4.17 THREATENED AND ENDANGERED SPECIES

Threatened and endangered species are protected by the state of Michigan under Part 365, Endangered Species Protection of the NREPA (Act 451 of the Michigan Public Acts of 1994), and/or the federal government, under Section 7 of the Endangered Species Act of 1973 as amended. Special concern species or candidate species are monitored, but not protected by law. According to correspondence with the MDNR and the United States Fish and Wildlife Service (USFWS), the following species are known to occur near the Preferred Alternative:

Pitcher's thistle (*Cirsium pitcheri*) is a state and federally threatened plant species which grows extensively along shorelines on open sand dunes and low open beach ridges of the Great Lakes. It is most often found in near-shore plant communities but is known to grow in non-forested areas of a dune system. This native thistle often occurs in association with the Great Lakes endemic Houghton's goldenrod (*Solidago houghtonii*). Suitable dune habitat does not exist within the Preferred Alternative. Pitcher's thistle was not observed along the Preferred Alternative during field surveys in August of 2007. Most of the existing US-31 area is commercialized, while the proposed new alignment corridor mainly consists of open fields, upland forests, wetlands, or residential lots. Pitcher's thistle and its habitat will not be affected by the Preferred Alternative.

American ginseng (*Panax quinquefolius*) is listed as state threatened and is most often found in rich hardwood forests on slopes or ravines and sometimes in swampy areas or wooded dune hollows. Ginseng grows best in heavy soils (clay mixed with gravel) covered with leaf mold or rotted wood. Flowering occurs during June and July with the flowers developing into small green fruits in late July and early August. In late August and September the fruits ripen and become bright crimson in color. No individuals were observed along the Preferred Alternative area during the field surveys in August of 2007. Proper habitat for American ginseng does not exist in this area. The Preferred Alternative will have no effect on American ginseng.

A **Great Lakes marsh,** a high quality natural area, is a mutli-seral, non-forested wetland, directly influenced by and connected to a large freshwater lake. They provide habitat for waterfowl, shorebirds, fish, and mammals. Plant community structure and distribution are influenced by the type of coastal features present, including deep marsh, emergent marsh, marsh meadow, and upland margin. No **Great Lakes marshes** were observed due to the absence of large freshwater lakes in the project area.

The **Indiana bat (*Myotis sodalis*)** is a state and federally endangered mammal which roosts in trees in riparian, bottomland and upland forests from approximately April 15 to September 15. Indiana bats may summer in a wide range of habitats from highly altered landscapes to intact forests. Roost trees are generally large, dead and dying. Roost trees can also be live trees with peeling or exfoliating bark favoring southern exposure to the sun. During an Indiana Bat habitat assessment, only three small areas were determined to contain suitable Indiana Bat habitat. Along the proposed M-231, only a few dead or dying trees or other trees with exfoliating bark or cavities big enough for a bat to roost in were present. Forested habitats usually had a full canopy shading much of the area leaving very few trees exposed to the sun. The complete findings of this habitat survey can be found in "Indiana Bat (*Myotis sodalis*) Habitat Study for The US 31 Extension Ottawa County, Michigan." Additionally, a survey conducted in May and June of 2007 produced no signs of the Indiana bat during mist netting studies and acoustic monitoring. The report based on the mist-netting and acoustic monitoring, "A Survey for Bats at the Proposed US-31 Bypass of the City of Grand Haven, Ottawa County, Michigan" concluded that this bat species most likely does not use the area. Given the lack of good quality roosting habitat and the lack of bats found during mist netting and acoustic monitoring, the Indiana Bat and its associated habitat will not be affected by the proposed M-231.

The **bald eagle (*Haliaeetus leucocephalus*)**, although recently delisted, is still federally protected under the Bald and Golden Eagle Protection Act. The bald eagle inhabits, breeds, and forages around freshwater lakes with fish as their main dietary staple. Although the bald eagle may use the Grand River area for foraging and resting, it most likely does not nest in the proposed M-231 alignment. No

individuals, nests, or activities were observed during the field surveys in August of 2007. The Bald Eagle and its associated habitat will not be affected by the Preferred Alternative.

One species of special concern was observed within the study area on August 30th, 2008. A large, dead **eastern box turtle (*Terrapene carolina carolina*)** was found along the proposed new alignment corridor. The turtle was discovered on Sleeper Street and was an apparent automobile fatality. In previous surveys, two box turtles specimens were also discovered in Robinson and Crockery Townships. The eastern box turtle is Michigan's only terrestrial turtle and occurs in forested habitats with sandy soils near a water source such as streams, ponds, marshes or swamps. Access to un-shaded nesting sites in sandy, open areas is critical to reproduction.

During the field survey, no state or federally threatened or endangered species were observed within the project area. Consequently, it is unlikely any threatened or endangered species would be impacted by the Preferred Alternative. Letters were sent to both the MDNR and USFWS describing the findings of the habitat and species assessment and indicating that the project would have no effect on listed species. The MDNR responded on January 15, 2008 and agreed with the findings that the project should have no direct impacts on known special natural features. According to the Section 7(a)(2) consultation process, once it is determined that a project will have no effect on federal threatened or endangered species, no further correspondence with USFWS is necessary.

Mitigation

A letter requesting a finding of no effect was submitted to the US Fish and Wildlife Service. Given that potential habitat for the Indiana bat is present, tree clearing for the project cannot occur between April 1st and October 1st. Since tree clearing for the project will not be completed within one year of the mist netting study, further studies may be required by USFWS before clearing occurs.

If Eastern box turtles are encountered during construction, special care must be taken to remove them from the construction zone. At the preconstruction meeting, construction crews will be required to undergo Eastern box turtle identification and removal procedures with qualified MDOT personnel prior to start of work. Although species of special concern are not legally protected by the State of Michigan, great care should be taken to preserve this rare turtle species. MDOT does protect special concern species, even though they are not protected by law.

4.18 CULTURAL RESOURCES

The Michigan State Historic Preservation Office (SHPO) has issued a no historic properties affected determination for above-ground historic resources, and a no adverse effect determination for archaeological resources (see **Appendix C** for concurrance letter).

4.18.1 Historic Architectural Resources

The Preferred Alternative will not affect any above-ground historic resources. During the development of the DEIS, several surveys of above-ground historic resources were conducted to comply with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CRF 800). The surveys, all accepted by the SHPO, identified a total of 3 National Register-eligible properties including the Boer Farm in Zeeland Township, the Ottawa Station School in Olive Township, and the Southside Historic District in the City of Grand Haven. The Area of Potential Effect (APE) of the Preferred Alternative no longer incorporates any land in Olive and Zeeland Townships, so the project will not impact the Boer Farm or the Ottawa Station School.

Southside Historic District in the City of Grand Haven:

The Southside Historic District is significant as an important collection of residential properties dating from 1880 to the 1920s, and has been identified as eligible for listing in the National Register of Historic Places (NRHP). The main concentration of the district's residential properties is located to the west of Sixth

Street, and between Pennoyer Avenue and Jackson Street. The only portion of the district adjacent to existing US-31 (see **Figure 4.18-1**) is on the west side of US-31 between Pennoyer Avenue and Franklin Street. This segment of US-31 will be reconstructed as part of the Preferred Alternative, but will retain the existing two lanes of traffic in either direction. The Preferred Alternative improvements between Franklin and Pennoyer will take place primarily in the median, away from the Historic District. The curb will remain in its existing location, and thus the improvements will not affect the character of the Historic District. The SHPO concurred with the no historic properties affected determination (see **Appendix C**).

Archaeological Resources

Impacts to Archaeological Resources

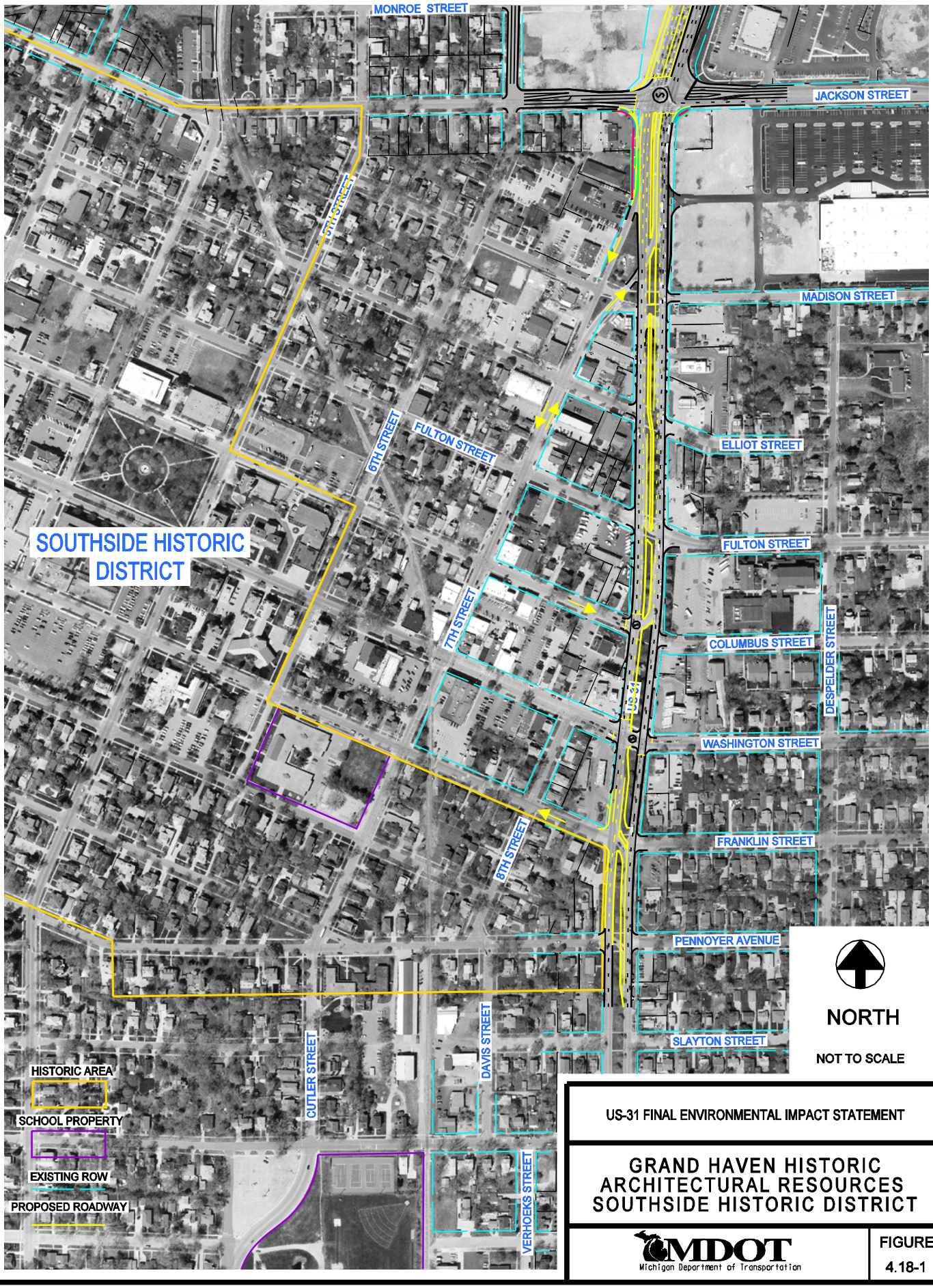
The analysis of Alternative F/J-1 included a Phase I survey of all portions of the Preferred Alternative that were accessible. Two prehistoric sites (20OT318, 20OT319), four historic sites (20OT320, 20OY321, 20OT322, 20OT323), and one site (20OT317) that had prehistoric and historic components were identified as a result of the Phase I survey efforts. None are recommended eligible for inclusion on the NRHP and no further work is considered necessary. Unfortunately, property owners denied access to several properties, preventing their survey. The Michigan SHPO concurred that once MDOT purchased these properties, the surveys would be completed and any eligible archaeological sites located would be mitigated through data recovery. If eligible sites are discovered, MDOT shall consult with the Michigan SHPO and Office of the State Archaeologist to develop an acceptable data recovery mitigation plan.

4.18.2 Section 106 - Traditional Cultural Properties

Indian Tribes were consulted regarding historic properties, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR 800, during the course of this study. In August 2001, letters were mailed to eight federally recognized Tribes of Michigan and one Indian Tribe of Michigan that was not federally recognized. The letter requested comments on the potential for the four-lane limited access Alternative F/J1 to impact areas that may traditionally have been used or that may be culturally significant to Native Americans who reside or once resided in the area. Supporting documentation included a map depicting Alternative F/J1. The Saginaw Chippewa Tribe responded that they did not know of any Indian Traditional Cultural Properties, Sacred Sites, or other Significant Properties in the study area. The Hannahville Indian Community responded that the alternative would not affect any Indian religious site or burial ground of the Hannahville Indian Community.

In September 2007, letters were mailed to the twelve federally recognized Tribes of Michigan requesting comments about the proposed areas to be widened in the Preferred Alternative along existing US-31 and the proposed two-lane road between M-45 and I-96/M-104 (Alternative F-1a). Supporting documentation included a map of the proposed project. The Keweenaw Bay Indian Community responded that they had no interests at this time regarding religious or cultural sites documented in the proposed project areas and requested to be consulted if the scope of work changes, or if artifacts or human remains are discovered. The Little Traverse Bay of Odawa Indians responded that they do not have any information concerning the presence of any Indian Traditional Cultural Properties, Sacred Sites, or Other Significant Properties in the proposed project areas and requested to be consulted if Native American human remains or burial objects are inadvertently discovered (see correspondence in **Appendix C**).

In October 2008, letters were mailed to the twelve federally recognized Indian Tribes of Michigan. In addition, letters were also sent to two Indian Tribes of Michigan that are not, as yet, federally recognized. The letters described the proposed improvements along existing US-31 and the proposed two-lane road between M-45 and I-96/M-104 and included detailed illustrations of the proposed work drafted for this FEIS. Also discussed was a proposed wetland mitigation site, the feasibility of which is currently being studied. In the letter, MDOT offered the opportunity to meet and discuss the proposed project in more detail and requested written comments on the project if a meeting was not possible. Additional follow up phone calls were also made to tribes in the proximity of the project. The Ketegitigaaning Ojibwe Nation responded that they have no interests documented at this time in the proposed project areas and requested to be consulted if the scope of work changes in any way, or if artifacts or human remains are discovered (see correspondence in **Appendix C**). No requests to meet with MDOT were received.



US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

GRAND HAVEN HISTORIC ARCHITECTURAL RESOURCES SOUTHSIDE HISTORIC DISTRICT

MDOT Michigan Department of Transportation

FIGURE 4.18-1

Impacts to Section 106 - Traditional Cultural Properties

Traditional cultural properties are most frequently associated with Native American sacred places. They are important because of the association with the traditional practices or beliefs of a living community. Those beliefs are rooted in that community's history. They are important to maintaining the continuing cultural identity in that community.

Indian Tribes were consulted regarding historic properties, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR 800, during the course of this study. In August 2001, letters were mailed to eight federally recognized Tribes of Michigan and one Indian Tribe of Michigan that was not federally recognized (Grand River Band of Ottawa Indians). In September 2007, consultation letters were mailed to the twelve federally recognized Tribes of Michigan. In October 2008, consultation letters were mailed to the twelve federally recognized Indian Tribes of Michigan. In addition, letters were also sent to two Indian Tribes of Michigan that are not, as yet, federally recognized (Grand River Band of Ottawa Indians and the Burt Lake Band of Ottawa and Chippewa Indians). None of these Tribes identified any known Traditional Cultural Properties within the APE for this undertaking (see correspondence in **Appendix C**).

No National Register-eligible historic or prehistoric Native American archaeological sites have been identified within the APE for this undertaking. Two areas north of the Grand River, however, have not been surveyed because access was denied by the landowners. In consultation with the SHPO, the MDOT and SHPO agreed that once MDOT purchases the two properties, the surveys will be completed. The SHPO and MDOT further agreed that any eligible sites would be mitigated through data recovery since any such sites would be important for the information they may yield but not for preservation in place (see correspondence in **Appendix C**).

The Keweenaw Bay Indian Community, the Little Traverse Bay of Odawa Indians, and the Ketegitigaaning Ojibwe Nation asked to be consulted if the scope of work changes, or if artifacts or human remains are discovered. In addition, the Tribal Historic Preservation Office for the Pokagon Band of the Potawatomi Indians will be consulted as they have been recognized by the Department of the Interior.

In the event of accidental discovery of Native American human remains during design or construction, the above four Tribes will be contacted for consultation in accordance with the appropriate federal and state laws, rules and regulations regarding such finds. An "unanticipated finds" plan will be developed to provide detailed procedures to deal with significant historic resources which may be identified during project implementation. This plan will establish procedures to evaluate and treat these resources. The procedures include stopping work, examining findings, determining eligibility and documenting results.

4.19 PARKS AND RECREATION

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

4.19.1 Parks and Recreation Lands

Park, recreation, and game areas are found throughout the study area, including publicly and privately owned facilities. Park and recreational facilities within the study area are shown on **Figures 4.6-1a** through **4.6-1b**. The Central Community Park (120th Avenue and Buchanan Street) and Johnson Street Wildlife Management Area (Johnson Street just west of 120th Avenue) are located near the Preferred Alternative, but will not be impacted.

4.19.2 Public School Recreation Areas

Robinson Elementary School is adjacent to the proposed new alignment. It will not be directly impacted, although there may be temporary impacts, such as access limitations or restrictions to some roadways during construction. It may be necessary to modify bus routes during construction. There are no direct or permanent impacts to public school recreational areas by the Preferred Alternative.

4.19.3 State Recreation Lands and Game Areas

Recreation and game areas on the Grand River are found throughout the study area, including publicly- and privately-owned facilities. See to **Figures 4.6-1a** and **4.6-1b** for locations of public recreational lands. There are no publicly owned recreation lands or game areas near the Preferred Alternative; therefore there are no direct impacts.

4.19.4 Sidewalks

The Preferred Alternative will not impact any existing or planned non-motorized facilities within the study area. Temporary impacts will be related to limitations or restrictions on local roads during construction. See **Section 4.6** for a discussion on non-motorized facilities.

Existing US-31
There are no sidewalks adjacent to existing US-31 in the Holland Township area and none are proposed. Pedestrian movements will be routed to 120th Avenue (Waverly Road) for this stretch of US-31. Existing cross-street sidewalks in Holland Township will be maintained, and stay in compliance with the ADA.

In Grand Haven, there are existing sidewalks adjacent to US-31, which will be maintained or replaced as needed. Existing cross-street sidewalks in Grand Haven will be removed at the following locations: Pennoyer Avenue, Franklin Street, Fulton Street, Elliot Street, and Madison Street to accommodate new crossovers along existing US-31. All other cross-street sidewalks will be maintained, and stay in compliance with the ADA.

Proposed New Alignment
The proposed new alignment does not cross any existing sidewalks.

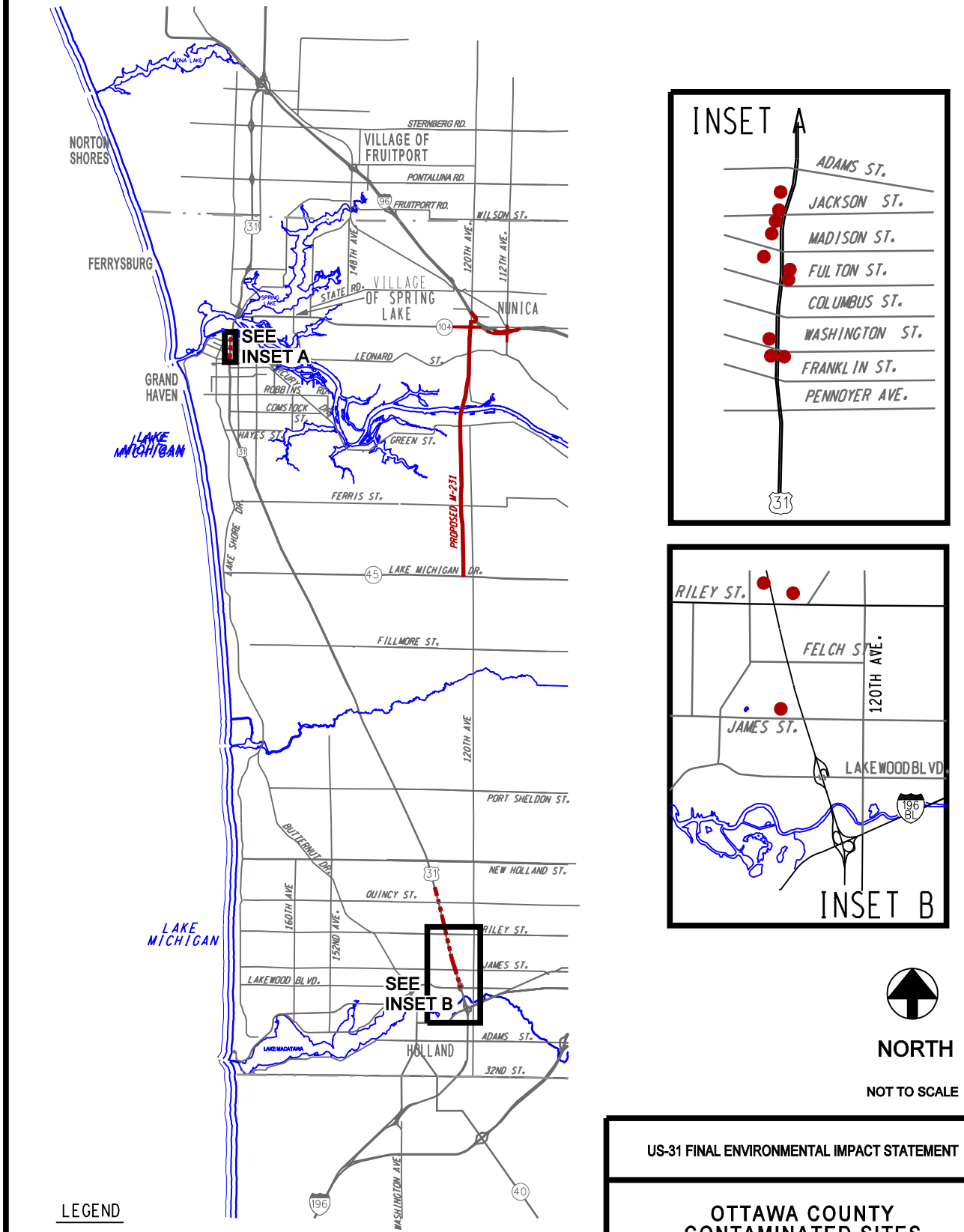
4.20 POTENTIAL CONTAMINATED SITES

An inventory of known and potential contaminated sites and hazardous waste generator sites was undertaken near the Preferred Alternative (see **Figure 4.20-1**). The new inventory effort was completed for an area encompassing the Preferred Alternative alignment, including new and previously studied areas. The database search was updated, since regulatory databases and eligibility of sites included on the database have changed substantially since the DEIS. The database search identified sixteen individual properties where hazardous materials are present within the existing ROW, or share a common property boundary with the ROW.

Impacts
Sixteen known and/or potentially contaminated sites or hazardous waste generators were identified as being directly impacted by the Preferred Alternative. The sites were ranked according to their potential for environmental contamination and potential clean-up costs using the following categories:

- High Risk: Sites listed as State Hazardous Waste Sites (SHWS),
- Medium Risk: Sites with documented releases of hazardous substances into the soil and/or groundwater, sites with registered underground storage tanks (UST), or landfills,
- Low Risk: Sites that store and/or use hazardous substances but have no documented or known releases.

The sites consist of active and inactive gasoline stations (medium risk), a maintenance yard (high risk), an automobile service station (medium risk), and six painting facilities (low risk).



US-31 FINAL ENVIRONMENTAL IMPACT STATEMENT

OTTAWA COUNTY CONTAMINATED SITES

MDOT Michigan Department of Transportation

FIGURE 4.20-1

Mitigation

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. The PACS will include the review of federal and state environmental records and historical land use records, and a field site investigation. If necessary, a Preliminary Site Investigation (PSI) or Phase II Environmental Site Assessment including soil borings and the installation of monitoring wells may be undertaken to collect soil and groundwater samples to determine the type and extent of contamination that may exist. MDOT is not liable for contamination on property it acquires for ROW purposes unless it does something to exacerbate the existing contamination. Even so, it is sometimes necessary for MDOT to excavate or remediate environmental contamination that is encountered within the construction zone in order to proceed with construction in a safe manner. MDOT is eligible to recover these remediation costs from the parties responsible for the contamination.

It is MDOT's policy to avoid sites with environmental contamination whenever possible. When feasible, and when the nature and extent of environmental contamination is known, adjustments to the road alignment will be considered. Where it is not possible to avoid sites with environmental contamination, adequate and appropriate protection for employees, workers, the community, and the natural environment must be provided. 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. Design and engineering controls will be implemented to minimize the potential for contamination to spread. If a previously unidentified site with environmental issues is encountered during construction, MDOT must take all necessary measures to prevent any imminent threat to human health and the environment. MDOT has a contract in place with an approved environmental contractor to remove USTs it may unexpectedly encounter during construction. Where feasible and when the specific risks, extent, and type of contamination are determined, adjustments to the road alignment will be considered to avoid these sites.

4.21 AESTHETICS AND VISUAL CHARACTER

4.21.1 Landscape Analysis

The regional landscape is described to provide a reference for the visual environment of the study area. This assists in identifying unique or especially sensitive visual resources of the Preferred Alternative corridors.

The Preferred Alternative has been divided into visually distinct environments called "Landscape Units" to define its existing aesthetic and visual character. The boundaries of these Landscape Units are defined by changes in visual character or spatial experience. A variety of landscape types may occur within a single Landscape Unit. Three Landscape Units are described below, providing a framework for comparing the visual effects in the study area.

View from US-31 north of Felch Street in Holland, looking north.

Urban Landscape Unit

This landscape unit comprises the urban setting of the City of Grand Haven, and Holland Township. In the City of Grand Haven and Holland Township, the landscape is predominantly commercial, with some residential. This landscape unit adjoins the Grand River Landscape Unit in Grand Haven.

View looking west from 120th Ave. south of M-45.

The Agriculture Landscape Unit

This unit is typical of regional agricultural areas. It includes hedgerows, small woodlots, wetlands, deep roadside ditches, and some sand or gravel local roads. The Ottawa Agriculture Landscape Unit is located primarily within parts of Robinson and Crockery Townships, and is completely rural. The greatest concentration of viewers of this unit is users of M-45, which intersects with the southern end of the new alignment. The new alignment contains level row crop and nursery fields. These fields and horticultural businesses are generally large and offer expansive views set against the backdrop of trees. There are several inland dune areas with mixed deciduous and evergreen stands, providing extensive and dramatic topographic relief. Rural residential home sites are located on the edges of these areas along local paved or gravel roads. In the northern portion, there are occasional older farmsteads broken up by sporadically located, wooded rural residential home sites, and woodlots along two-lane county roads.

The Grand River Landscape Unit

This unit includes the meandering Grand River, its shoreline, associated bayous, oxbows, floodplains, tributaries, Spring Lake, and river islands. It extends from 120th Avenue area in Robinson and Crockery Townships, downstream through Grand Haven and Spring Lake townships, to its confluence with Lake Michigan in the City of Grand Haven. The topographical relief is the most pronounced of any landscape unit in the study area. It includes level, but wide, floodplains consisting of many wetland types, rising to wooded river valley walls.

View from Spoonville Gun Club facing south.

4.21.2 Impacts to Visual Quality

The visual impact of a project is defined as a measure of the changes in the visual resource and the way in which the viewer responds to the change. Changes to the visual resource can be described as the changes in the visual information generated by the project, the compatibility of these changes with the surrounding landscape, and the resulting effect on visual quality. Accordingly, the impact of a project can be estimated as being the difference between the visual quality of the landscape before and after the project.

It is necessary to determine who the viewers of the facility will be, other than the users of the facility, as part of the visual impact assessment. It is also necessary to determine the sensitivity of these viewers to changes in the landscape character resulting from construction of the facility. The activity and awareness of the viewers in the location of the facility are important variables in the analysis.

Construction of the proposed improvements will have a visual impact on adjacent areas. The project's mainline and crossings of roadways and waterways will all be visible from the surrounding areas because of the flat terrain. Because of elevated grade separations, the road surface will be seen as a subtle rise and fall across the relatively flat landscape. In general, visual quality is enhanced or improved for those using the facility and degraded for those viewing the facility from off the road. The roadway will be highly visible at the grade separations to people in areas off the roadway, which will likely be an adverse impact. Along the new alignment, there are numerous opportunities for views across agricultural fields.

A general description of the visual quality of the Preferred Alternative and the impacts on these visual resources is provided below.

Existing US-31
The proposed improvement on existing US-31 will not have much effect 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. With the widening occurring in the median, the amount of paved area increases and displaces the grassy median.

Proposed M-231
A new roadway will affect the visual quality of the agricultural landscape. The roadway design may result in a negative visual perception that the landscape has been subject to encroachment and therefore lacks intactness. The roadway will also negatively affect the unity of the agricultural landscape. Currently, the farm structures, farm fields, woodlots, and occasional residential development along the paved and unpaved roadways provide a sense of unity. A roadway through this landscape will negate this sense of unity within the view shed of the road.

From the bridge over the Grand River, motorists will view the river, wetlands along the river, Crockery Creek in the background, and the residential and marina development along the waterfront. Viewers in the residential and development areas will perceive a dramatic change in their view of the landscape once the bridge is constructed due to the public access to the view.

Mitigation
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. The goals and objectives of this section include:

- Improvement of the overall aesthetics and unity of US-31,
- Establishment of a hierarchy of areas for special visual emphasis, and;
- Development of conceptual views of the areas for special visual emphasis that may be used in the implementation of the project.

Visual quality guidelines can be developed to minimize adverse visual and auditory impacts to both users and land use neighbors adjacent to the system. The goal of these guidelines is to ensure a consistent, aesthetically pleasing treatment for the design and to minimize visual effects throughout the existing US-31 corridor and the new alignment corridor.

4.22 CONSTRUCTION-RELATED IMPACTS AND MITIGATION

The construction activities associated with building the proposed improvements will create environmental impacts. These adverse effects will be temporary, lasting only during construction.

The goal of mitigation measures is to preserve, to the greatest extent possible, existing neighborhoods, land use, and resources, while improving transportation. Although some adverse impacts are unavoidable, especially during construction, MDOT takes precautions during design and construction activities to protect as many social and environmental systems as possible. Construction activities that include mitigation measures being considered at this time are listed below. Further Agency coordination will continue throughout the design stage. Construction sites will be reviewed to ensure that the mitigation measures proposed are carried out, and to determine if additional protection is required. The appropriate construction related permits will be obtained by MDOT.

4.22.1 River Bridge Construction

Impacts

River bridge construction activities will impact the water, the river bottom, benthic (bottom dwelling) organisms, and the surrounding wetlands.

The proposed Grand River crossing will require deep piles or caissons (up to 180 feet deep). Pile driving or caisson drilling generally has temporary impact on water quality, as it generates turbidity. This work could also impact fish migration if conducted during the spawning period due to vibration, noise, and physical activity within the waterway.

Construction access to the Grand River bridge will most likely be accomplished through the use of a temporary access roadway through the wetlands and a temporary access channel or causeway through the river. Barge or causeway access may be needed for construction work or material delivery. If barge access is needed, dredging of the river may be necessary. Access roadways and channels or causeways will have temporary impacts on water quality in the form of increased turbidity, re-suspension of river and wetland bottom sediments, and disruption of benthic species in the river and wetlands affected.

Excavation of the river bottom, if necessary, will likely be accomplished by mechanical dredge. The dredged material will be placed within a confined upland area. The operation of dredging and dredged material placement will have a temporary impact on water quality resulting from re-suspension of river bottom sediments. Dredging may disrupt the benthic species in the river by disturbing habitat.

Mitigation

Specific construction methods for the proposed bridges over the wetlands and waterways will be further evaluated for the Preferred Alternative during the final design of the project. Issues related to the construction methods that will be evaluated include:

- Avoidance to the extent possible of wetlands and waterways by lengthening structures so bridge abutments and piers avoid or minimize impacts to them,
- Methodologies for the installation of piles or caissons, including whether the piles will be driven or jetted, and whether any excavation will be required for their installation,
- Dredging required for barge construction access,
- Time of year restrictions,
- The need for constructing temporary cofferdams for bridge pier construction,
- Use of Soil Erosion and Sedimentation Control measures.

Attempts will be made to restrict construction activity that disturbs the river bottom to the time of year when benthic (bottom dwelling) organisms are dormant, typically first frost to last frost or mid October to mid May. This reduces the potential for adverse biological effects. Specifically, re-suspended sediment caused by construction activity can interfere with organisms' respiration and this effect is reduced during the dormant season when respiration is minimized. The potentially negative impact on water quality and benthic species caused by dredging and construction of bridge foundations for piers should be temporary. The benthic organisms should reestablish within the disturbed area within one to two years following completion of the dredging through natural re-colonization.

4.22.2 Wildlife and Vegetation

Impacts

Construction, staging, and stockpiling operations may result in the disruption of resident wildlife populations. The removal of vegetation, human activity, and noise from construction operations may result in the temporary displacement of some mobile wildlife species. Non-mobile species can be lost as habitat is converted to construction areas. Maximum disruption of wildlife communities will occur when project construction begins, as displaced animals are forced to compete for space with other nearby

resident wildlife populations. Temporary noise associated with construction could also disrupt breeding and nesting activities of birds and other wildlife. Disruption, displacement and incidental wildlife mortality during construction will be minimized as much as possible by restricting land clearing and construction operations to within the project ROW.

Mitigation

Although some tree removal will be necessary, the existing natural and ornamental vegetative cover will be retained wherever possible within the ROW. Where the existing ground cover must be removed, replacement vegetation will be established in a timely manner using seed and mulch or sod.

Where trees are to be removed from private property, property owners will be given appropriate notice and will be offered compensation or replacement trees to help offset the functional or aesthetic loss of the trees.

4.22.3 Soil Erosion and Sedimentation Control

Soil erosion and sedimentation caused by construction activities can potentially impact water quality. Soil erosion and sediment control features will be required to provide adequate vegetative or temporary stabilization of disturbed areas during construction. MDOT is an Authorized Public Agency and has an approved Soil Erosion and Sedimentation Control Program, which governs the design and implementation of its soil erosion and sedimentation control measures. These measures include items such as silt fence, mulch, seeding, sod, and silt fabric on inlets and other measures as needed. New catch basin inlets will be protected during construction to prevent sediment from entering the enclosed system. Adherence to soil erosion and sedimentation control plans will minimize sedimentation effects during construction. In addition, areas impacted by construction will be restored as necessary to comply with MDOT's Soil Erosion and Sedimentation Control permit.

4.22.4 Disposal of Surplus or Unsuitable Material

Disposal of surplus or unsuitable material (material that is unsuitable for construction) as a result of excavation will be done so as to control the possible detrimental impacts of such actions, including aesthetic concerns. The material, per construction specifications, cannot be disposed in any public or private wetland area, watercourse, or designated floodplain without prior approval and necessary permits from appropriate resource agencies. Regulations governing disposal of solid wastes must be complied with.

4.22.5 Maintaining Traffic during Construction

Temporary detours are anticipated as construction progresses and will be addressed during the design phase. Access to existing US-31, M-45, M-104, I-96 and local routes along the new alignment (as noted in **Appendix A**) will experience some detour and access impact. These necessary detours and closures will impact public service vehicles, commercial deliveries, school districts, and fire, police and emergency vehicles in varying ways. Access for emergency services will be provided, requiring temporary or permanent rerouting during construction. MDOT will work with local agencies to ensure access is maintained for essential services. Businesses and residential access disruptions will be minimized. A temporary increase in truck traffic in the project area will occur during construction, thereby temporarily affecting capacity on existing roadways, but will cease after construction.

Disruption of traffic in the construction area will be minimized to the greatest extent possible. Although control of all construction-related inconveniences is not possible, signing all construction areas will ensure motorist and pedestrian safety. Access will be maintained to properties adjacent to existing US-31.

Boating traffic disruptions may occur at the new Grand River crossing. Impacts to boating traffic will be minimized. The contractor will be required to maintain a navigable channel on the Grand River during all phases of the project. During part-width construction operations, the contractor will place signs both upstream and downstream of the construction area that clearly indicates the location of the navigable channel. Navigation access on smaller streams may also be required to accommodate small boat and/or

canoe usage. The contractor may be required to provide lighting of barges or other navigation obstructions at night.

4.22.6 Continuance of Public Utility Service

Utilities such as water, sanitary sewer, gas, telephone, cable, and electrical transmission lines adjacent to or crossed by the project may require relocation or adjustment. If this should be the case, coordination will take place during the design phase and relocation will take place prior to construction of the road if possible.

4.22.7 Control of Air Pollution During Construction

The construction phase of the proposed project has the potential to impact local ambient air quality by generating fugitive dust through activities such as demolition and materials handling. Construction contractors will comply with all federal, state, and local laws, regulations and rules governing the control of air pollution during construction. Dust will be controlled during construction to avoid detrimental impacts to the safety, health, welfare, or comfort of any person, or damage to any property or business by such methods as ground watering and careful control of stockpiles. All bituminous and concrete proportioning plants and crushers must meet the requirements of the rules of Part 55 of Act 451, Natural Resource and Environmental Protection. Any portable concrete plant must meet the minimum 250-foot setback requirement from any residential, commercial, or public assembly property or the contractor is required to apply for a permit to install from the Permit Section, Air Quality Division, of the MDEQ. Portable crushers must have a setback of 500 feet or more for a general permit: otherwise a permit to install is required. Bituminous (asphalt) plants must have a setback of 800 feet or more or a site specific permit is required. The permit process, including any public comment period, if required, may take up to six months. All bituminous plants will provide dust collection. Dry, fine, aggregate material removed from the dryer exhaust by the dust collector will be returned to the dryer discharge unless otherwise directed by the project engineer under MDEQ inspection.

Fugitive dust will be minimized by applying water or appropriate liquids during demolition, land clearing, grading, and construction operations. Water may be applied on dirt roads, material stockpiles and other surfaces capable of producing airborne dust. Open-body trucks for transporting materials will be covered at all times while in motion, and all excavated material will be removed promptly.

Mobile source emissions can be minimized during construction by not permitting idling delivery trucks or other equipment to idle during periods of unloading or other non-active use.

No adverse impacts to air quality are expected during construction due to careful procedures, legal requirements, and the relatively short-term duration of construction activities.

4.22.8 Construction Noise Levels and Vibration Impacts

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

4.22.9 Control of Hazardous Materials

All hazardous waste, toxic materials, contaminated media, and/or polluting materials shall be used, stored, and/or disposed of in accordance with applicable federal, state, and local laws and regulations.

4.23 PERMITS

The construction of the Preferred Alternative will require compliance by three agencies, the Michigan Department of Environmental Quality (MDEQ), the United States Army Corps of Engineers (USACE), and the United States Coast Guard (USCG). The following permits will be necessary to comply with both state and federal laws:

State of Michigan (MDEQ):
Act 451 Natural Resources and Environmental Protection, as amended

> Part 31, Water Resource Protection, requires a permit to place fill materials in an identified floodplain.
>
> Part 301, Inland Lakes and Streams, requires a permit for activities below the ordinary high-water mark of any stream, river, pond, or lake and for temporary crossings of rivers and streams.
>
> Part 303, Wetlands Protection, requires a permit to fill, dredge or remove sediment from; construct, operate or maintain use in; or drain surface water from a wetland.
>
> Part 91, Soil Erosion and Sedimentation Control, specifies that sedimentation caused by highway construction will be controlled before it leaves the highway ROW or enters the waters of the State. As an Authorized Public Agency under Part 91, MDOT is not required to obtain a permit, but is instead required to implement soil erosion and sedimentation measures in accordance with its approved Soil Erosion and Sedimentation Control Manual.

MDOT maintains a statewide NPDES permit from the MDEQ (issued under the authority of the US EPA) to discharge stormwater into the surface waters of the State.

Federal Permits (USACE):
Section 404 of the Federal Clean Water Act of 1972, requires a permit for the discharge of fill or construction activities in navigable waters of the United States, such as the Grand River.

Section 10 of the Federal Rivers and Harbors Act of 1899 requires a permit from the USACE for the placement of structures, fill material, and dredging in navigable waters.

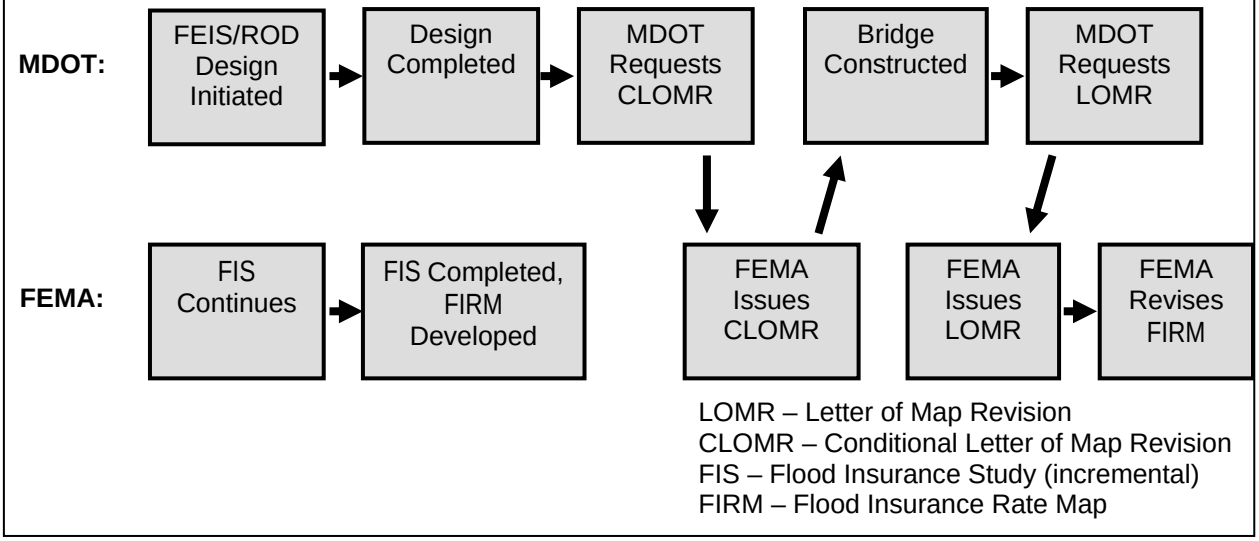
Federal Permit (USCG):
Section 9 of the Federal Rivers and Harbors Act of 1899, requires a permit from the USACE for new structures constructed across navigable rivers.

Coordination with the above-mentioned cooperating and coordinating agencies is on going, and applications for these permits will be submitted during the design phase of the project.

Once the FEIS design in initiated and the design in complete MDOT will submit an application for a Conditional Letter of Map Revision (CLOMR) to FEMA indicating that an increase in the backwater of the Grand River is proposed for the project. FEMA anticipates that the Flood Insurance Rate Map (FIRM) will be completed in 2011, at which time MDOT anticipates that a design level hydraulic analysis accurately showing the backwater increase caused by the project will be available, and FEMA will issue the CLOMR. Once the new river crossing is complete MDOT will request a Letter of Map Revision (LOMR), then FEMA will issue the LOMR and revise the FIRM.

Coordination with FEMA is on going, and an application for a CLOMR will be submitted during the design phase of the project. A flow chart outlining this process is included in **Figure 4.23-1**. It should be noted that a CLOMR is not a construction permit, but is a requirement under Part 31, Water Resources Protection, Natural Resources and Environmental Protection Act, 1994, PA 451, as amended.

Figure 4.23-1: Federal Emergency Management Agency (FEMA) Flood Insurance Mapping Process for Letters of Map Revision



Coordination with the above-mentioned cooperating and coordinating agencies is on going, and applications for these permits will be submitted during the design phase of the project.

4.24 PROJECT MITIGATION SUMMARY GREEN SHEET

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December 2009

US-31
Holland to Grand Haven
Ottawa County
Final Environmental Impact Statement

Project Mitigation Summary "Green Sheet" for the Preferred Alternative

Social and Economic Environment

a. *Maintaining Traffic* - Two (2) additional overpasses in rural Ottawa County will remain to maintain local road continuity.

b. *Road Relocations* - Access will be maintained to 120th Avenue north of M-104 to Jablonski Landing Field (general aviation airport)

c. *Carpool Lots* - Review existing Carpool Lots for possible expansion or relocation.

d. *Acquisitions and Relocations* - MDOT and the local real estate offices will coordinate to find suitable housing for residences displaced by the Preferred Alternative. A total of sixty-six property relocations will be required. The sixty-six relocations consist of six farmland relocations, nine business relocations, and fifty-one residential relocations.

e. *Noise* - Although there are residences that will receive noise impacts at or above the FHWA Noise Abatement Criteria levels, noise walls are not recommended for this project because they did not meet the feasible criteria of MDOT's Noise Policy. Where noise walls are still desired, the municipality may consider providing funds to cover the costs above MDOT's reasonableness criteria.

f. *Pedestrians/Bicyclists* - Ottawa County non-motorized trail plans are still conceptual at this point, beyond the Grand River crossing. Generally, non-motorized facilities are not permitted within limited-access ROW, if reasonable options are available outside the highway ROW. The new M-231 bridge will be designed so as not to preclude non-motorized trail options where feasible, consistent with local and county trail plans, as well as MDOT engineering policies and guidelines. Specific non-motorized facility options will be considered during the subsequent bridge design phase.

Natural Environment

a. *Wells* - Properly abandon, and if needed, replace nine known water wells including potential conduits, sewer lines and drains that will be impacted by the Preferred Alternative.

b. *Detention Basins* - Maintain detention basin (first flush) discharges to pre-construction flow rates.

c. *Parks* - Coordinate with the Ottawa County Park Department's Grand River Greenway project and local watershed groups.

d. *Drains* - Coordinate with Holland Township, the City of Grand Haven, and Ottawa County Drain Commission when County Drains are involved, to determine whether closed, open, or a combination of the two drainage facilities should be used in urban areas.

Environmental Resources, Impacts, and Mitigation

e. *Storm Water* - Collect storm water on the new Grand River bridge and route it to detention/settling basins on either side of the river before discharging it to the river. Direct release of storm water from the structure to the river will be avoided. MDOT will coordinate with the MDNR, Fisheries Division for detention basins adjacent to water courses.

f. *Floodplain* - Span the Grand River and its 100-year floodplain with a bridge. Approach embankment fill will not be used within the 100-year floodplain. This span will also minimize impacts to wetlands and tree removals. Coordinate with FEMA on the need for Letter of Map Revision's (LOMR's) for the Grand River crossing during the design phase. Maximum of two piers will be placed within the Grand River.

g. *Wetlands* - The Preferred Alternative will impact 3.04 acres of wetland. Based on MDEQ wetland mitigation ratios, 4.70 acres of wetland will be created either on-site or at the Bolthouse or Rogers mitigation sites. MDOT will prepare and submit a comprehensive mitigation and monitoring plan to the MDEQ during the permit process.

h. *Threatened and Endangered Species* - If Eastern box turtles are encountered during construction, special care must be taken to remove them from the construction zone. At the preconstruction meeting, construction crews will be required to undergo Eastern box turtle identification and removal procedures with qualified MDOT personnel prior to start of work.

Cultural Environment

a. *Historic Review* - Due to denial of access, the archaeological survey of several properties was not able to be completed. SHPO concurred that once MDOT purchased the properties, the surveys would be completed and any eligible sites located would be mitigated through data recovery. If eligible sites are discovered, MDOT shall consult with SHPO and the Office of State Archaeologist to develop an acceptable data recovery mitigation plan.

Hazardous/Contaminated Materials

a. *Project Contamination* - Perform a Project Area Containment Survey (PACS) for each of the sixteen (16) known and/or potentially contaminated sites or hazardous waste generators directly impacted by the Preferred Alternative. A Phase 2 Environmental Site Assessment (ESA) will be conducted if the PACS results or the final design permitting of the facility require it.
b. *River Sediment Contamination* - Include soil erosion and sedimentation control measures for all construction activities in accordance with state and federal requirements.

Construction

a. *Construction Access Pads or Work Areas* - The contractor shall not park any vehicles or store any materials on public recreational property. Access to the property shall be maintained at all times during construction. Consider alternate construction methods (top down, incremental launching, etc.) for the Grand River structures during the design phase. Bituminous and Portland cement concrete plants and crushers shall meet the requirements of Michigan Air Pollution Control Commission. Follow MDOT's Stormwater Management Plan and use stormwater Best Management Practice's (BMP's) during construction.

b. *Maintaining Navigation* - Water navigation will be maintained on the Grand River at the new M-231 crossing site. Maintaining a navigable channel may include the placement of signs both upstream and downstream to indicate the navigable channel location. The lighting of barges and other areas may also be required.

Environmental Resources, Impacts, and Mitigation

c. *Maintenance of Traffic* - MDOT will maintain public awareness throughout the project by providing general information, addressing public concerns, and providing specific information such as location and duration of detours, lane closures, alternate routes, upcoming activities, and anticipated construction deadlines. This will be done through a Motorist Information Plan which may include a project website, a project hotline, or portable message signs. Boating traffic disruptions may occur at the new Grand River crossing. Impacts to boating traffic will be minimized.

d. *Time Restrictions* - Restrict construction activities within the waterways during fish spawning seasons, March 1 to June 30, in accordance with MDNR and MDEQ guidelines. The tree cutting restriction dates the Indiana bat are April 1st to October 1st.

e. *Construction Permits* –

State of Michigan (MDEQ):
Act 451 Natural Resources and Environmental Protection, as amended

Part 31, Water Resource Protection, requires a permit to place fill materials in an identified floodplain.

Part 301, Inland Lakes and Streams, requires a permit for activities below the ordinary high-water mark of any stream, river, pond, or lake and for temporary crossings of rivers and streams.

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Section 10 of the Federal Rivers and Harbors Act of 1899 requires a permit from the USACE for the placement of structures, fill material, and dredging in navigable waters.

Federal Permit (USCG):
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Coordination with the above-mentioned cooperating and coordinating agencies is on going, and applications for these permits will be submitted during the design phase of the project.

Once the FEIS design in initiated and the design in complete MDOT will submit an application for a Conditional Letter of Map Revision (CLOMR) to FEMA indicating that an increase in the backwater of the Grand River is proposed for the project. FEMA anticipates that the Flood Insurance Rate Map (FIRM) will be completed in 2011, at which time MDOT anticipates that a design level hydraulic analysis accurately showing the backwater increase caused by the project will be available, and FEMA will issue the CLOMR. Once the new river crossing is complete MDOT will request a LOMR, then FEMA will issue the LOMR and revise the FIRM.

Environmental Resources, Impacts, and Mitigation

FEMA has indicated that the anticipated backwater elevation increase would not be problematic. Based on the available information for the project, MDNRE (Michigan Department of Natural Resources and Environment, formally MDEQ) has indicated that they agree, and that the permit process for construction activities under Act 451 Natural Resources and Environmental Protection, as amended, will proceed independently from FEMA's mapping activities.