended the service life of the bridge up to 50 years. The work included rehabilitation of the electrical, mechanical, and structural systems. Painting and deck repairs occurred in 2007. However, frequent bridge openings will continue to be an issue, especially during the peak summer travel (roadway and water) months.

Bridge operations and closures can also pose potential concerns for Emergency Medical Services (EMS) access, travel delays, and can negatively impact the adjacent land uses and tourism traffic. Bridge closures, whether planned or unplanned, initiate vehicular congestion within the entire tri-city (Grand Haven, Ferrysburg and Village of Spring Lake) and surrounding areas. The current incident management plan detours traffic east via M-104/I-96 and US-31/M-45 to the 68th Avenue Grand River bridge in Eastmanville; a detour route of approximately 40 road miles (20 road miles each direction). The 68th Avenue Bridge is a two-lane structure without sidewalks or a non-motorized path. The bridge directly connects Allendale, home of Grand Valley State University (GVSU), and Coopersville. 68th Avenue is a two-lane County Primary under the jurisdiction of the Ottawa County Road Commission (OCRC) and runs north-south in Ottawa County. It also provides a connection between I-96 and M-45. The long detour results in issues of public mobility, EMS access and safety, particularly during the summer tourist season, as well as commercial vehicle delays.

2.2.6 Conclusion

The travel demand is exceeding the capacity of the existing US-31 system due to a combination of shifting land use patterns, growth in jobs and households, and increasing travel. This has led to increased traffic congestion, travel delays, and crashes along the existing US-31 from Holland to Grand Haven. The increase in traffic volumes has created a growing trend of traffic backups and serious crashes. As growth in the area continues, the congestion, delays, and accidents would be expected to worsen. If no action is taken to decrease demand or improve capacity and operational characteristics along US-31, unacceptable traffic delays are projected to occur at many intersections. In order for US-31

to reduce congestion, improve safety and provide an efficient means of local and regional travel, capacity must be increased or demand decreased in the US-31 study area, particularly at the Grand River.

3.0 ALTERNATIVES CONSIDERED

The purpose of this section is to describe the alternative evaluation and selection process that occurred after publication of the Draft Environmental Impact Statement (DEIS). The DEIS did not include a Preferred Alternative. This chapter also explains the reasons for not selecting various alternatives and for selecting the Preferred Alternative, as well as how the Preferred Alternative was developed. The Chapter concludes with a summary of how the Preferred Alternative (F-1a) meets the project's Purpose and Need.

3.1 ALTERNATIVES DEVELOPMENT

Twenty-nine Illustrative Alternatives were considered throughout the development of the DEIS. After analysis and comparison to the project's purpose and need, eighteen were eliminated. Eleven Practical Alternatives, including the No-Action Alternative, were presented at the DEIS Public Hearing in 1998. Following the Public Hearing, and after additional evaluation based on comments from the DEIS process, six of the Practical Alternatives were eliminated from further consideration due to their inability to address the project's Purpose and Need.

3.1.1 Practical Alternatives Eliminated after the DEIS

Detailed descriptions of the Practical Alternatives eliminated after the DEIS are included below and are referenced in **Figure 3.1-1**.

3.1.1.1 2005 Transportation System Management (TSM) Alternative

The TSM Alternative is an interim step that provides for short-term, low-cost improvements to existing US-31 to increase capacity and/or safety in spot locations. The 2005 TSM Alternative described in the DEIS included improvements such as:

- New or lengthened right-and left-turn bays where right-of-way (ROW) permitted.
- Modifications to traffic signal timing and progression.
- Removal of on-street parking
- Construction of park & ride lots

While these types of improvements reduce traffic congestion and improve safety, the positive impacts cannot be sustained over the planning period, and therefore will not meet the project's purpose and need as a stand-alone alternative. In fact, all of the specific improvements identified in the 2005 TSM Alternative have already been implemented as independent projects.

3.1.1.2 2020 Transportation System Management (TSM) Alternative

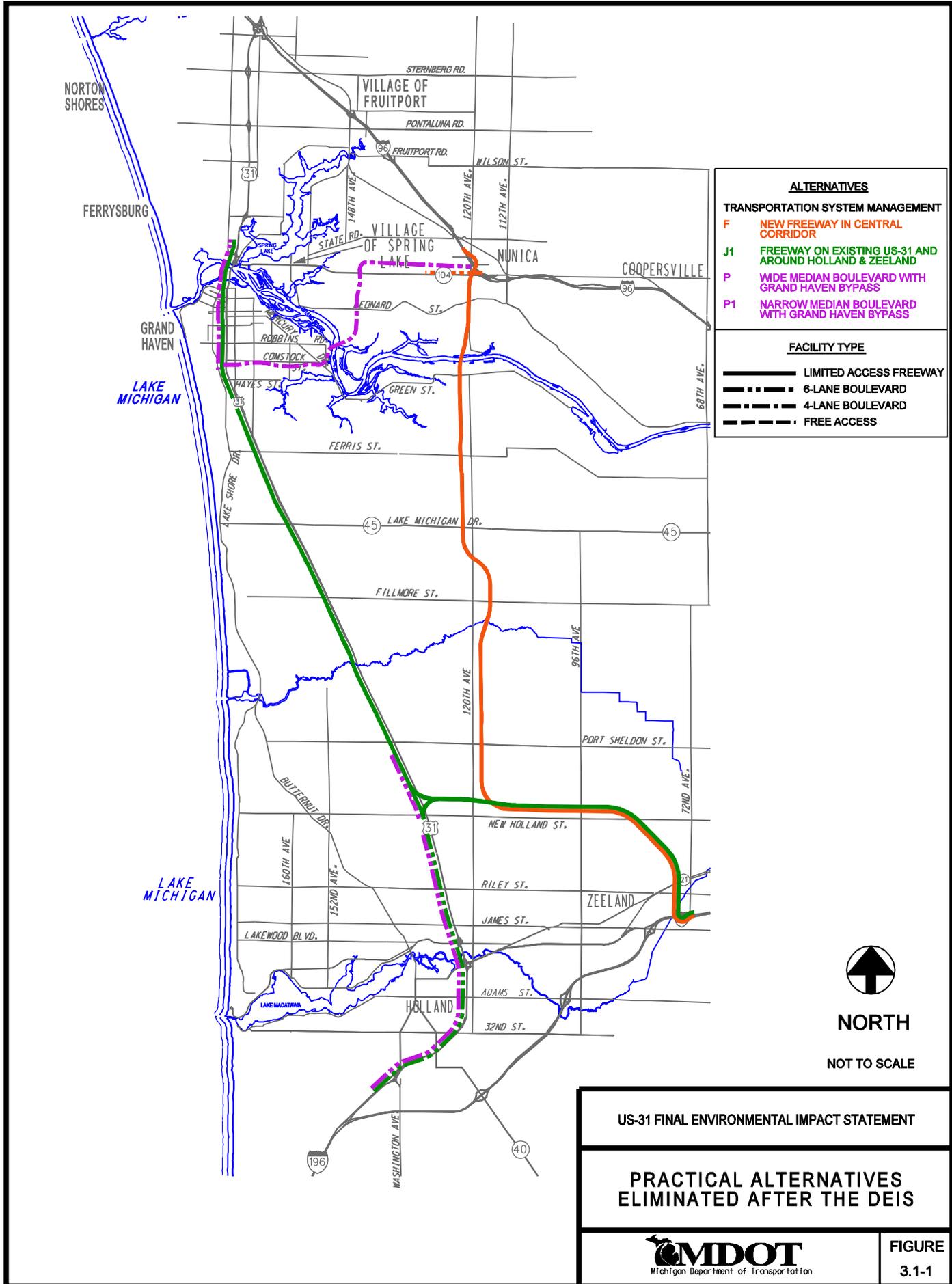
The 2020 TSM Alternative is an interim step that provides for short-term, low-cost improvements to existing US-31 to increase capacity and/or safety in spot locations. It includes all the improvements described in the 2005 TSM Alternative as well as:

- Converting direct left-turn intersections to indirect left-turn intersections.
- Pavement repairs and reconstruction.
- Improved traffic signals and/or controllers.
- Intelligent Transportation Systems (ITS).

The estimated cost of the 2020 TSM Alternative was approximately \$3.2 million in 2007 dollars. These options do not include a new crossing of the Grand River to improve regional accessibility, a need consistently expressed during the Environmental Impact Statement (EIS) process. While these types of improvements reduce traffic congestion and improve safety, the positive impacts cannot be sustained over the planning period, and therefore will not meet the project's purpose and need as a stand-alone alternative. However, some of the TSM options identified have been and will continue to be implemented as independent projects to address safety and condition issues within the FEIS study area.

3.1.1.3 Alternative F – New Alignment Freeway

This alternative included the construction of a new limited-access freeway east of existing US-31 connecting I-196 east of Zeeland to I-96 at the M-104 interchange. This alternative did not include improvements to the existing US-31 route. Additionally, the significant social and environmental impacts combined with the financial impacts were disproportionate to any benefits to traffic congestion or regional access. Alternative F did not address the project's Purpose and Need for the reasons noted, and was therefore eliminated from further consideration.



3.1.1.4 Alternative J1– Holland/Zeeland Area Freeway Bypass

This alternative included the construction of a limited-access freeway bypass around the east and north sides of the Holland/Zeeland area with a freeway connecting I-196 east of Zeeland to US-31 north of Holland Township. Existing US-31 south of the connection would be constructed as a six-lane boulevard. Existing US-31 north of the connection and through the City of Grand Haven would be constructed as a limited-access freeway. This alternative did not address the project's purpose and need and was eliminated from further consideration primarily due to the strong opposition from the City of Grand Haven, and the extensive negative impacts to residents and businesses from relocations, community division and loss of local access from converting US-31 to a freeway. Other factors contributing to its inability to address purpose and need were that the alternative did not include an alternate crossing of the Grand River to help improve regional access, lack of congestion relief along existing US-31, and high cost relative to benefit.

3.1.1.5 Alternative P – Wide Median Boulevard on Existing US-31

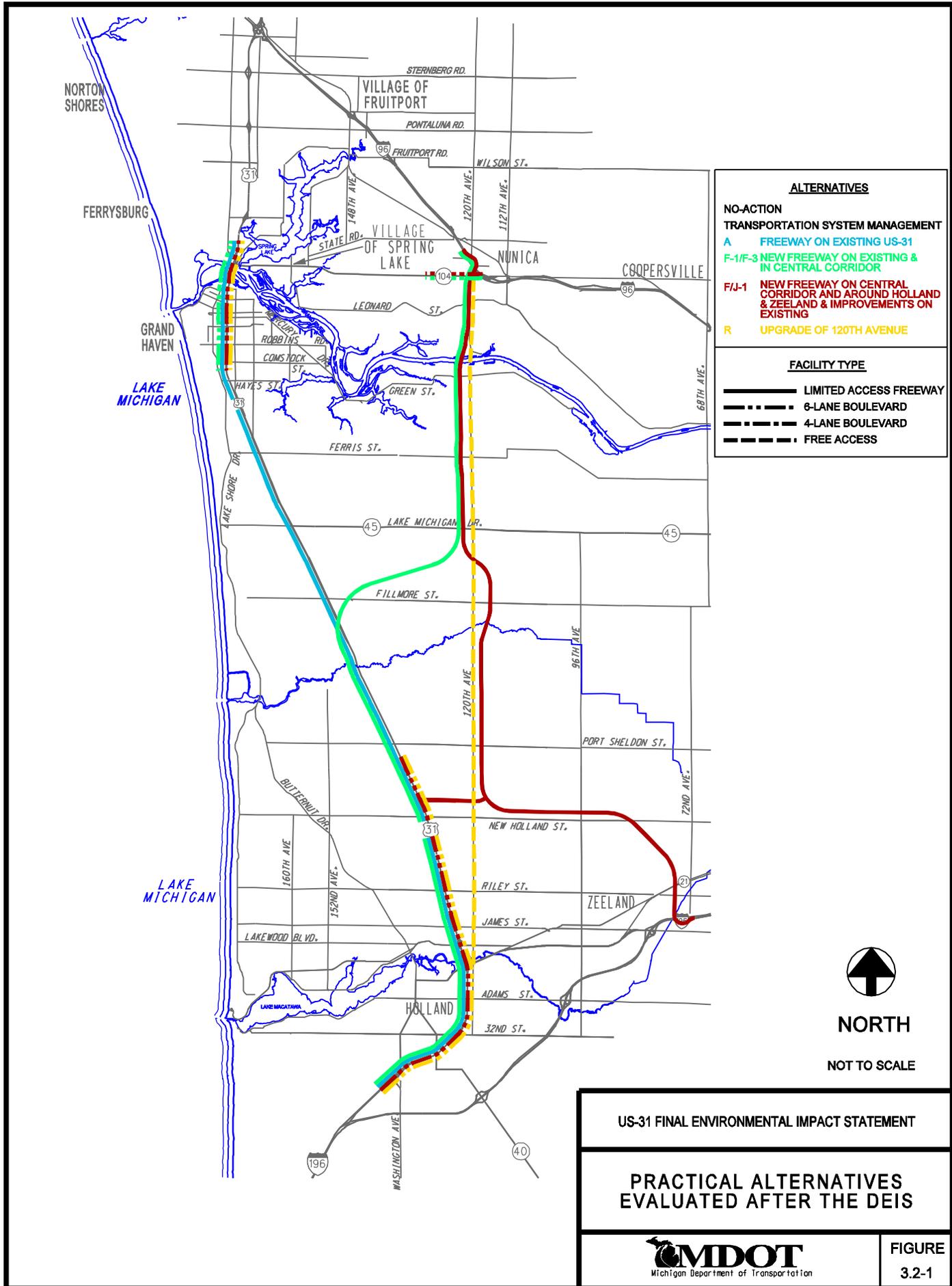
This alternative included the construction of a wide median boulevard on existing US-31 between I-196 and M-104, and a controlled-access local Grand Haven bypass connecting US-31 and I-96. A lane in each direction would be added to US-31 through Holland/Holland Township and Grand Haven. It also included a bypass crossing the Grand River near 148th Avenue. Alternative P met part of the project's purpose and need relative to traffic congestion relief because it provided the highest diversion of traffic from US-31 in Grand Haven as compared to other alternatives. However, there was strong public opposition (petition signed with over 500 signatures) and extensive negative impacts to residents, businesses, and schools from relocations required for construction. The proposed new river crossing was not practicable or feasible due to width of the river channel and connecting wetlands, bayous, and floodplain. As a result, it was dropped from further consideration.

3.1.1.6 Alternative P1– Narrow Median Boulevard on Existing US-31

Although evaluated independently, Alternative P and Alternative P1 are substantially the same. The width of the boulevard is the only difference between the two alternatives. Alternative P1 included a narrow median boulevard on existing US-31 between I-196 and M-104, and a controlled-access local Grand Haven Bypass connecting US-31 and I-96. Therefore, impacts to adjacent property along US-31 were comparatively less than Alternative P. The alternative also included widening existing US-31 for an additional lane in each direction through Holland/Holland Township and Grand Haven. Alternative P1 met part of the project's purpose and need relative to traffic congestion relief because it provided the highest diversion of traffic from US-31 in Grand Haven as compared to other alternatives. However, there was a strong public opposition (petition signed with over 500 signatures) and extensive negative impacts to residents, businesses, and schools from relocations required for construction. The proposed new river crossing was not practicable or feasible due to width of the river channel and connecting wetlands, bayous, and floodplain. As a result, it was also dropped from further consideration.

3.2 PRACTICAL ALTERNATIVES EVALUATED AFTER THE DEIS

After eliminating the alternatives described above, the Michigan Department of Transportation (MDOT) began evaluating the remaining alternatives against the project's Purpose and Need. Five Practical Alternatives, including the No-Action Alternative, were carried forward from the DEIS for further analysis in this Final Environmental Impact Statement (FEIS). Alternatives A, F-1/F-3, R, and F/J-1 each included a new crossing of the Grand River and/or a replacement of the existing bascule bridge. MDOT also evaluated a new option presented by the Coalition for Sensible Transportation Solutions (CSTS) after publication of the DEIS. Detailed descriptions of the Practical Alternatives and the CSTS option are included below. The proposed route for the CSTS option can be found in **Figure 5.4-1**. **Figure 3.2-1** includes a map of the proposed Practical Alternatives.



These alternatives were further refined to minimize impacts and address public and agency concerns raised during subsequent public and agency meetings and discussions. Public, local government and regulatory agency concerns were identified and considered in the evaluation process. Traffic impacts, congestion relief, and access improvements to existing US-31 and within the overall FEIS study area were evaluated for existing and future (2030) conditions. Social and environmental factors were assessed, as well as future land use impacts. Project costs were also considered. The corridor study area in this FEIS includes western Ottawa County, and is the primary area of impact from the practical alternatives. In addition, the future year projections were extended to 2030 to cover a 20 year timeline.

3.2.1 No-Action Alternative (Rehabilitating Existing US-31)

The No-Action Alternative did not reduce traffic congestion and delay, improve safety, or increase access. Therefore, it did not meet the purpose and need of the project.

The No-Action Alternative would maintain US-31 in its present location without additional lanes. No new ROW, access changes, or crossing of the Grand River would be included with the No-Action Alternative. The existing bascule bridge between Grand Haven and Ferrysburg would be in its current location with the same number of lanes. This alternative was used as the basis of comparison with the other Practical Alternatives.

3.2.2 Alternative A – Freeway on Existing US-31

This alternative included the construction of a limited-access four-lane freeway on existing US-31 from I-196 in the City of Holland to M-104 in Ottawa County, including a replacement of the existing bascule bridge between Grand Haven and Ferrysburg. The freeway included the ability to add an additional lane when warranted by traffic volumes and funding. The interchanges were designed to minimize ROW acquisition and reduce impacts. The estimated cost of Alternative A is approximately \$1.5 billion in 2004 dollars.

Alternative A did not meet the projects Purpose and Need as well as the Preferred Alternative, and it was eliminated from further consideration due to significant environmental, social, and economic impacts along existing US-31. Specific factors included:

- Large number of displacements and ROW acquisitions along the entire length of US-31 in the corridor study area for the conversion of the existing roadway to a freeway.
- Interchanges restricted to some existing major intersections, access to US-31 eliminated at all other intersections, which resulted in loss of access impacts to the business and residential area, and opposition from the impacted business community.
- Adverse community cohesion impacts to the City of Holland, Holland Township, Grand Haven Township and the City of Grand Haven created by local east-west road closures and freeway design.
- Replacement of the existing Grand River crossing and no additional crossing provided.
- Disruption to the local road systems in the cities of Holland, Grand Haven and Ferrysburg.
- High costs relative to derived benefits.

3.2.3 Alternative F-1/F-3 – New Alignment Freeway

This alternative included the construction of a new limited-access four-lane freeway from I-196 in the City of Holland to M-104 at I-96 in Ottawa County and boulevard improvements in the City of Grand Haven. The estimated cost of Alternative F-1/F-3 was approximately \$1.4 billion in 2004 dollars. Specific improvements included in this alternative were:

New Alignment Freeway

- US-31 upgraded to a freeway from I-196 northerly through the City of Holland to north of the Pigeon River.

- New freeway diverging away from existing US-31 northeasterly to M-45, north paralleling 120th Avenue, and connecting with I-96 in Crockery Township.
- M-104 reconstructed as a four-lane boulevard/five-lane roadway between 130th Avenue and I-96 in Crockery Township.

US-31 Six-Lane Boulevard

- A free-access six-lane boulevard on US-31 through Grand Haven Township and the City of Grand Haven (Comstock Street to the Grand River).
- Reconstruction of the bascule bridge on US-31 between Grand Haven and Ferrysburg.

Alternative F-1/F-3 did not meet the projects Purpose and Need as well as the Preferred Alternative, however it was eliminated from further consideration due to significant environmental, social, and economic impacts. Specific factors included:

- Substantial social, environmental, and economic impacts and displacements in the City of Holland and Holland Township.
- Extensive ROW acquisition of commercial properties in the City of Holland and Holland Township is required for conversion of US-31 to a freeway.
- Community cohesion impacts to the City of Holland and Holland Township.
- Access to many existing businesses would be eliminated.
- Access restricted due to limited interchange locations, especially along US-31 in Holland.
- High costs relative to derived benefits.

3.2.4 Alternative R – Upgrading 120th Avenue to a State Highway

This alternative included improvements on US-31 in the City of Holland, Holland Township, and the City of Grand Haven (Allegan and Ottawa Counties) and an upgraded roadway on 120th Avenue from I-196BL to I-96. The jurisdiction of 120th Avenue would be transferred from Ottawa County Road Commission (OCRC) to MDOT. The estimated cost of Alternative R was approximately \$750 million in 2007 dollars. This alternative included:

US-31 Six-Lane Boulevard

- A controlled-access six-lane boulevard on US-31 through the City of Holland and Holland Township (32nd Street to approximately Port Sheldon).
- A free-access six-lane boulevard on US-31 through Grand Haven Township and the City of Grand Haven (Comstock Street to the Grand River).
- Reconstruction of the bascule bridge on US-31 between Grand Haven and Ferrysburg.

120th Avenue Upgrade

- Widening 120th Avenue to five lanes from Riley Street to Port Sheldon Street (since the DEIS, 120th Avenue has been widened to five lanes from I-196 BL to Riley Street).
- A four-lane free access boulevard on 120th Avenue from M-45 to Leonard Street.
- Controlled access from Leonard Street to I-96.
- Construction of a new Grand River bridge at 120th Avenue.
- M-104 would also be reconstructed as a four-lane boulevard/five-lane roadway between 130th Avenue and I-96 in Crockery Township.

Alternative R was eliminated from further consideration because it did not meet the project's purpose and need. There were minimal improvements to roadway capacity, safety features or congestion on existing US-31. Also, the traffic diverted to 120th, a free access local roadway, would become congested without access or local land use controls, as well as multiple at-grade intersections. Widening 120th Avenue requires extensive residential and some commercial displacements.

Alternative R was also eliminated from further consideration due to significant environmental and social impacts along 120th Avenue related to purchasing adjacent properties. Specific factors included:

- Extensive opposition from the local units of government (more than any other alternative).
- Large number of residential and commercial displacements along 120th Avenue due to ROW acquisition for widening.
- Negative impacts to the local traffic system which was projected to have increased traffic.
- Free access roadway does not help control development along the 120th Avenue corridor; additional indirect and cumulative impacts were anticipated.

3.2.5 Alternative F/J-1

Alternative F/J-1 included the construction of a six-lane boulevard on portions of existing US-31, a limited-access freeway connection from I-196 east of the City of Zeeland and from existing US-31 north of Holland to I-96 in Crockery Township, the removal and replacement of the existing bascule bridge between Grand Haven and Ferrysburg, and M-104 improvements. The estimated cost of Alternative F/J-1 was approximately \$1.3 billion in 2007 dollars. Specific improvements included in this alternative were:

New Alignment Freeway

- A new freeway beginning at I-196 east of Zeeland, extending northwesterly to 120th Avenue and New Holland Street, and paralleling 120th Avenue on the west, then northerly to I-96 in Crockery Township.
- A new freeway connection from US-31 to the new freeway just north of New Holland Street.
- M-104 reconstructed as a four-lane boulevard/five-lane roadway between 130th Avenue and I-96 in Crockery Township.

US-31 Six-Lane Boulevard

- A controlled access six-lane boulevard on US-31 through the City of Holland and Holland Township (32nd Street to Port Sheldon).
- A free access six-lane boulevard on US-31 through Grand Haven Township and the City of Grand Haven (Comstock Street to the Grand River).
- Reconstruction of the bascule bridge on US-31 between Grand Haven and Ferrysburg.

Alternative F/J-1 was selected and presented by MDOT initially as the proposed Preferred Alternative in 2000 based on its ability to address current and future traffic demand on US-31, as well as providing regional access improvements within the corridor study area, with an additional crossing of the Grand River, and consistent with the project's purpose and need.

Although originally selected as the Preferred Alternative, Alternative F/J-1 was eliminated from further consideration due to the following reasons:

- Traffic flow and safety issues north of the Holland urbanized area and south of M-45 are less significant.
- Traffic projections south of M-45, and north of and east of the Holland urbanized area can be accommodated by the existing US-31 and local system roads through 2030.
- Significant environmental and social impacts south of M-45 as compared to limited anticipated benefits from major improvements at this time.
- High costs could not be supported by the projected revenues statewide and in the affected MPO areas.

Subsequently, MDOT developed Alternative F-1a, in cooperation with local officials in the corridor study area; it includes critical segments of F/J-1. Alternative F-1a, (**Figure 3.4-1**) which became the Preferred Alternative for this FEIS, addresses local and state priority needs in the corridor study area, with

significantly less social and environmental impacts, and within the revenues projected to be available for the project. F-1a is described in more detail in Section 3.4 of this document.

3.2.6 Coalition for Sensible Transportation Solutions (CSTS) Option

The CSTS Option included a freeway bypass of the Holland-Zeeland area, a freeway on existing US-31 between Holland Township and the City of Grand Haven, a freeway bypass of the City of Grand Haven, a local 104th Avenue crossing of the Grand River and a new interchange at I-96 and Sternberg Road (see **Figure 5.4-1**).

The CSTS Option was not carried forward because it did not meet the project's purpose and need for the following reasons:

- Adverse distance to the proposed bypass, and circuitous routing, reduced the amount of traffic potentially diverted from south of Holland to north of Grand Haven.
- Proposed Grand River crossing not proximate to growing area east of existing US-31.
- Benefits accrue primarily to the City of Grand Haven rather than to the region.
- Includes two, as opposed to one, additional river crossings, resulting in unnecessary impacts/costs.
- Residential and commercial impacts due to ROW acquisitions in the City of Grand Haven and Grand Haven Township.
- Included other improvements outside the US-31 FEIS study area.

3.3 COMPLETED US-31 IMPROVEMENTS

Since the release of the DEIS, MDOT continued to maintain the roadway and improve traffic flow on US-31 with projects such as pavement repairs, intersection reconfigurations, turn lane improvements, and traffic signal optimizing upgrades. Specific projects included:

- Asphalt pavement overlay and concrete repairs from Port Sheldon Street north to M-104.
- Addition of indirect-left and elimination of local road through movements at the New Holland Street/US-31 intersection.
- Addition of indirect-left turns and elimination of local road through movements at the Buchanan Street/US-31 and Lincoln Street/US-31 intersections.
- Additional left and right-turn lanes and increased turning radii at the Jackson Street/US-31 intersection.
- Addition of an island that prevents through movements on Waverly Avenue across US-31 and turning lane improvements in Grand Haven.
- Various indirect left-turn and/or right-turn lane improvements at US-31 and the intersections of James Street, Riley Street, Croswell Street and Greenly Street to enhance traffic flow and safety.
- Turning lane improvements at the US-31/Comstock intersection to address impacts from a new Wal-Mart Super-Store, funded by the developer.
- Traffic signal optimization on US-31 through the Holland and Grand Haven areas.

3.4 THE PREFERRED ALTERNATIVE (ALTERNATIVE F-1a)

Based on its ability to meet the project's Purpose and Need, Alternative F/J-1 was selected and presented by MDOT initially as the Preferred Alternative in 2000. As compared to the other alternatives, it best met the current and future traffic demand on US-31, created a new limited access freeway route between I-196 and I-96, and provided an alternate access over the Grand River to serve development east of existing US-31. MDOT made further refinements to the location of Alternative F/J-1 to address concerns and minimize impacts identified by affected citizens and agencies during numerous meetings and discussions. The cost estimate for F/J-1 was approximately \$1.3 Billion in 2004 dollars.

3.4.1 Continued Development of the Preferred Alternative

After releasing the DEIS in 1998 and initially selecting F/J-1 as the Preferred Alternative, MDOT began examining ways to mitigate impacts, respond to opposition to the project from some local officials, and address the concerns of resource agencies. MDOT then met with township officials to make the alignment more compatible with local land uses and also initiated a land use study that would help quantify indirect impacts.

One of the first outcomes of the local meetings regarding F/J-1 was the reduction of impacts by widening existing US-31 along the median side of the roadway in the cities of Holland and Grand Haven. The alignment of the freeway connection between existing US-31 and I-196 north of the City of Zeeland was also adjusted to minimize farmland impacts and coincide with the township future development plans. Similarly, wetland impacts were reduced through minor alignment changes. Additional local road crossings were also added to the plans to improve emergency services and access across the proposed new freeway.

During this period an assessment of indirect impacts was accomplished through an innovative research study, conducted by the Michigan State University's (MSU) Basic Science and Remote Sensing Institute (BSRSI) in 2002. The study paired observations of historic land use changes with anticipated population and employment growth to determine potential land use changes in the future (2020). The study concluded that the intense pressure for residential, commercial, and industrial growth in the area is due to the robust regional economy. It further concluded that the economic activities in the Grand Rapids, Holland, and Muskegon/Grand Haven urbanized areas have a greater influence on the conversion of open space to developed land uses than any proposed relocation of US-31. The practical alternatives evaluated in the Land Use Study, therefore have a limited impact on the future location of land development, due to the fact that local governments control land use through zoning and master plans. In addition, location decisions are based more on economic condition and proximity to regional activity centers than any one transportation facility. The study indicated only minor changes in the type and location of developed land as a result of Alternative F/J-1.

Another factor that influenced the development of the Preferred Alternative was that population growth in Ottawa County resulted in expansion of the urbanized areas, as designated by the 2000 Census. As a result, the Holland and Muskegon MPO boundaries expanded so that each included a portion of the corridor study area. The MPO planning process also requires additional financial considerations and regional air quality conformity assessments. Specifically, federal MPO regulations require financial constraint within a 20 year planning time frame for major projects. As the alternative analysis continued, it became clear that anticipated federal and state transportation revenue would not support a project of this magnitude (Alternative F/J-1) within the two MPO areas over the 20 year time frame of the EIS. Therefore, in 2005, MDOT began working with MPO and local officials to identify and prioritize transportation needs in the corridor study area. Over 20 meetings were held with local governments and MPO committees between 2005 and 2006 to refine local priorities and state trunkline objectives within the US-31 corridor study area. Early in the process it became clear that a new Grand River crossing was the most consistent need expressed. In addition, traffic congestion issues were found to be less significant south of M-45 and north of the Holland urbanized area as compared to the expected social and environmental impacts from F/J-1.

Identifying a Preferred Alternative that could be funded with anticipated state and federal revenue became increasingly important, as the project needed to be included in the Transportation Improvement Programs (TIPs) and Long Range Transportation Plans (LRTP) of the MPOs. Compliance with federal air quality regulations was also needed in order for the project to proceed. While SAFETEA-LU contained a \$7.2 million earmark for continuation of the project, additional funding for the alternative needed to be identified. MDOT, working with local agencies, identified segments of Alternative F/J-1 that substantially met the project's Purpose and Need, minimized impacts, had support from affected local governments, and could be funded within projected revenues.

3.4.2 Preferred Alternative Description

As a result, MDOT developed the current Preferred Alternative (F-1a) (**Figures 3.4-1, 3.4-2 and Appendix A**) to address the need for a new Grand River crossing, provide a high level of safe and efficient state trunkline service to the area, as well as address the project's Purpose and Need within the revenues projected for the MPO areas and the State of Michigan. The Preferred Alternative includes: a new two-lane roadway (**Figure 3.4-3**), with a new Grand River crossing, located generally along the previously identified F/J-1 alignment between M-45 (Lake Michigan Drive) and the I-96/M-104/112 Avenue interchange area; additional lanes on M-104 in the vicinity of the new M-104/M-231 junction; a new I-96/M-231 interchange will be constructed; and new ramps will be added to the existing I-96/112th Avenue interchange. Additional lanes on M-231 will likely be needed in the future, based on the projected traffic levels, following the 20 year planning time-frame covered in this FEIS. Alternative F-1a also includes improvements to key congested segments of existing US-31 in Grand Haven from south of the Franklin Street to north of Jackson Street, and in Holland from Lakewood Boulevard north to the Quincy Street (**Figure 3.4-4 and Appendix A**). Existing US-31 improvements include adding an additional lane in each direction and intersection modifications. The revised Preferred Alternative (Alternative F-1a) only includes a segment of the new route in F/J-1, and therefore will have less land use impacts, social environmental and economic impacts. The Preferred Alternative corridor study area (corridor study area) in this FEIS includes western Ottawa County, and is the primary area of impact. Alternative F-1a addresses the project Purpose and Need as follows:

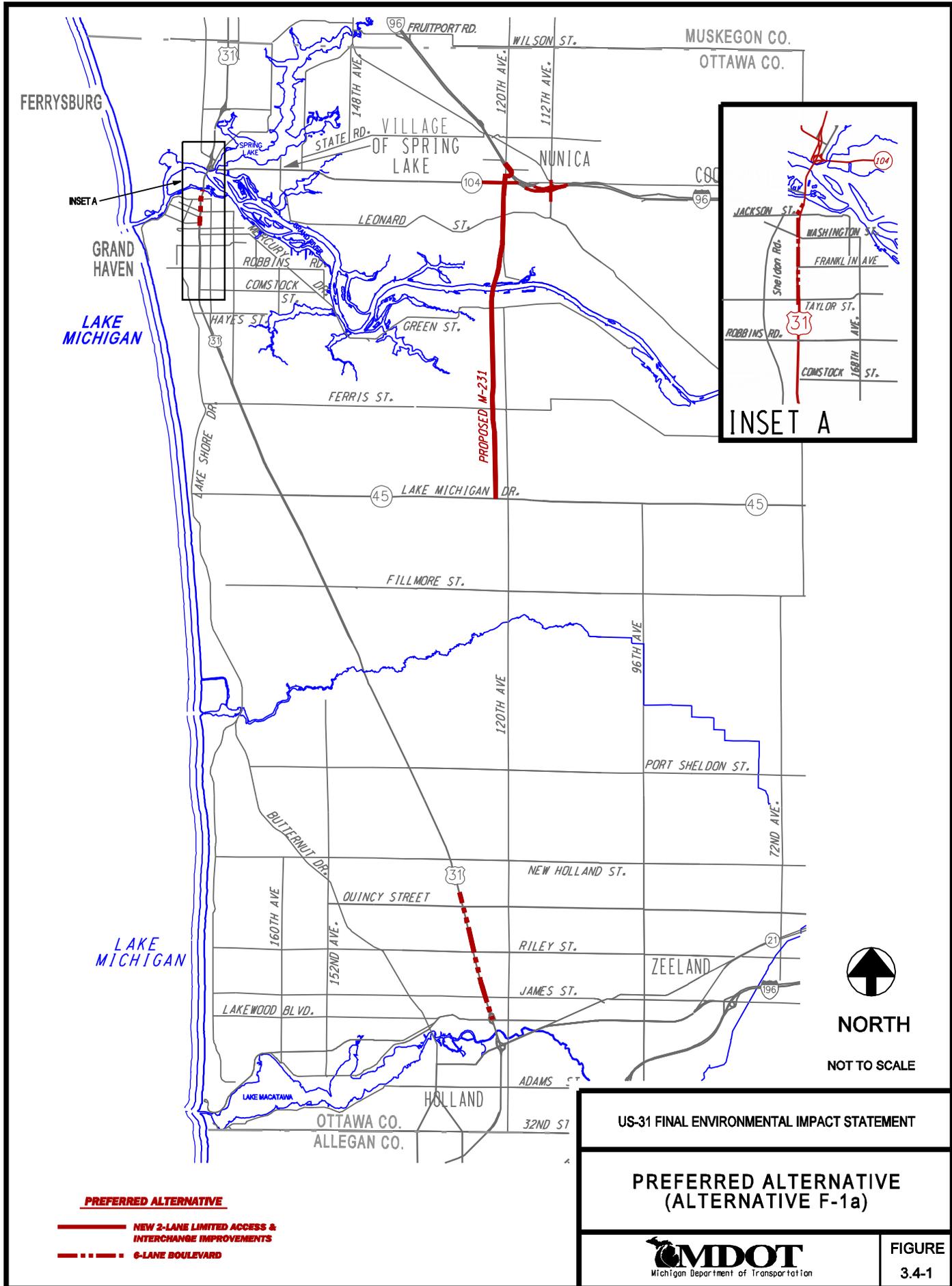
- Improves the movement of people and goods by reducing vehicular delay and congestion along key segments of US-31 in Grand Haven and the Holland area.
- Increases transportation system capacity, addresses regional growth and enhances Grand River crossing efficiency by providing a new river crossing (M-231) approximately mid-way between the two existing crossings of the Grand River in the corridor study area.
- The new Grand River bridge and existing US-31 improvements will enhance safety, emergency service access, incident management and traffic flow in the corridor study area.
- Provides north/south route continuity and connectivity in the Ottawa County by creating a new state highway segment (M-231), linking three existing state highways (M-45, M-104 and I-96), as well as county primary roads (Lincoln Street and 120th Avenue).
- Minimizes impacts compared to other Practical Alternatives evaluated in this FEIS.

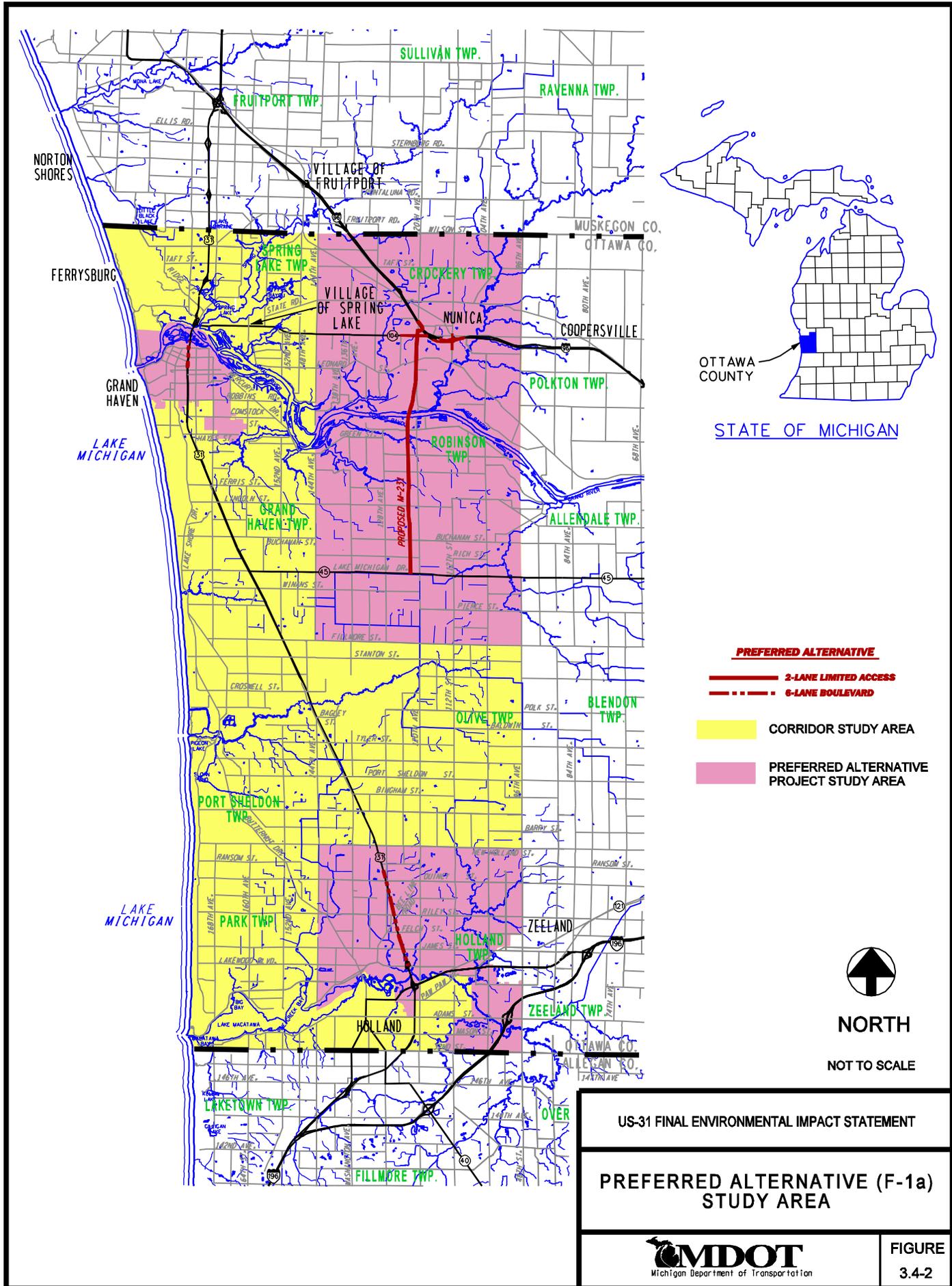
The segments of Alternative F/J-1, south of M-45, were not included with this Preferred Alternative (F-1a) because traffic issues and needs were determined to be less significant. The social, environmental and economic impacts were also not offset by the anticipated benefits derived over the EIS planning horizon. In addition, replacement of the existing bascule bridge in Grand Haven is beyond the timeframe covered in this FEIS, based on its condition, and therefore, it is not included in the Preferred Alternative.

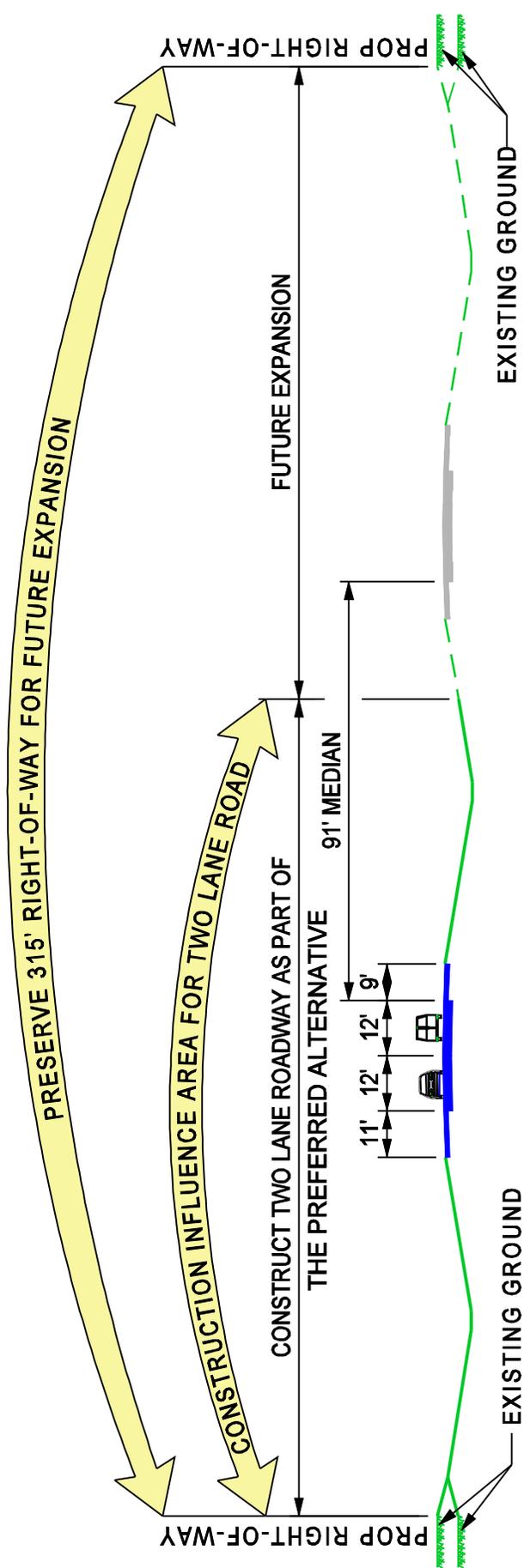
New M-231 Route

The new two-lane route (M-231) will be constructed as a limited access corridor with controlled access at-grade intersections to protect the corridor from development. The Preferred Alternative (F-1a) will be designed so as not to preclude future expansion of the new M-231 route to a four-lane divided facility between M-45 and I-96, or non-motorized facility accommodation when warranted. Additional lanes on M-231 will likely be needed in the future, based on the projected traffic levels, following the 20 year planning time-frame covered in this FEIS. Lengthened sub-structure (piers) to allow for the conceptual future widening of the M-231 route will also be identified in this FEIS and evaluated further during the subsequent design/engineering phase of the project. The ROW identified, preserved and cleared in this FEIS will accommodate future drainage, grading, structures, utilities and intersection concepts along the M-231 new route. ROW will be purchased upon the approval of the Record of Decision (ROD). The ROW preserved will be adequate to accommodate the additional lanes needed for a future four-lane divided facility, to address future traffic growth.

The M-231 route creates a logical trunkline segment with independent utility. Additional information, regarding traffic, resources, impacts, and mitigation in this FEIS, is based on this Preferred Alternative. Direct access to the new M-231 alignment will be available at the intersections shown in **Table 3.4-1**.

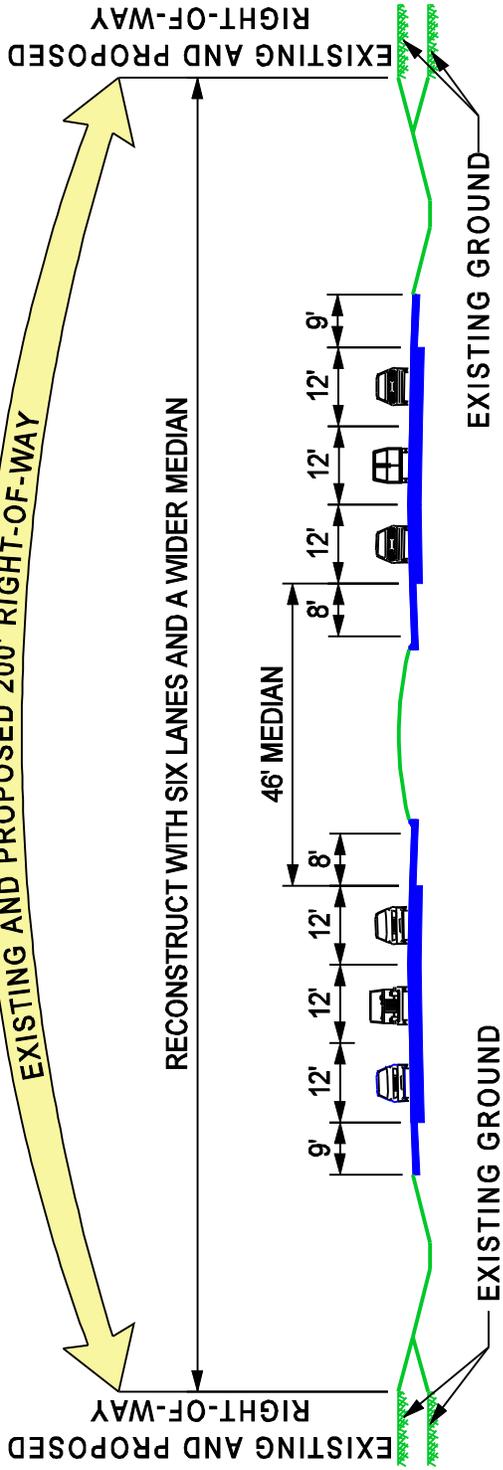




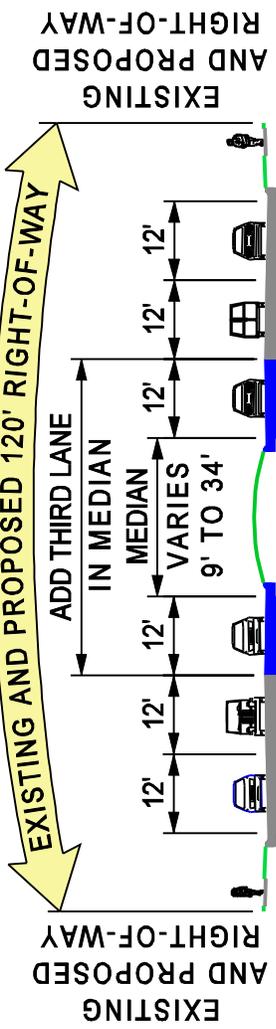


**TWO LANES WITH OPEN DITCH DRAINAGE
LIMITED ACCESS ROADWAY ON PROPOSED M-231 ALIGNMENT**

US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT
TYPICAL NEW ALIGNMENT CROSS-SECTION FOR THE PREFERRED ALTERNATIVE
FIGURE 3-4-3



HOLLAND TOWNSHIP
SIX LANES WITH OPEN DRAINAGE
(WIDE MEDIAN BOULEVARD ON EXISTING US-31 ALIGNMENT)



GRAND HAVEN
SIX LANES WITH ENCLOSED DRAINAGE
(NARROW MEDIAN BOULEVARD ON EXISTING US-31 ALIGNMENT)

US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

TYPICAL US-31 CROSS-SECTIONS
 IN HOLLAND TOWNSHIP
 AND GRAND HAVEN
 FOR THE PREFERRED ALTERNATIVE



FIGURE 3.4-4

Because it will be designated as a limited access facility, there will be no driveways or additional at-grade cross streets, beyond the intersections noted, along the new M-231 segment.

Table 3.4-1 Access to the New Alignment		
Intersection	Overpass	Cul-de-Sac
M-45 Lincoln Street M-104 I-96	Rich Street Buchanan Street Sleeper Street North Cedar Drive Limberlost Lane Leonard Street	Johnson Street Cypress Street 120 th Avenue at M-104

New Grand River Bridge and other Structures

The proposed M-231 includes a new Grand River crossing about a quarter-mile west of 120th Avenue. This new bridge will be about 3900' long and will span the entire 100-year floodplain and associated wetlands of the Grand River.

Bridge sub-structure (pier) options, impacts and mitigation for the Grand River and flood plain area, are discussed in **Section 4** of this FEIS. Additional engineering, beyond what is included in this FEIS, is needed to address all of the issues associated with the construction of a new bridge. Therefore, a Bridge Study will be completed during the subsequent design/engineering phase of the project, after this FEIS ROD is approved. The new Grand River bridge and pier type, size, costs and impacts will be assessed in more detail, and a bridge option will be selected, based on the study findings in the final engineering phase. The Bridge Study will determine the most reasonable and practical bridge and pier configuration to accommodate the new M-231 two-lane route being cleared in this FEIS, minimize Grand River and flood plain area impacts during construction, and to not prevent future expansion of the bridge and roadway when needed.

In addition, other larger stream and county drain crossings along M-231 include the Little Robinson Creek (Allen Pipple Drain), south of North Cedar Drive, Stearns Creek, south of Johnson Street, the North Beeline Drain, near Lincoln Street, and the Parkhurst Drain (Black Creek tributary) near M-1-04. The longest of those structures is the Little Robinson Creek bridge, at approximately 575 feet.

Conceptual Phasing Plan for the Preferred Alternative (F-1a)

This FEIS will be sent to the Federal Highway Administration (FHWA) by MDOT for their review and approval. After FHWA approval, this FEIS will be made available for, public and agency review and comment. A Notice of Availability will be published in the Federal Register. Following the public comment period, the ROD will be issued by the FHWA, which is FHWA's formal acceptance of this FEIS. This completes the EIS process and allows for subsequent phases such as design, ROW acquisition and construction to proceed, later in 2009.

Upon completion and approval of this FEIS and ROD, MDOT will complete the design/engineering phase (including the Bridge Study) and begin buying property for the new M-231 bridge over the Grand River in late 2009. Permits from regulatory agencies will be obtained in 2010, for the new bridge segment. Additional design, ROW and construction phases of the project will be added to the MPO TIPs as work progresses on the Preferred Alternative.

Construction of the new bridge is planned begin in late 2010 and take two to three years to complete. Following the new bridge, will be construction of the M-231 segment from north of the Grand River to the I-96/M-104/112th interchange area. The last segment of M-231 will be completion of the new route from south of the Grand River to M-45 (Lake Michigan Drive). Along existing US-31, the segment north of Holland will be constructed first, followed by the segment in Grand Haven. Construction of the Grand Haven segment is not expected to begin until the new M-231 route is open to traffic. The timeframe for completing this project in its entirety is projected to be five to seven years, depending on statewide needs and funding availability.

A bridge study will be completed during the subsequent design/engineering phase of the project. The bridge study will determine the most reasonable and practical bridge and pier configuration in the Grand River and flood plain to accommodate the new M-231 two-lane route being cleared in this FEIS, minimize impacts, and to not prevent future expansion of the bridge when needed. FHWA concurrence on the traffic analysis and ROW preservation was received on March 18, 2009 (**Appendix C**). An Interchange Justification Report, for the I-96/M-104/M-231/112th Avenue area, will be completed and submitted to FHWA after approval of the ROD.

Other F-1a Information

Alternative F-1a is shown in detail with a photo mosaic background in **Appendix A** for this FEIS. These drawings show the general recommended roadway improvements, proposed ROW, structure locations, existing and proposed drainage facilities, and select natural, physical, cultural or social environmental information. The estimated cost for Alternative F-1a is \$170 million in 2014 dollars and is within the transportation revenues forecasted for the two affected MPO areas and the State of Michigan.

Public/Agency Coordination

The Preferred Alternative (F-1a) was presented formally at a Public Meeting in November, 2006. Nearly 350 people attended this meeting and were provided the opportunity to comment and ask questions of MDOT staff in attendance. Comments received at the meeting and after were addressed, and MDOT met with citizens, agencies and organizations that had additional questions. The Preferred Alternative incorporates, where feasible, the comments and concerns resulting from these discussions.

During 2007, Alternative F-1a was included in the two approved MPO LRTPs. The design/engineering and ROW phase were also added to the MPO TIPs in 2008. The project is included in the recently approved State Long Range Transportation Plan (MI-Transportation Plan). Construction is included in the MDOT Five-Year Program, beginning in 2010, and will be added to the MPO TIPs upon receipt of a ROD on this FEIS from the FHWA.

Draft EIS Re-Evaluation

A Re-Evaluation of the DEIS was also completed and approved in 2009. With the new alignment of the Preferred Alternative established, updates to traffic, noise and air quality analysis needed to be performed as part of this FEIS. MDOT also updated information related to wetland identification, delineation and mitigation, addressed United States Coast Guard (USCG) and Army Corps of Engineers (USACE) bridge height issues, conducted an Indiana Bat Survey, and Above Ground Historic Resources Survey. The information contained in this FEIS is current and complies with existing federal and state regulations. The DEIS Re-Evaluation is included in Appendix F.

Future Actions

This FEIS and ROD will be completed based on the Alternative F-1a as described herein. Any other major improvements within the US-31/M-231 corridor and FEIS study area, north or south of M-45, are beyond the scope of this FEIS, and will require additional environmental documentation and alternative evaluation through the federal National Environmental Policy Act (NEPA) process. Any subsequent NEPA activities will be initiated by MDOT, when warranted by traffic levels and funding is available, in coordination with the affected MPOs and local officials.

3.4.3 Design Year (2030) Traffic Projections

Design year (2030) traffic volumes were projected for the Preferred Alternative using data from the MDOT Statewide model, the West Michigan Shoreline Regional Development Commission (WMSRDC/WestPlan) model, and the Macatawa Area Coordinating Council (MACC) model. Design year (2030) traffic volumes for the Preferred Alternative were projected on US-31 in Grand Haven, Holland, and the rural areas between the cities, and along the new M-231 route from M-45 to M-104/I-96.

In the Holland/Zeeland area, design year traffic projections and traffic changes caused by Alternative F-1a improvements were derived from the MACC/MPO travel demand model. The US-31 and Alternative

F-1a diverted traffic were developed using projected growth rates and MACC/MPO travel demand model results. The MACC/MPO model was used to determine design year daily, diverted and peak-hour traffic volumes for the Preferred Alternative in the Holland/Zeeland area from 32nd Street in the south, to Fillmore Street in the north, and eastward to 96th Avenue, M-121 and I-196.

In the Grand Haven area, design year traffic projections and the amount of traffic being diverted from US-31 to the M-231 bypass were derived from the WestPlan/MPO travel demand model. The WestPlan model was used to determine design year daily, bypass, diverted and peak-hour traffic volumes for the Alternative F-1a in the Grand Haven area from Fillmore Street in the south, to M-104 in the north, and eastward to 68th Avenue. The MDOT Statewide model was used to provide data for rural areas not covered by the MPO models.

An overview of the projected average daily traffic (ADT) values for US-31, the M-231 Bypass, and associated diversion values for the Preferred Alternative is shown in **Figure 3.4-5** for the entire study area.

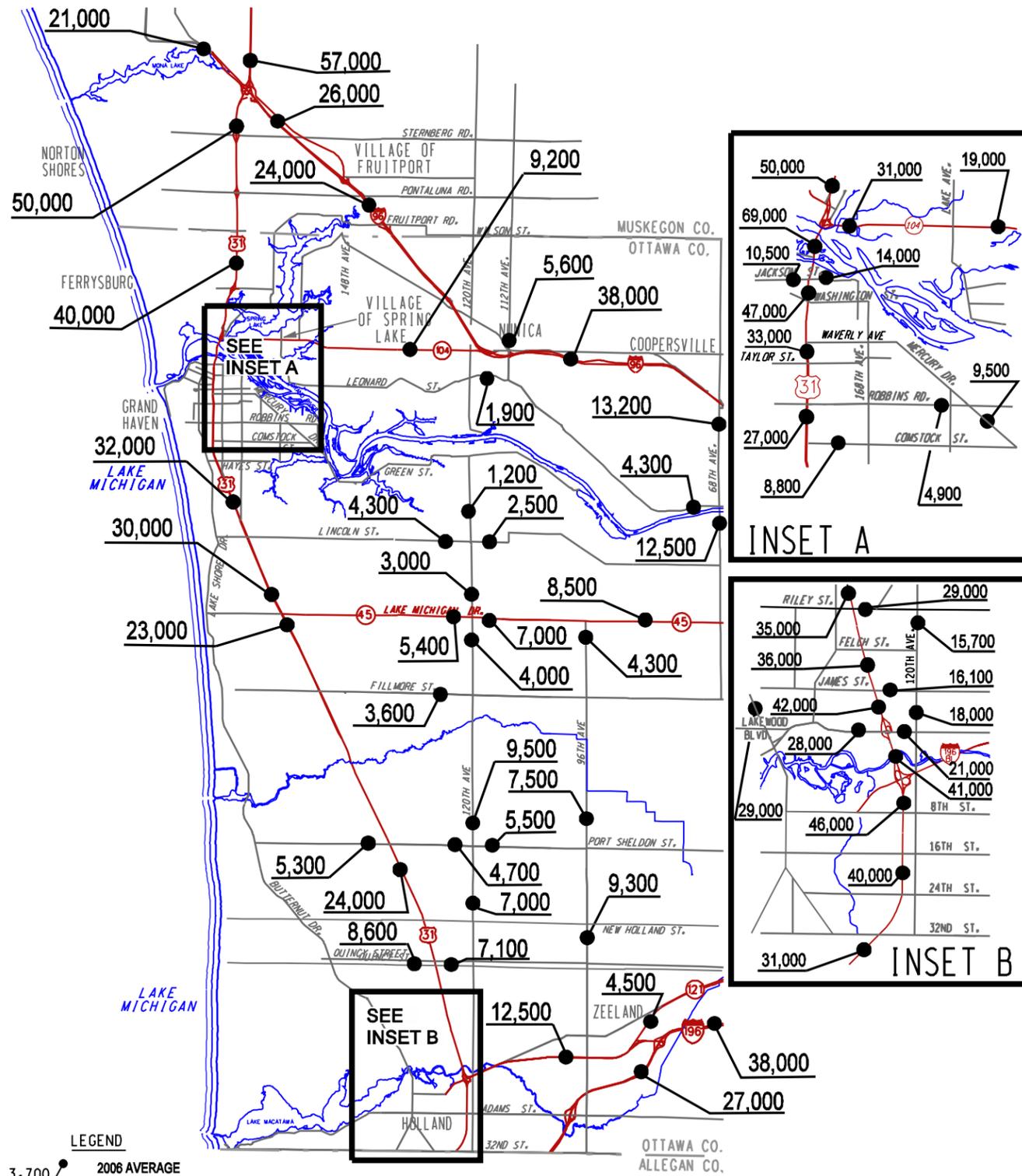
Based on the WestPlan/MPO model, it is projected that up to 22,000 vehicles per day will be diverted from existing US-31, 68th Avenue and other area routes to the proposed new M-231 alignment. As seen in **Figure 3.4-5**, traffic is expected to divert from US-31 to the new alignment via I-96, M-45, M-104, Lincoln Street, 120th Avenue from the south, and other routes in the corridor study area. Travel patterns on M-104 will also change with some overall reduction in volumes projected. North-south routes in Grand Haven near US-31, such as Lakeshore Drive/Sheldon Road and 168th Avenue/Beechtree Street, are shown to have reductions in daily traffic that will be diverted to the new alignment. At the US-31/Grand River crossing it is projected that 13,000 vehicles per day would be diverted to the new alignment. The diversions shown in **Figure 3.4-5** are based on the annual average daily traffic (AADT). Even larger volumes may be diverted during the peak summer tourist season. Additional studies may be needed to determine the full extent of diversion during the summer peak, after the new route is open.

The peak-hour level of service (LOS) for 2030 No-Action and 2030 Preferred Alternative are depicted in **Table 3.4-2**. A comparison of peak-hour Levels of Service at intersections along the US-31 corridor between the No-Action Alternative and the Preferred Alternative are shown in **Figure 3.4-6** and **Figure 3.4-7**.

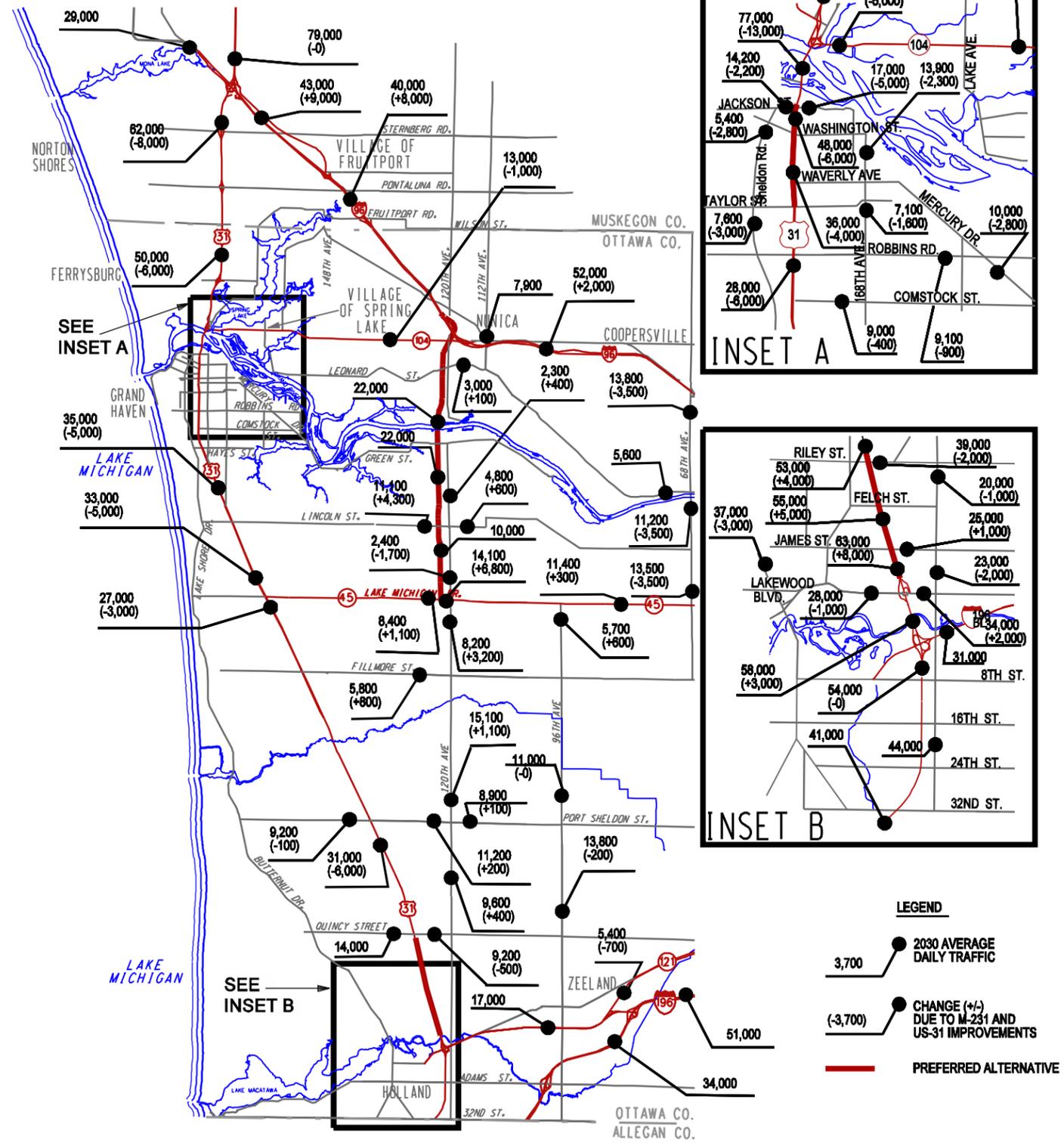
Location on US-31		AM Peak-Hour		PM Peak-Hour	
		Design Year (2030) No-Action	Design Year (2030) Preferred Alternative	Design Year (2030) No-Action	Design Year (2030) Preferred Alternative
Holland Area	32 nd Street	D	D	D	D
	24 th Street	B	B	B	B
	16 th Street	D	D	D	D
	8 th Street	D	D	D	D
	James Street	D	C	F	D
	Felch Street	C	B	C	C
	Riley Street	D	C	F	C
	Quincy Street	C	B	D	C
Port Sheldon St	B	B	B	B	
	M-45	C	C	B	B
Grand Haven Area	Ferris Street	E	C	D	C
	Hayes Street	E	C	D	C
	Comstock Street	D	B	C	C
	Robbins Road	C	C	E	D
	Taylor Avenue	C	B	D	C
	Washington Ave	C	B	D	C
	Jackson Street	C	C	F	E

Note: Intersections with LOS "E" or "F" are shown as shaded

2006 AVERAGE DAILY TRAFFIC

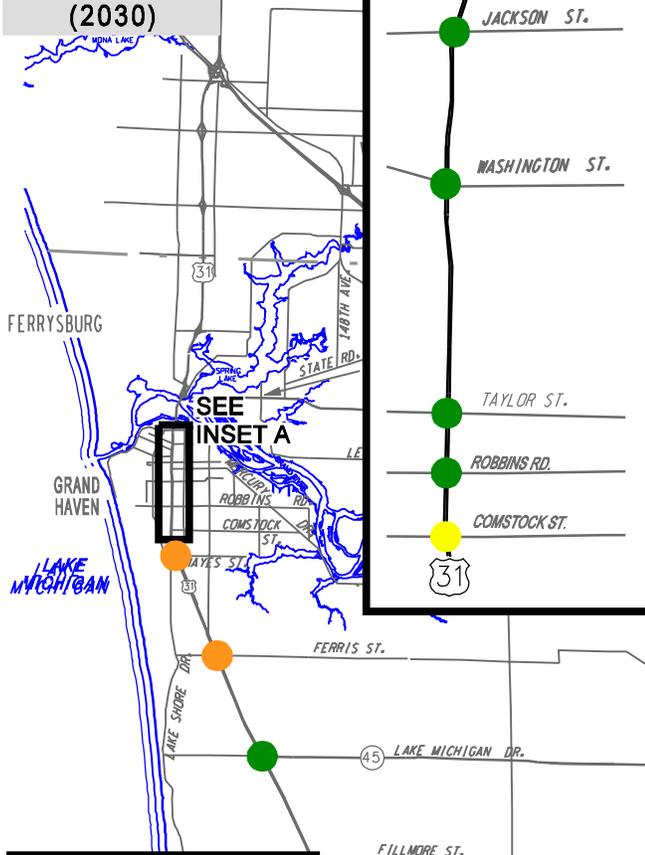


2030 PREFERRED ALTERNATIVE AVERAGE DAILY TRAFFIC

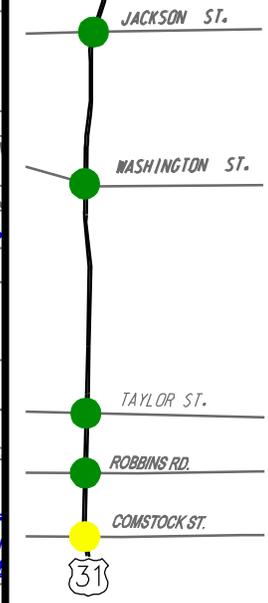


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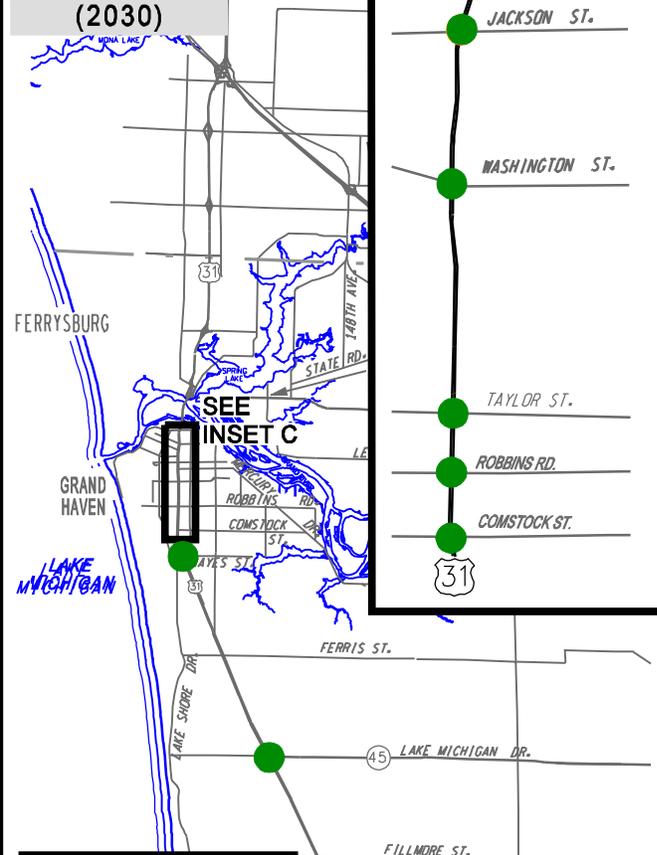
NO-ACTION ALTERNATIVE (2030)



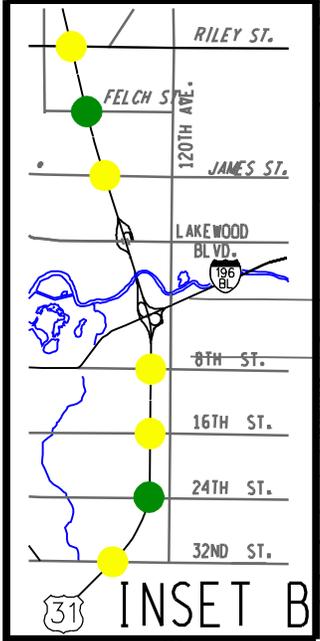
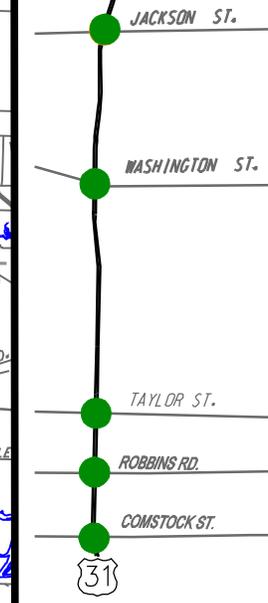
INSET A



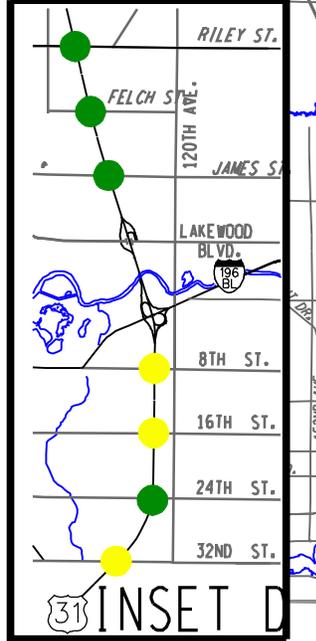
PREFERRED ALTERNATIVE (2030)



INSET C



SEE INSET B



SEE INSET D

LEVEL OF SERVICE

- A, B, C
- D
- E
- F



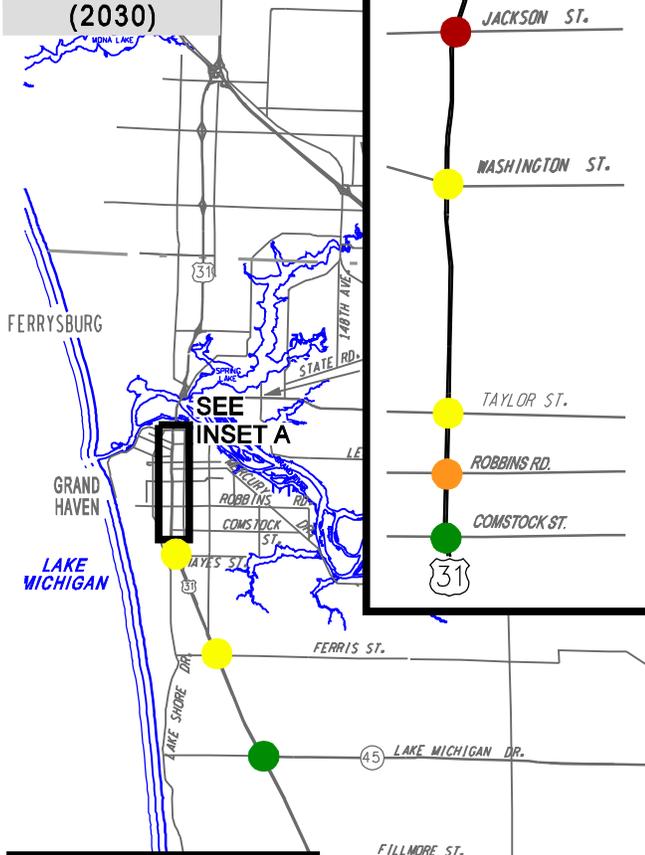
US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

**NO-ACTION AND
PREFERRED ALTERNATIVE
2030 AM-PEAK HOUR
LEVEL OF SERVICE ON US-31**

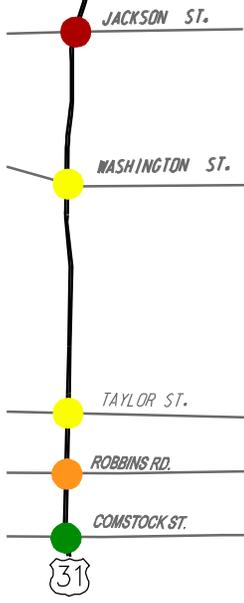


**FIGURE
3.4-6**

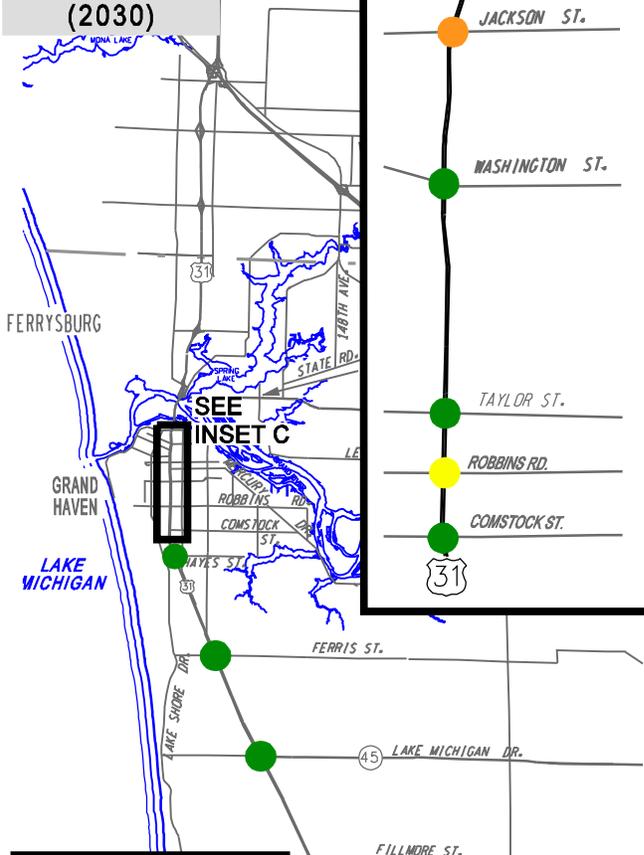
NO-ACTION ALTERNATIVE (2030)



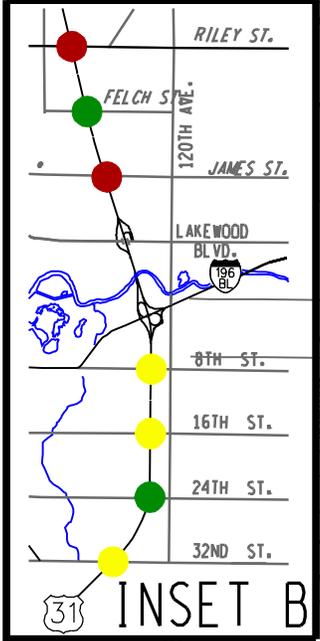
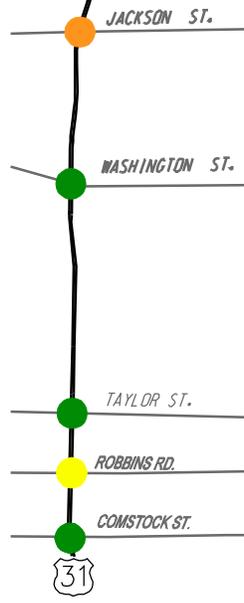
INSET A



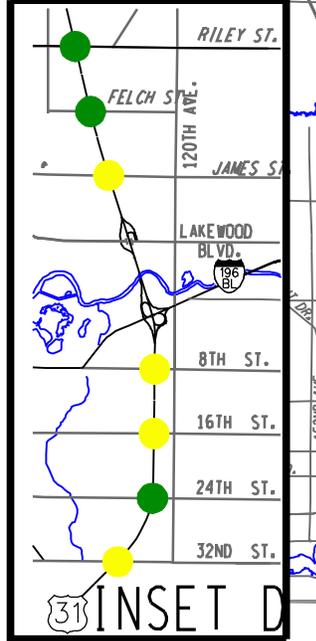
PREFERRED ALTERNATIVE (2030)



INSET C



SEE INSET B



SEE INSET D

LEVEL OF SERVICE

- A, B, C
- D
- E
- F



NORTH

NOT TO SCALE

US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

**NO-ACTION AND
PREFERRED ALTERNATIVE
2030 PM-PEAK HOUR
LEVEL OF SERVICE ON US-31**



**FIGURE
3.4-7**

As shown in **Table 3.4-2**, construction of the Preferred Alternative is expected to relieve traffic congestion and the safety issues associated with congestion along US-31 at the majority of locations in both Holland Township and City of Grand Haven. The section between East Lakewood Boulevard and Quincy Street was selected for widening due to the increasing congestion, rate of crashes, and the rising number of fatal crashes along this segment. The LOS at the US-31 and Jackson Street intersection improves from F to E and delays are less than half of the No-Action Alternative.

3.5 OTHER PROJECTS IN THE FEIS STUDY AREA

Road and Bridge

MDOT will continue to address roadway condition and operational issues using road and bridge reconstruction, rehabilitation and safety enhancements throughout the study area. Since the DEIS, intersection improvements have been completed along US-31 at the following intersections: Waverly Avenue (in Grand Haven), Lincoln Street, Buchanan Street, Croswell Street, New Holland Street and Comstock Street.

Some additional planned projects not dependent on the Preferred Alternative include:

- Reconstruction/rehabilitation of US-31 from 8th Avenue to Lakewood Boulevard, including the ramps at the I-196 BL interchange and rehabilitation of the structures at the Black River, I-196 BL, a railroad crossing, and Lakewood Boulevard in Holland.
- Indirect left-turn and/or right-turn improvements are planned at US-31, at the following intersections: Fillmore Street, Stanton Street and Bagley Street, and Taylor Avenue (in Grand Haven).
- Intersection improvements (additional turning lanes) at the M-104/144th Avenue intersection.

Intelligent Transportation Systems (ITS)

The primary focus of ITS deployment is to provide an incident detection, response, and management system throughout the US-31 corridor, and to provide timely and accurate traveler information

ITS initiatives are planned for US-31 in the Grand Haven area in the near future. Initial ITS deployment will occur in 2009 and will consist of one Dynamic Message Sign (DMS) and two or three Closed Circuit Television (CCTV) cameras. The DMS will be located on southbound US-31, approximately 1.5 miles north of the US-31 and I-96 interchange. The proposed DMS will allow MDOT to provide southbound motorists with advanced notification of traffic congestion on US-31 and I-96 as well as bascule bridge malfunctions.

CCTV cameras will be deployed in three locations to provide surveillance along US-31 near the Grand River bascule bridge, and on US-31 north of the bascule bridge. The CCTV cameras will assist MDOT with providing accurate information to be displayed on the proposed DMS on southbound US-31 and to provide traveler information via email/internet, and to provide incident response with information. The proposed ITS devices will primarily be monitored and controlled by the West Michigan Traffic Management Center (WMTMC) staff located at the MDOT Grand Region Office in Grand Rapids.

The full deployment of ITS in this area is planned for 2013 and beyond. It will include the following:

- DMS - A full ITS deployment in the Grand Haven/Muskegon metro areas including DMS on US-31, I-96, M-104, and M-45.
- Alternative Routes – The current emergency management route for US-31 diverts traffic to 68th Avenue. After the construction of the M-231 bypass route in Alternative F-1a, the official emergency management routes will consist of roads under the jurisdiction of MDOT, in this case reducing the length of the emergency management route by half. The Preferred Alternative will allow for a more reasonable alternate route for through traffic on US-31, making DMS even more beneficial.
- Arterial Surveillance – The highest priority locations for arterial surveillance deployments are congested signal corridors and incident management routes. US-31 from Robbins Road to Jackson Street and M-104 near I-96 (and the Preferred Alternative) are listed as high priority locations for

arterial surveillance deployments.

- Freeway Surveillance – Freeway surveillance at major junctions, including the possibility of midpoint camera coverage to monitor backups associated with incidents at the major junctions are planned for future deployment. US-31 at M-104, I-96 at M-104 (and the Preferred Alternative) are listed as high priority locations for freeway surveillance deployments.

Other possible ITS deployments in the project area include cell phone probe data, video sharing, illuminated trailblazing signs, and road weather information systems (RWIS).

3.6 CONCLUSION

The Preferred Alternative (F-1a) best satisfies the Purpose and Need for this project while minimizing impacts and providing financially feasible improvements. This conclusion was reached after additional coordination with MPO's, local agencies, resource agencies, other local stakeholders, and the public.

The Preferred Alternative effectively addresses the current traffic-related issues and future traffic demand by improving existing US-31 in the most congested areas, and providing an alternate route with a new Grand River crossing to increase regional access. The new M-231 route will create a logical trunkline segment with independent utility. Potential indirect and cumulative impacts from urban sprawl pressures are minimized by limiting direct access to the new M-231 route.

Reduce Traffic Congestion and Delay

Capacity improvements consisting of adding lanes and improving intersections will enhance traffic flow along US-31 within the Holland and Grand Haven urbanized areas. These improvements will increase capacity, reduce delay and improve intersection operations. The new alignment with the new Grand River crossing will provide an alternate through route for regional access and help further reduce traffic congestion and delay in the Grand Haven area. Traffic is also diverted from the Ottawa County Road Commission 68th Avenue two-lane river crossing on the east end of the corridor study area.

Improve Safety

The capacity improvements on existing US-31 will reduce traffic congestion and delay and will also reduce the potential for crashes on existing US-31. The new M-231 alignment will be limited access (allows no access for vehicles or adjacent land use, between intersections), which has a reduced crash rate as compared with free access (provides access for vehicles at intersections, and adjacent land use access).

Increase Access

The new alignment includes an additional crossing of the Grand River, a new I-96/M-231 interchange and improvements at the existing I-96/112th Avenue Interchange. This relieves travel demand on the existing US-31 crossing in Grand Haven, provides improved access to the growing area east of existing US-31 in the corridor study area, and provides a critical link for emergency services between Robinson Township and Crockery Township and the region.

Future Demand

This new route will not preclude additional lanes on the Preferred Alternative M-231 alignment north of M-45, when warranted by land use and traffic growth in the corridor study area. Additional improvements beyond this Preferred Alternative will require future NEPA environmental documentation and alternative evaluation, based on statewide financial considerations, state trunkline needs, and local priorities.