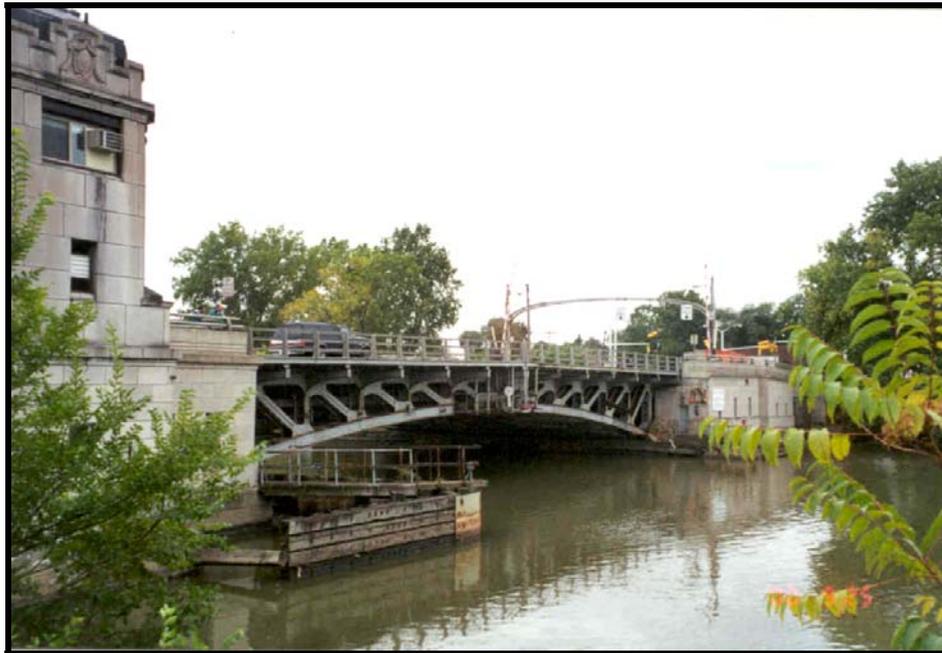


ENVIRONMENTAL ASSESSMENT PROGRAMMATIC SECTION 4(f) EVALUATION

For the Proposed
Replacement of the Fort Street (M-85) Bascule Bridge
Over the Rouge River in the City of Detroit
Wayne County, Michigan



Prepared by the:



In cooperation with the

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
U.S. ARMY CORPS OF ENGINEERS
U.S. COAST GUARD

This document has been published by authorization of the Director of the State of Michigan's Department of Transportation in keeping with the intent of the *National Environmental Policy Act of 1969* and subsequent implementing regulations and policies including *Title VI of the Civil Rights Act of 1964* that direct agencies to provide the public and other agencies an opportunity to review and comment on proposed projects and alternatives so that potential impacts on the project can be considered and taken into account during the decision-making process. The cost of publishing XX copies of this document at \$X per copy is \$X, and the document has been printed in accordance with *Michigan Executive Directive 1991-6*.

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and the
COOPERATING AGENCY: U.S. COAST GUARD
COOPERATING AGENCY: U.S. ARMY CORPS OF ENGINEERS**

APPROVED:

Date

for the Federal Highway Administration

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PREFACE

The National Environmental Policy Act (NEPA) of 1969 requires that the social, economic, and natural environmental impacts of any proposed action of the federal government be analyzed for decision-making and public information purposes. There are three classes of action. Class I Actions, which are those that may significantly affect the environment, require the preparation of an Environmental Impact Statement (EIS). Class II Actions (categorical exclusions) are those that do not individually or cumulatively have a significant effect on the environment and do not require the preparation of an EIS or an Environmental Assessment (EA). Class III Actions are those for which the significance of impacts is not clearly established. Class III Actions require the preparation of an EA to determine the significance of impacts and the appropriate environmental document to be prepared - either an EIS or a Finding of No Significant Impact (FONSI).

This document is an EA for the proposed replacement of the Fort Street (M-85) Bridge over the Rouge River in the city of Detroit, Wayne County, Michigan. This document describes and analyzes one alternative, and the measures taken to minimize harm to the project area. The EA will be distributed to various federal, state, and local agencies for review and comment. A public hearing on this document will then be held. If review and comment by the public and interested agencies support the determination of “no significant impact,” this EA will be forwarded to the Federal Highway Administration (FHWA) with a recommendation that a FONSI be prepared. If it is determined that the preferred alternative will have significant impacts that cannot be mitigated, the preparation of an EIS will be required.

This document contains a Programmatic Section 4(f) Evaluation for the proposed replacement of the Fort Street Bridge, which is eligible for listing on the National Register of Historic Places. Programmatic Section 4(f) of the Department of Transportation Act requires that an evaluation be prepared when the proposed action may have an adverse affect on a property eligible for or listed on the National Register of Historic Places or may impact publicly owned land from a park, recreation area, or wildlife/waterfowl refuge of national, state, or local significance. This evaluation must determine that there is no prudent and feasible alternative and that all possible measures to minimize harm are taken before the project may proceed.

This document was prepared by the Environmental Section of the Michigan Department of Transportation (MDOT), in cooperation with the FHWA, the U.S. Army Corps of Engineers, the U.S. Coast Guard, and other members of the Fort Street Bridge study team. The study team includes representatives from the following divisions or support areas within the Michigan Department of Transportation: Project Planning, Design, Traffic and Safety, Real Estate, Construction and Technology, and Maintenance. Information contained in this Environmental Assessment was also furnished by other state, federal, and local agencies.

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** Construction impacts are addressed in Sections 2.1–2.5, 2.7, 2.8, 2.14, 2.15, 2.17–2.21, the Project Mitigation Summary, and Section 3.4 of the Section 4(f) Evaluation*

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SECTION 1 - PROPOSED PROJECT

1.1 Description and Purpose of and Need for the Proposed Project

1.1.1 Description

The M-85 structure over the Rouge River is a double-leaf Chicago Style bascule bridge (drawbridge). The structure is commonly referred to as the Fort Street Bridge and will be referred to as such throughout the remainder of this document. Built in 1922, the bridge is considered historically significant and is protected by Section 4(f) of the Department of Transportation Act. Further discussion of the bridge's historic nature is given in *Section 3 – Section 4(f) Evaluation*. The bridge carries five lanes of traffic and two eight-foot sidewalks over the Rouge River in Detroit between Dix Avenue and I-75. (See Exhibit 1 for the project location). The total length of the structure is approximately 278 feet, measured from the centerline of bearing at abutment A to the centerline of bearing at abutment B. The roadway is 56 feet wide between curbs and has an overall width of 74 feet. Each bascule pier is 80 feet long and 95 feet wide and houses the motors, pinion gears, and racks used to lift the leaves to allow water craft to pass through the shipping channel. The existing horizontal clearance (distance between fenders) of the channel is 118 feet.

Each movable leaf measures 82 feet from trunnion (horizontal pivot point) to toe (end of the bascule leaf). Stationary spans over the bascule piers measure approximately 35 feet long, and each approach span is 29 feet long. The roadway deck of the bascule portion of the bridge is an open grid steel deck, flanked by steel grid sidewalks. The trunnion and approach spans carry concrete roadway decks, while the roadway approaches are paved with asphalt. The two abutments are reinforced concrete supported on timber piles. The piles are arranged as to miss the two brick utility tunnels beneath the bridge.

The bridge originally had two operator houses. However, the operator's house at the southwest corner was removed during a previous rehabilitation. The streetcar tracks, decorative approach, and original bridge railings have also been removed. The remaining octagon-shaped operator's house, at the northeast corner of the bridge, is visible in Photographs 1 and 2 of Appendix A. An operator opens the bridge an average of six to eight times per day. Although most openings are of short duration, about 10 percent may last 15 minutes or more.

Based on 2001 and 2002 traffic data, the average daily traffic (ADT) on the existing bridge is 13,000 vehicles. Commercial traffic varies between 8 to 17 percent on Fort Street at the Miller Street intersection and between 5 to 11 percent on Fort Street at Oakwood Boulevard. Oakwood Boulevard carries about 3 to 9 percent commercial traffic during peak hours. The 2025 ADT is expected to be approximately 15,000 vehicles with approximately the same percentage of commercial traffic. The intersections at both ends of the bridge operate at Level of Service (LOS) B or above and are expected to operate at the same level in the future. According to 2001 AASHTO, LOS D or above is acceptable.

1.1.2 Purpose of and Need for the Proposed Project

The primary purpose of the proposed project is to correct deficiencies of the bascule bridge so traffic flow on Fort Street (M-85) over the Rouge River, as well as boat traffic within the river channel, can be maintained. The secondary purpose is to establish a traffic flow preference for M-85.

The need to rehabilitate or replace the bridge is driven by its deteriorating condition. Specific bridge deficiencies include inward pier migration, structural deterioration, inadequacies in the electrical and mechanical systems, a substandard fender system, and a horizontal clearance that does not meet current U.S. Coast Guard standards. Although extensive repairs have been made to the bridge over the years, replacement or a major rehabilitation is imminent. In addition to correcting deficiencies associated with the bridge, there is also a need to improve the current alignment of the Fort Street/Oakwood Boulevard intersection to better define M-85 as the through route.

1.1.3 Bridge Deficiencies

Pier migration. Previous investigations have documented that the bascule piers have moved together almost six inches over the life of the structure, interfering with the opening and closing of the bascule leaves. Several maintenance procedures have been employed to alleviate problems associated with the inward migration of the piers. In 1964, an automatic sprinkler system was installed to cool off the ends of the bridge so the leaves would close properly in warm weather. In 1978, MDOT rebuilt the ends of the bascule leaves, shortening them so as not to impede bridge operations. The future stability of the piers is in question. Cracks in the brickwork and concrete are visible in the machinery rooms of the bascule piers.

Structural deterioration. According to the most recent Bridge Safety Inspection, conducted in October 2003, the Fort Street bridge superstructure is generally in fair to poor condition. (Refer to Appendix B for a copy of the report.) All the built-up members have active corrosion in the seams between back-to-back angles at the members' lacing bars and batten plates. Corrosion and pack rusting are generally worse at the inboard bascule trusses. The floor beams on the bascule span are trussed type members and are generally in poor condition. Active corrosion and section loss have typically developed at the top flange connection to the inboard bascule trusses; in many cases corrosion has caused holes in the connecting material reducing the capacity of the connection. The floor beams also have section loss on the outstanding legs of the top and bottom flange angles. The open grid roadway deck on the bascule span, installed in 1978, is in fair to poor condition. There are several areas where there are bent or missing grating bars. Photographs 3 and 4 in Appendix A illustrate structural deterioration documented during the bridge's structural system inspection in 1998.

Horizontal clearance. According to navigational charts, the distance between fenders is 118 feet. The U.S. Coast Guard has stated that a horizontal clearance of less than 135 feet is not conducive to maintaining safety to the bridge and transiting vessels, nor could a lesser clearance be established to meet the needs of future navigation on the Rouge River.

Electrical system inadequacies. In general, the electrical equipment is operational and well-maintained. However, many of the components are from the 1970s or earlier and are of obsolete manufacture. There are no in-sight disconnect switches for the main span motors and center lock motor, which is a National Electric Code violation. Limit switches are not provided on the motor and machinery brakes, which is in violation of American Association of State Highway and Transportation Officials (AASHTO) standards. Results of insulation resistance to ground tests performed on motors and feeders indicated deterioration and the possibility for a failure.

Mechanical system inadequacies. The mechanical components of the bridge are in satisfactory condition, but they show their age with respect to wear and design. The gears and bearings show considerable wear but appear to be well-aligned. The span locks are worn to the point of being out of tolerance. The mechanical components of the bridge would not meet current AASHTO requirements. Long term use of the bridge would require complete mechanical rehabilitation.

Substandard fender system. The fender system, necessary to protect the piers from accidental collision with freighters traveling the Rouge River, is in fair condition. Repairs to the fender system were completed in 2001 and were intended to extend the serviceable life of the bridge by about ten years. The existing fender system is minimal, deteriorating, and does not meet current AASHTO guidelines. The fender system is visible in Photographs 1, 5, and 6 of Appendix A.

1.1.4 Traffic Flow Preference for M-85

Fort Street/Oakwood Boulevard intersection. The alignment of the roads at the west end of the bridge does not provide for the most efficient flow of traffic, especially southbound on M-85. Of the five lanes on the bridge, two are for northbound traffic and three are for southbound traffic. Traffic in the rightmost southbound lane must continue west on Oakwood Boulevard. Traffic in the leftmost and center lanes must make a left turn at the intersection and continue south on Fort Street. Realignment of the roads at the west end of the bridge would better define M-85 as the through route. See Exhibit 2 and Photograph 6 in Appendix A for a view of the existing intersection.

1.2 Alternatives

1.2.1 No Action Alternative

The no-action alternative involves taking no action to rehabilitate or replace the existing structure, other than routine maintenance. Routine maintenance would not correct all of the deficiencies that may cause structural failure which could eventually lead to the permanent closure of the bridge. Therefore, this alternative is not recommended but is used as a benchmark for analyzing the other alternatives.

1.2.2 Replacement on Existing Alignment (Alternative A)

Alternative A, shown in Exhibit 2, would involve constructing a new bascule bridge over the Rouge River using the existing alignment. One advantage of Alternative A is that very minimal or no additional right-of-way would be required. To satisfy U.S. Coast Guard requirements, the

horizontal clearance of the new bridge would need to be increased from 118 feet to at least 135 feet. The new bridge would have five twelve-foot lanes with eight-foot sidewalks on both sides. Barriers would separate bridge traffic from pedestrians and bicyclists and improve safety. Exhibit 3 shows a typical cross section of the proposed structure.

Constructing a new bascule bridge on the existing alignment would result in a shorter bridge span and cost less than building on a new alignment. However, the savings would likely be offset by the additional costs to adjust abutment footings to avoid the existing caissons and the existing brick utility tunnel underlying the bascule piers and abutment footings. Compared to Alternative B, more utility coordination would be necessary to construct on the existing alignment. A bridge closure and detour of up to two years will be required for vehicular traffic. See *Section 2.5 – Maintaining Traffic*, for further details about the proposed detour. Boat traffic in the channel will be maintained during construction.

Replacing the bridge on its existing alignment would address U.S. Coast Guard standards but it would not improve the Fort Street/Oakwood Boulevard intersection nor would it provide an opportunity to retain the operator's house. Therefore, Alternative A is not considered feasible.

1.2.3 Preferred Alternative - Replacement on a 13° Skewed Alignment (Alternative B)

Alternative B, shown in Exhibit 4, is the preferred alternative. This alternative would involve constructing a bascule bridge with a new alignment to improve the Fort Street/Oakwood Boulevard intersection. This alternative would favor Fort Street making it the primary movement. To satisfy U.S. Coast Guard requirements, the horizontal clearance of the new bridge would need to be increased from 118 feet to at least 135 feet. The lanes and sidewalks would have the same dimensions as described in Alternative A and illustrated in *Exhibit 3 – Proposed Cross Section*. Building on a new alignment may also allow for the retention of the operator's house, thereby providing an opportunity for mitigating the historic aspect of the existing bridge. Measures to record the historic nature of the existing bridge are outlined in Section 3.6 of the Section 4(f) Evaluation and in the Memorandum of Agreement (Appendix G).

The preferred alternative would require additional right-of-way from Marathon Oil and Wayne County Department of Public Works (vacant lot at the southwest quadrant), Morton Salt (part of the salt storage yard at the southeast quadrant), part of the parking lot on the corner of Oakwood Boulevard and Denmark Avenue, and a small portion from the lot at Fort and Reisener streets. Building on a new alignment south of the existing structure, at a 13° skew, would increase the length of the bridge and the construction cost. The additional construction costs would be offset by less complex construction with minimal or no impact to the existing utility system in brick tunnels beneath the existing bridge. Overall costs for Alternative B would be slightly more than replacing the bridge on its existing alignment. A bridge closure and detour of up to two years would be required for vehicular traffic, as referenced previously for Alternative A. Boat traffic in the channel would be maintained during construction.

Alternative B would satisfy U.S. Coast Guard requirements, improve the Fort Street/Oakwood Boulevard intersection, have minimal impacts to utilities in the tunnel beneath the bridge, and

would allow an opportunity to retain the operator's house. Therefore, Alternative B is the preferred alternative and its potential impacts are addressed in this Environmental Assessment.

1.2.4 Replacement on a 5° Skewed Alignment (Alternative C)

Replacing the bridge on a 5° skew south of the existing bridge, as illustrated in Exhibit 5, would avoid the existing bridge alignment, maintain existing bridge service during construction, and would not require a detour. Alternative C would require a longer bridge span than replacing on the existing alignment (Alternative A) and a shorter span than replacing on a 13° degree skew (Alternative B). Impacts to the utility system in the brick tunnels beneath the existing bridge would be minimal.

Construction costs for replacing the bridge on 5° skew would be slightly more than replacing the structure on its existing alignment. Alternative C would require more right-of-way from Morton Salt than any of the other alternatives and would necessitate the taking of property from potentially historic residential properties on the south side of Fort Street, east of Reisener Street.

The geometrics of a 5° skewed alignment would reduce traffic capacity and jeopardize motorist safety. The alignment would require too sharp a curve in the approach between the bridge and the Fort Street and Miller Road/Reisener intersection and would also require a wider pavement area at the intersection. Additionally, the curves associated with the 5° skewed alignment are inconsistent with the long-term plan to revitalize the Fort Street corridor and provide motorists with a safe and efficient option to I-75. Therefore, the bridge replacement on a 5° skew is not considered a feasible alternative and was dismissed.

1.2.5 Rehabilitation of the Existing Bascule Bridge (Alternative D)

The historic nature of the bridge requires that rehabilitation of the existing structure be considered. Correcting the structural, electrical, and mechanical deficiencies of the bridge would require considerable rehabilitation measures. The inward migration of the piers is one of the most critical deficiencies influencing the feasibility of rehabilitation. The cost to stabilize the existing foundations and substructures from future movement and the level of effort required to repair the deteriorated concrete would be close to the cost to replace them.

To maintain long-term use of the bridge, a complete mechanical rehabilitation of the structure would be necessary. New bridge machinery would last at least 50 years and would meet current AASHTO requirements, which the existing components do not. The active corrosion between the built up sections and the advanced state of deterioration make it prohibitively expensive to restore the existing superstructure. The usual methods of cleaning and coating steel structures will not stop the pack rust that has formed between the members. Disassembly, cleaning, coating, and reassembly of the many pieces in the bridge's superstructure would be time consuming and very labor intensive. It would be more cost efficient to replace the current fender system than to modify and repair the existing pier protection system, which does not meet current standards. In addition, rehabilitating the bridge would not address the inadequacy of horizontal clearance. Because of issues associated with pier migration, structural deterioration and corrosion, and

inadequate horizontal clearance, the rehabilitation alternative is not considered feasible and this alternative was dismissed.

1.2.6 Building on a New Location without Removing the Existing Bridge (Alternative E)

Under this alternative, the existing historic bridge would be retained but be closed to vehicular or all traffic. A new crossing would be developed at an alternate location. This alternative was not considered as there are no feasible or prudent alternate crossing points.

1.2.7 Relocation of the Bridge to a New Site (Alternative F)

The historic bridge would be relocated and reconstructed at a new location, while a new bridge would be constructed on the existing alignment. This alternative would not be feasible or prudent due to the high costs of reconstruction and dismantling, storing and transporting the bridge components; all of this presuming an appropriate location could be identified and secured for relocation.

SECTION 2 - AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MEASURES TO MITIGATE IMPACTS

As with all proposed projects, MDOT and FHWA have conducted a review of potential social, economic, and environmental impacts associated with Alternative B, the Preferred Alternative. Impacts that had a reasonable possibility for individual or cumulative significant impacts were analyzed further. The result of this analysis and measures to minimize short-term impacts during construction are discussed below. Specific mitigation measures for the proposed replacement of the Fort Street Bridge are described on the *Green Sheet: Project Mitigation Summary* following this section.

2.1 Right-of-Way Impacts

To replace the Fort Street (M-85) Bascule Bridge over the Rouge River, MDOT will need to acquire 0.4 acres of right-of-way on the southeast side of the existing bridge and 0.8 acres of right-of-way on the southwest side of the bridge. The property located on the southeast side of the bridge is owned by Morton Salt Company; while the property located on the southwest side is owned by Marathon Oil Company and Wayne County Department of Public Works. A 0.03 acre portion of the parking lot at the corner of Oakwood Boulevard and Denmark Street and a small portion (0.002 acre) of the corner lot at Fort Street and Reisener Street will be needed.

No residential or commercial structures will be impacted or displaced. All right-of-way will be acquired in conformance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

2.2 Social Impacts

The proposed project will not cause any long-term negative impacts on any minority, ethnic, low-income, elderly or handicapped groups, or on area schools, churches, recreation areas, or police and fire protection facilities. No neighborhoods will be permanently separated from community facilities or services. However, there will be temporary impacts to the residents, businesses, community services, motorists, pedestrians, bicyclists, transit users, and emergency services during the two-year construction of the new bridge. MDOT will need to close the existing bridge and detour traffic for two years to construct the new bridge. During the two-year construction period, motorists (including emergency vehicles) and transit and non-motorized users will incur longer travel times and distances in crossing the Rouge River to reach their destinations. Access will be maintained to area businesses and residences located on each side of the river during construction. For a complete discussion of the detour route refer to *Section 2.5 – Maintaining Traffic*.

MDOT has been coordinating with the city of Detroit including the South Schaefer Neighborhood City Hall (formerly known as the Southend Neighborhood City Hall) and the Southwest Detroit Neighborhood City Hall in providing information about the proposed project and detour route. As part of the coordination effort, MDOT received a letter from the South Schaefer Neighborhood City Hall Manager expressing concern about response times for emergency vehicles on both sides of the river. (A copy of the city hall manager's letter is

included in *Appendix C – Correspondence from Resource Agencies*.) To minimize delays in response time of emergency vehicles during the two year construction period, funding will be provided to the city to hire additional staff to respond to emergencies on both sides of the bridge. MDOT will also continue to coordinate with the city’s Department of Transportation and the Detroit School District regarding transit routes that will need to be adjusted during the construction of the new bridge.

2.3 Considerations Relating to Pedestrians, Bicyclists, and Transit Users

The existing Fort Street Bridge has eight foot sidewalks on both sides of the bridge which provides connectivity to the existing sidewalks in the adjacent neighborhoods on both sides of the river. During the construction of the new bridge, pedestrians and bicyclists will not be able to use the Fort Street Bridge to cross over the Rouge River. Non-motorized users will have to travel about three-quarters of a mile northwest to the Dix Bridge via Miller Street or about one and one-quarter mile northwest via Oakwood Boulevard, Sanders, and Dix Avenue to cross the river.

Although non-motorized users will be required to travel longer distances to cross over the Rouge River, there are sidewalks and paths adjacent to local streets that pedestrians and bicyclists can use to reach the Dix Bridge crossing. After the new bridge has been constructed, non-motorized users will once again have access to the new eight-foot sidewalks on the bridge. The new bridge will have a barrier between the sidewalk and roadway, which will improve safety for pedestrians and bicyclists. The new eight-foot sidewalks are compatible with the Rouge River Gateway Master Plan and the regional GreenWays Initiative as discussed in *Section 2.10 – Visual Resources*.

SEMCOG has identified Fort Street as a proposed bus rapid transit corridor. Construction of the new bridge will not preclude the development of bus rapid transit along the Fort Street corridor.

2.4 Environmental Justice

The purpose of Executive Order 12898 on Federal Actions to Address Environmental Justice in Minority and Low-Income Populations is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. Disproportionately high and adverse human health or environmental effects on minority and low-income populations are not anticipated as a result of this project.

The presence of minority and low-income populations within the affected area was determined by an analysis of the U.S. Census Data for 2000, field reviews, and discussions with local officials. The minority population in the city of Detroit is more than 85 percent, while 26 percent of the residents in the city are considered low-income per the poverty guidelines established by the U.S. Department of Health and Human Services. The minority population in the project area varies from 98 percent in the Boynton sub-community which is located on the west side of the Rouge River to 67 percent in the Vernor sub-community which is located on the east side of the Rouge River. The low-income population for these two subcommunities also varies. The percentage of residents who are considered low-income in Boynton and Vernor is 20 percent and 31 percent respectively.

The proposed replacement of the Fort Street bascule bridge, which includes closing the bridge and detouring traffic over local roads for two years, will cause temporary impacts that were discussed in *Section 2.2- Social Impacts*. However, the proposed action will not cause permanent disproportionately high and adverse effects on minority or low-income populations within the project.

The proposed project, when completed, will provide the following benefits to the residents and motorists who travel over the bridge each day. MDOT will realign the Oakwood Boulevard/Fort Street intersection by improving traffic flow and lane identification. Of the three southbound lanes, the left and middle lane would be exclusive Fort Street lane and the right lane would be an exclusive Oakwood Boulevard lane.

MDOT has held several meetings with local stakeholders including neighborhood groups and city officials to inform them of the proposed project and the two year detour that will be required during construction of the new bridge. A public hearing on the proposed project will be held for the public after the Environmental Assessment has been signed by FHWA.

The proposed project will not cause disproportionately high and adverse effects on minority and low-income populations located in and near the project area at this time. However, a continuing effort will be made to identify disproportionately high and adverse impacts to minority and low-income populations during subsequent phases of this project. If such impacts are identified, every effort will be made to involve the impacted groups in the project development process, and to avoid, minimize, or mitigate these impacts.

2.5 Maintaining Traffic during Construction

MDOT has developed a plan to maintain traffic during the construction of the new bascule bridge. A two-year detour route will be required for vehicular traffic, while boat traffic will be maintained on the Rouge River during construction. Disruption of traffic in the construction area will be minimized to the extent possible. Although control of all construction-related inconveniences is not possible, motorist and pedestrian safety will be ensured by signing all construction areas.

MDOT proposes to detour through Fort Street traffic to I-75 between Schaefer Road and Springwells Road; with local traffic (including transit) being detoured to Miller Road, Dix Avenue, and Oakwood Boulevard (see *Exhibit 6 – Through Traffic Detour for Fort Street*). Motorists, pedestrians, and bicyclists will be able to cross the Rouge River at the Dix Bridge approximately three-quarters of a mile northwest of Fort Street via Miller Street or about one and one-quarter mile northwest of Fort Street via Oakwood Boulevard, Sanders, and Dix Avenue. Access to local businesses and residences will be maintained during construction. Bus service for area residents will be maintained on local roads during construction. MDOT will coordinate with the Detroit Department of Transportation (DDOT) and other transit providers to accommodate users.

A component of the Maintaining Traffic Plan will be the development and implementation of a Motorist Information Plan (MIP). The MIP will include electronic message signs along I-75 and Fort Street informing motorists that the Fort Street Bridge is closed to vehicular and non-motorized traffic, and that through traffic is being detoured on to I-75 with local traffic being detoured to Miller Road, Dix Avenue, and Oakwood Boulevard. The message signs will also inform motorists and non-motorized users that local access to residences and businesses within the project area is being maintained during construction.

2.6 Land Use

The general land uses adjacent to the historic bascule bridge are zoned for intense industrial use. The properties located on the south side of the bridge include the Marathon Oil Refinery and the Morton Salt Company. The other land uses adjacent to the bascule bridge include a vacant parcel located northeast of the bridge, and a commercial property located northwest of the bridge. A residential neighborhood is located just west of the bascule bridge; while industrial and commercial uses can be found east of the bridge along Fort Street and Miller Road. The proposed improvements will not change existing land use patterns in the area and is consistent with the city of Detroit's master plan.

2.7 Indirect and Cumulative Impacts

The proposed replacement of the bascule bridge is not expected to generate an increase in traffic volumes or alter travel patterns in the area after construction has been completed. However, there will be short term impacts for motorists and residents who need to travel over the Rouge River during construction. As previously mentioned, a two year detour will be required during the construction of the new bridge. Through traffic will be detoured to I-75 between Schaefer Road and Springwells Road; with local traffic being detoured to Miller Road, Dix Avenue, and Oakwood Boulevard. Traffic will not be detoured through residential neighborhoods. Motorists and non-motorized users will incur longer travel times and distances during the two years that the bridge is under construction. Access will be maintained to local businesses and residents in the project area.

The proposed project, when completed, will provide the following benefits to the residents and motorists who travel over the bridge each day. MDOT will realign the Oakwood Boulevard/Fort Street intersection by improving traffic flow and lane identification. Of the three southbound lanes, the left and middle lane would be an exclusive Fort Street lane and the right lane would be an exclusive Oakwood Boulevard lane.

The proposed project will not have an adverse affect on other projects being proposed in the area. The construction of the bascule bridge is the first step towards improving the M-85 (Fort Street) Corridor which begins at Clark Street and terminates at I-75/Schaefer in Detroit. MDOT is developing a strategy to improve the roadway and structures within this corridor including the reconstruction of the crossovers in front of the Marathon Ashland Petroleum facility, adjusting drainage structures, spot repairs, and pavement milling and resurfacing of Fort Street over the next ten years. The proposed improvements will also support the Marathon Ashland Refinery expansion plans to increase refinery output, which will generate more traffic to the facility. The

Detroit Intermodal Freight Terminal (DIFT) study, the proposed I-94 rehabilitation project from Connor to I-96, and the Ambassador Bridge Gateway study are also in close proximity but will not be affected by this proposed project.

2.8 Historic and Archaeological Resources

The FHWA, the State Historic Preservation Office (SHPO), and MDOT concur that the proposed bridge replacement would have an adverse effect on the Fort Street bascule bridge (*Appendix C – Correspondence from Resource Agencies*). The bridge, built in 1922, is considered a historic resource and is eligible for listing on the National Register of Historic Places. The historic integrity of the bridge has been compromised by the replacement of approach railings and, in particular, by the removal of the operator’s house at the southwest end of the bridge. There have been minor alterations to the remaining operator’s house at the northeast end. While structural conditions range from fair to poor, neither the bridge’s deterioration nor its integrity preclude its eligibility for listing on the National Register of Historic Places.

The Fort Street bridge has long been a gateway into Detroit and carries considerable historical significance. The bridge was built at a time when the city was becoming a world-class industrial city, spurred by the phenomenal growth of the auto industry. The bridge met the need of ever-growing automobile traffic and, for many years, accommodated streetcars. The bridge was, and still is, a critical crossing for people traveling to and from Detroit and Dearborn. The bridge provides a crucial link between traditional working-class neighborhoods with strong ethnic associations. Through the years these neighborhoods have prospered and struggled, but have always remained viable.

The need for this Chicago-style trunnion bascule bridge, as well as a sister bridge at Dix Road and the bascule bridge at Jefferson Avenue, was triggered by the development of the Ford Rouge Plant during and after World War I. Henry Ford’s revolutionary complex controlled the process of building automobiles from raw materials to showroom-ready product. This required the Rouge River to be navigable by large freighters. The Wayne County Road Commission, at the request of Ford, undertook major improvements to accommodate the growing factory complex, which in addition to meeting a growing consumer demand, also was an important defense supplier.

As expressed by a state historical marker affixed to the Operator’s House, the bridge was an important crossing during the Hunger March of 1933, one of the volatile clashes between the auto industry and the emerging *International Union, United Auto Automobile Aerospace and Agricultural Implement Workers of America*, commonly referred to as the United Auto Workers (UAW). The bridge and its setting provide a visible and accessible locale for interpreting the development of the modern auto industry and the rise of the modern labor movement, both of which are major events with international significance. Further information about the historic significance of the bridge is provided in *Section 3.3 of the Section 4(f) Evaluation*.

The SHPO and MDOT have concurred that the proposed alternatives will not affect any archaeological sites eligible for listing on the National Register of Historic Places.

Mitigation measures. Refer to *Section 3.6 of the Section 4(f) Evaluation* for details about proposed mitigation measures for historic resources.

2.9 Recreational Resources

There are no public recreational areas located adjacent to the proposed project. Barolo Park is located near the proposed detour route, however, access will be maintained to the park during construction and no impacts are anticipated.

2.10 Visual Resources

The project location is situated in an urban area with a mix of industrial, commercial, and residential landscape elements. A combination of natural and built features provides visual contrast to the area. The Rouge River, the dominant natural feature of the project area, is maintained as an active shipping channel from the turning basin north of the bridge to the river's mouth at Zug Island. According to the U.S. Environmental Protection Agency, the Rouge River is considered impaired for aesthetic value in all branches except some headwater areas. Unnatural color from waste water discharges, solid waste, oil, and unnatural odors diminish the river's aesthetic quality.

Several built elements, visible both within and from the project area, have significant lines and forms that create interesting visual character. The primary built feature, which is also historically significant, is the existing bascule bridge and the remaining operator's house. Other dominant built features include the bascule railroad bridge and I-75 to the south and various industrial storage tanks. Morton International stockpiles salt in an area directly adjacent to the project area. When the stockpile is present, it also presents an interesting visual feature. The large ships that pass through the channel when the bridge is lifted offer transitory visual interest.

The general quality of visual resources will be improved by the proposed bridge replacement. The only potential adverse impact to visual conditions would be the removal of the operator's house of the existing bridge. All efforts will be made to retain the operator's house and incorporate it into an interpretive site. Improvements to visual quality through an architecturally appropriate bridge design would benefit both users of the bridge and the communities on either side of the structure. The improved visual quality of the project area would help create a positive response in users and enhance community pride of residents.

The new bridge, which would accommodate pedestrians and bicyclists, is compatible with the Rouge River Gateway Master Plan and the regional GreenWays Initiative. Although the proposed bridge project lies within the Rouge River Gateway area, the master plan does not include specific plans for the Fort Street bridge. The plan, developed through a collaborative effort of the Rouge River Gateway Partnership, proposes a public multi-modal pathway for the entire length of the gateway along with signage at key sites to interpret the region's history and environmental restoration efforts.

Mitigation measures. The proposed bridge project will improve the aesthetic value of the project area. The project provides an opportunity to improve visual quality through attention to

architecturally appropriate bridge design as well as the development of an interpretive site. If feasible, the operator's house will be retained and incorporated into the interpretive site. The site would explain the historic nature of the bridge as well as the development of the local labor movement. (See *Section 3.6* of the *Section 4(f) Evaluation* for further details).

2.11 Coastal Zone

This proposed project lies within the coastal zone boundary as defined by the Coastal Zone Management Act. Issuance of the Michigan Department of Environmental Quality (MDEQ) permits assures consistency with the Coastal Zone Management Plan. See *Section 2.19 – Permit Discussion*.

2.12 Floodplains/Hydraulics

The proposed bridge replacement is located within the 100 year floodplain. No significant adverse impacts or increased risk due to increased flood hazards will occur on adjacent properties based upon the preliminary hydraulics analysis conducted during the design review process for the preferred alternative. The analysis assumes retention of the operator's house in its existing position and the removal of all approach fill down to natural ground elevations on the right overbank (looking downstream). Modeling of the proposed design shows that no harmful interference will result as a consequence of the project because the backwater elevation decreases by 0.12 feet with the proposed bridge replacement. For more details, see Appendix D.

Review of the project area for a distance of 500 feet upstream and downstream of the existing bridge was undertaken to identify natural and beneficial floodplain values. Alteration of the riparian zone has effectively eliminated most natural floodplain functions and values. The functions and values evaluated include: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. Of these, fisheries values and waterborne recreation use are retained and unaffected as movement between the nearest upstream obstruction and the confluence with the Detroit River will continue.

Economic and commercial values attached to this reach of the river accrue from the flow of goods and services provided by the floodway via ship and barge traffic. The docking of tugs and other watercraft at Fordson Island on the south shore of the Rouge River will benefit by the proposed construction as the span will be increased from 135 feet to a minimum of 182 feet (wall to wall), increasing the horizontal clearance from the existing 118 feet to 135 feet between the face of the fendering system. Passage of vessels will not be hampered by the new bridge as it will remain as a bascule. The proposed project would not support incompatible floodplain development because it does not support development within the floodplain or alter existing access to the floodplain. The proposed project would maintain local and regional access to existing commercial and industrial facilities and is consistent with zoning and land use plans of the city of Detroit.

Mitigation measures. The MDEQ mandates that no change in flood stage should take place on properties adjacent to the project. Given that a decrease of 0.12 feet in flood stage from existing

condition is anticipated based on results of the hydraulics model, no mitigation for backwater increase is needed. Mitigation for floodplains will include removal of the existing south abutment and approach road will be undertaken as part of the final design.

2.13 Wetland Impacts

Review of the Detroit U.S. Geological Survey Map and National Wetland Inventory (NWI) map indicated no wetlands occur at the project site. A MDEQ site inspection in fall 2000 and an MDOT field review in spring 2003 support the inventory information.

2.14 Water Quality

The oldest and most heavily populated and industrialized area in southeast Michigan is located within the Rouge River Watershed. The Rouge River has four main branches totaling 125 miles of waterways primarily flowing through Wayne and Oakland counties, with some headwaters in Washtenaw County. The Rouge drains a 438 square mile area that includes more than 400 lakes and ponds, and more than 50 miles of parkland along its banks. The river winds its way through 48 communities and provides recreational opportunities for more than 1.5 million people. The lower four miles of the river are maintained as a shipping channel from the turning basin upstream of the project to the river's mouth at the south end of Zug Island. The flow rate of the Rouge River at the Fort Street bridge crossing is usually at least 28 cubic feet per second.

Problems that have impaired desired uses of the river include restrictions on fish and wildlife consumption, degradation of fish and wildlife populations, fish tumors or other deformities, degradation of benthos (plants and animals on the river bottom), restrictions on dredging activities, eutrophication or undesirable algae, beach closings, degradation of aesthetics, and loss of fish and wildlife habitat.

Post construction impacts. Drainage from the bridge deck discharges directly to the river through the open grate deck structure of the existing bascule bridge. This drainage conveys sediment and other pollutants associated with road run off directly to the river. The new bridge structure will also have an open grate bridge deck. However, pollutants discharged from the bridge deck are not expected to cause water quality issues due to the relatively small amount of bridge deck drainage in comparison to the total flow of the river.

The project will not result in a significant amount of new impervious area. Where feasible, drainage from the road and approaches will be routed overland, and thus be filtered by vegetation prior to being discharged to the river. There are no anticipated post construction impacts from this project that will affect the designated uses of the Rouge River.

Soil erosion and sedimentation control during construction. Accelerated sedimentation caused by construction will be controlled before it enters the Rouge River or leaves the right-of-way by the placement of temporary or permanent erosion and sedimentation control measures. MDOT has developed a series of standard erosion control items to be included on design plans to prevent erosion and sedimentation. The design plans will describe the erosion controls and their locations. The following is a partial listing of general soil erosion and sedimentation control

measures to be carried out in accordance with permit requirements.

- No work will be done in the Rouge River channel during periods of seasonally-high water, except as necessary to prevent erosion.
- Road fill side slopes, ditches, and other raw areas draining directly into the Rouge River will be protected with riprap (up to three feet above the ordinary high water mark), sod, seed and mulch, or other measures, as necessary to prevent erosion.
- Areas disturbed by construction activities will be stabilized and vegetated within five days after final grading has been completed. Where it is not possible to permanently stabilize a disturbed area, appropriate temporary erosion and sedimentation controls will be implemented. All temporary controls will be maintained until permanent soil erosion and sedimentation controls are in place and functional.
- The contractor shall have the capability of performing seeding and mulching at locations within 500 feet of any streams or drains within 24 hours of being directed to perform such work by the project engineer.
- Special attention will be given to protecting the natural vegetative growth outside the project's slope stake line from removal or siltation. Natural vegetation, in conjunction with other sedimentation controls, provides filtration of runoff not carried in established ditches.
- The contractor is responsible for preventing the tracking of material onto local roads and streets. If material is tracked onto roads or streets, it shall be removed.

Mitigation measures. All disturbed sewer lines will be addressed in accordance with local ordinances. Due to the urban nature of the area, abandoned water wells and septic systems are not likely to be present. In the event that these systems are encountered during construction, they will be addressed in accordance with the local ordinance requirements. Beyond all these items, all other Michigan Department of Community Health (MDCH), local health department and MDEQ requirements designed to protect surface and groundwater quality will be met.

2.15 Fisheries and Wildlife

This reach of the Rouge River is classified by the Michigan Department of Natural Resources (MDNR) as a cool water stream. Characteristic species of game fish include Largemouth Bass, Smallmouth Bass, Channel Catfish, and Northern Pike, with an occasional Steelhead (personal communication G. Townes, MDNR). Historical changes made to the stream bed in the form of dredging and stream bank stabilization by the use of seawalls have eliminated spawning and nursery areas associated with shallow, vegetated waters. Fish use in the project area is limited to passage as far as the first dam upstream and the confluence with the Detroit River downstream.

Observations of wildlife use revealed no use of the bridge structure for nesting by any avian species, and occasional use of the structure for loafing by Ring-billed Gull. Use of the river for active foraging by waterbirds (waterfowl, herons, grebes, and gulls) was not observed on any site visit in the immediate vicinity of the bridge. No amphibian, reptile, or mammal species were

observed. Wildlife cover and food resources are limited and those terrestrial species observed are characteristic of urban environments.

Mitigation Measures. To protect potential fish spawning activity and larval fish development, no work in the Rouge River will be allowed between March 1 and May 31. Work may occur within cofferdams if they are installed prior to the protection date.

2.16 Endangered and Threatened Species

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

There are no Federal or State listed threatened or endangered species, or any species proposed for listing, known to be present at the project site based upon database searches and field inspections.

Correspondence from the U.S. Fish and Wildlife Service dated September 10, 2003, states that "...information in our files does not indicate the presence of any federally endangered, threatened, or proposed species, or designated or proposed critical habitat in the action area." Comments from the MDNR in their letter dated May 19, 2003, indicate that the project "should have no impact on rare or unique natural features at the location specified above if it proceeds according to the plans provided." Both agency letters are included in Appendix C.

2.17 Noise

The project area is primarily surrounded by industrial and commercial properties with a few residences east and northwest of the project area. No noise analysis will be required for this project. Noise mitigation, such as a noise wall, is usually not provided for commercial or industrial properties, because a noise wall may interfere with the view of and access to the property. The location and number of residences do not make noise abatement reasonable or feasible as required by MDOT's Noise Abatement Policy #10136.

Mitigation measures for 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 noise ordinances will be observed.

Where pavement must be fractured or structures must be removed, care will be taken to prevent vibration damage to adjacent structures. In areas where construction-related vibration is anticipated, basement surveys will be conducted before construction begins to document any damage caused by highway construction. Locations of structures potentially affected by vibration damage will be identified during the design phase.

2.18 Air Quality

The Fort Street Bridge project is located in an area that has been designated by the U. S. Environmental Protection Agency (EPA) as a maintenance area for carbon monoxide (CO). EPA announced on April 15, 2004, that Wayne County was designated in non-attainment for ozone under the 8-hour ozone standard. The designation took effect on June 15, 2004. EPA has given all areas designated as non-attainment for the 8-hour ozone standard a one year grace period to study and prepare an implementation plan to address conformity to the 8-hour standard. Wayne County will remain under its present status as a maintenance area for ozone under the 1-hour ozone standard until the grace period is over. The project is a bridge reconstruction without any lane additions and therefore is exempt from conformity procedures under 40 CFR part 93.126 “Exempt projects.”

CO is a local health concern since it dissipates quickly over a distance. A CO microscale, or “hot spot,” analysis is typically done at intersections where congestion from increased capacity and extended queuing occurs. The Preferred Alternative shifts the alignment of the Oakland Boulevard and Fort Street intersection, south of the bridge, closer to potential receptors which are in an industrial area with little pedestrian traffic. The MDOT 2003 Sufficiency Report gives the project section of Fort Street a level of service “A” (LOS-A) which is defined as “free flow operations.” A free flow operation allows for a greater mix of the air and diminishes the concentration of CO and other pollutants. Since the bridge reconstruction is not being done due to increased capacity and has little to no congestion that could elevate CO levels, a CO hot-spot analysis is not required.

The project is in MDOT’s long range plan and is included in the State Transportation Implementation Plan (STIP) for 2004 and has been included in the STIP Air Quality conformity plan.

Mitigation measures during construction. The contractor must comply with all federal, state, and local laws and regulations governing the control of air pollution. During the construction of the project, the contractor will be responsible for adequate dust-control measures so as not to cause detriment to the safety, health, welfare, or comfort of any person, or cause damage to any property, residence, or business.

All bituminous and portland cement concrete proportioning plants and crushers must meet the requirements of the rules of Part 55 of Act 451, Natural Resource and Environmental Protection. For any portable bituminous or concrete plant or crushers, the contractor must apply for a permit-to-install or a general permit from the Permit Section, Air Quality Division, of the MDEQ.

This permit-to-install should be applied for a minimum of 30 calendar days for plants with an active MDEQ permit (or 60 calendar days for plants not previously permitted in Michigan) prior to the plant being installed. For proposed plant sites in Wayne County, the contractor should apply directly to the Wayne County Department of Environment, Air Quality Management Division.

Dust collectors will be provided on all bituminous and concrete proportioning plants. 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.

2.19 Sites of Environmental Contamination

A Project Area Contamination Survey (PACS) was performed to determine if known or potential sites of environmental contamination exist that could affect the project's design, cost, or schedule. The PACS included a historical records review and identified three potential sites within the proposed project area: a former gasoline station and two industrial properties. In addition, the potential for contaminated river sediment was identified. As a result of the PACS, MDOT determined that further investigation was needed.

A consultant was hired to perform the Preliminary Site Investigation (PSI). The consultant's PSI analyzed eight soil borings and two groundwater samples in the project area. The sampling locations are shown in Appendix E. Concentrations of each compound tested were compared to the State of Michigan Part 201 Generic Cleanup Criteria and Screening Levels as established by the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Test results from the groundwater sample at B-4 detected metal constituents at concentrations above state criteria. Chromium and silver exceeded one or both of the drinking water protection and groundwater-surfacewater interface protection criteria. Some of the soil samples collected did have concentrations of contamination above state criteria. Boring B-7 has levels of benzo(a)pyrene that exceed the direct contact criterion for residential and commercial I exposure and fluoranthene and phenanthrene exceeded the groundwater-surfacewater interface protection criteria. Soil samples from borings B-1, B-2, B-3, B-4, and B-7 contained one or more metals that exceeded the groundwater-surfacewater interface protection criteria. Arsenic levels exceeded the residential and commercial I direct contact criterion in B-1 and B-4. One small area under the existing road on the west end of the bridge will need additional environmental testing to determine if any contamination exists that will affect the removal of the pavement in that area. If testing indicates that contamination is present, MDOT will properly remove and dispose of any contamination.

Mitigation measures. Exceedances of groundwater-surfacewater interface and direct contact criteria will require mitigation measures to be taken for this project. All areas of contamination must be noted in the plans and marked with a shaded area. Contaminated soils that are excavated and reused as fill shall not be relocated to a different area within the construction site. If contaminated soil must be removed from the site it will need to be tested and transported to a licensed landfill that will accept these wastes.

Dewatering may be needed, due to construction work below the water table at this site. All dewatering will be pumped to a holding tank. Disposal of this water will be done in accordance with all applicable regulations. Analytical testing of the water and authorization from the MDEQ will be required prior to the water being discharged to the river or storm sewers. The groundwater may also require treatment before being discharged or may be hauled and disposed of at an appropriate facility.

Sediment in the Rouge River may be contaminated and proper measures must be taken to contain any disturbed sediments. In addition, proper measures for disposal of sediments must be followed. The proposed project will result in a short term increase of sediment discharges in storm water run off during construction. Some excavation of river bottom material will occur during construction. Appropriate characterization of river sediment in this area and implementation of appropriate best management practices (BMPs) such as coffer dams and turbidity curtains will minimize sediment disturbance and control sediment loss in the river. Sediment sampling and testing was performed adjacent to the bridge in the year 2000 and one sample near the southeast corner of the bridge found levels of arsenic to be above its Residential and Commercial Direct Contact Criteria. River bottom material from within the proposed construction area will be sampled and characterized for all appropriate contaminants including PCBs before construction begins.

Due to the fact that groundwater-surfacewater interface criteria was exceeded for all land uses, a sub-surface utility plan will be needed to ensure that no deep utility cuts will impact any contaminated areas. Construction activities will need to avoid installing new utilities through contaminated areas identified in the PSI. Routing utilities through contaminated areas identified creates the potential for contaminated groundwater to migrate along the utility cut to the river. If contaminated areas cannot be avoided, steps will be taken to prevent the migration of contaminated groundwater along the utility corridor to the river (e.g., appropriate installation of check dams or use of a nonporous backfill). Information obtained in the PSI will also be used to plan for disposal of contaminated media generated during construction.

A Risk Management Plan which includes a Worker Health and Safety Plan will be needed before construction begins to address direct contact issues with contaminants. Construction site precautions must be taken to reduce dermal exposure. Soil erosion and sedimentation controls should also be installed and monitored during soil disturbance activities. An Environmental Risk Assessment, included in Appendix F, has been written for the work on M-85 over the Rouge River.

References: Preliminary Site Investigation Report by *psi* consulting firm
Environmental Risk Assessment for M-85

2.20 Permits Required

Construction activities for the proposed bridge replacement over the Rouge River will require several state and federal permits:

State: Natural Resources and Environmental Protection Act, PA 451 of 1994

- Part 31 – Water Resources Protection
- Part 301 – Inland Lakes and Streams
- Part 55 – Air Pollution Control

Federal:

- Section 9 of the Rivers and Harbors Act of 1899
- Section 10 of the Rivers and Harbors Act of 1899
- Sections 401 and 404 of the Federal Water Pollution Control Act of 1972

Parts 31 and 301 are administered by the MDEQ. A Part 31 Water Resources Protection Construction Permit (which is reviewed and issued with the Part 301 application) is needed to place fill material within any part of a floodplain with a drainage area of two square miles or greater. MDOT also has a statewide National Pollutant Discharge Elimination System (NPDES) storm water permit which requires mitigation of post construction storm water impacts to the maximum extent practical for all new construction projects within the state's urbanized areas. A Part 301 Inland Lakes and Streams Permit is required for any work below the ordinary high water mark of any inland lake, stream or drain including the placement of a permanent or temporary river crossing, haul road, or construction access pad.

Soil erosion and sedimentation control permits for this project will not be required. However, MDOT will follow the approved Soil Erosion Control Program and Standard Plan on file with the MDEQ.

A Coast Guard Bridge Administration Program Permit, Section 9 of the Rivers and Harbors Act of 1899, will be needed. The permit will be based on a horizontal clearance of at least 135 feet and will follow other safety and navigational requirements outlined in the Coast Guard's letter dated November 22, 2000, which is included in Appendix C. A Section 10 permit, administered by the U.S. Army Corps of Engineers, will also be required.

Final mitigation measures proposed in areas requiring permits will be developed in consultation with the appropriate resource agencies and will be included on the design plans and in the permit application.

2.21 Additional Measures to Minimize Impacts

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

The following paragraphs discuss other general mitigation concepts that are currently being considered. Without the benefit of detailed design plans and data, tentative mitigation ideas are proposed as a means to avoid or reduce adverse impacts on identified resources. Further agency coordination will continue through the design stage. Design plans will be reviewed by MDOT personnel prior to contract letting in order to incorporate any additional social, economic, or environmental protection items. Construction sites will be reviewed to ensure that the mitigation measures proposed are carried out and to determine if additional protection is required.

The Project Mitigation Summary “Green Sheet” at the end of this section identifies all specific mitigation items set up for this project. More mitigation measures may be developed if additional impacts are identified. Specific mitigation measures will be included on the design plans and permit applications.

Measures to Mitigate Right-of-Way Acquisition Impacts

Compliance with State and Federal laws. Acquisition assistance and advisory services will be provided by the MDOT in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; and Act 87, Michigan P.A. 1980, as amended.

Purchasing Property. MDOT will pay just compensation for fee purchase or easement use of property required for transportation purposes. “Just compensation” as defined by the courts is the payment of “fair market value” for the property rights acquired plus allowable damages to any remaining property. “Fair market value” is defined as the highest price estimated, in terms of money, the property would bring if offered for sale on the open market by a willing seller, with a reasonable time allowed to find a purchaser, buying with the knowledge of all the uses to which it is adapted and for which it is capable of being used.

Property Acquisition Information. A booklet entitled *Public Roads & Private Property* detailing the purchase of private property can be obtained from the Michigan Department of Transportation, Real Estate Support Area, P.O. Box 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.

Existing Vegetation

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

Disposal of Surplus or Unsuitable Material

Surplus or unsuitable material generated by removal of structures, trees, peat, etc., must be disposed of in accordance with the following provisions designed to control the possible detrimental impacts of such actions.

- When surplus or unsuitable material is to be disposed of outside the right-of-way, the contractor shall obtain and file with MDOT written permission from the owner of the property on which the material is to be placed. In addition, no surplus or unsuitable material is to be disposed of in any public or private wetland, watercourse, or floodplain without prior approval (and permit) by the appropriate resource agencies and the Federal Highway Administration.
- All regulations of the MDEQ governing disposal of solid wastes must be observed.

Continuance of Public Utility Service

Water, sanitary sewer, gas, telephone, and electrical transmission lines adjacent to or crossed by the project may require relocation or adjustment. If this should be the case, coordination between MDOT and the affected utility company will take place during design and relocation will take place prior to construction of the road if possible. The contractor will coordinate construction activities with affected utility companies.

Service to the project area may be temporarily interrupted during the adjustment period. For the most part, the effects of this work will go unnoticed.

Additional Mitigation or Modifications

The final mitigation package will be reviewed by division representatives on the MDOT project study team, in cooperation with concerned state, federal, and local agencies. Some changes in the early mitigation concepts discussed in this document may be required when design begins or when in-depth soil borings are taken and analyzed. These mitigation concepts will be implemented to the extent possible. Where changes are necessary, they will be designed and field reviewed before permits are applied for and construction begins. Changes may also be necessary during the construction phase, but they will reflect the early mitigation intent. These preceding mitigation concepts are based on the best information available through June 2004.

SECTION 3 - SECTION 4(F) EVALUATION

3.1 Introduction

The property protected by Section 4(f) and potentially affected by the proposed alternatives is the Fort Street (M-85) bascule bridge over the Rouge River in Detroit.

Section 4(f) of the 1966 Department of Transportation Act specifies that publicly-owned land from a park, recreation area, or wildlife/waterfowl refuge of national, state or local significance or any land from a historic site of national, state, or local significance may not be used for transportation projects unless: (1) there is no feasible and prudent alternative to the use of such land; and (2) the proposed project includes all possible planning to minimize harm.

This Section 4(f) Evaluation discusses the proposed project, its potential impact to Section 4(f) property, avoidance alternatives, and measures to minimize harm. Based on the following evaluation, a preliminary determination has been made that the bridge replacement will impact a 4(f) resource, all alternatives have been fully evaluated, and measures will be taken to minimize the impacts to the Section 4(f) property. Upon considering comments received from resource agencies and the public concerning the bridge replacement, the Federal Highway Administration will either apply the Section 4(f) Evaluation and document the project files or prepare a separate final Section 4(f) document for processing under the procedures set forth in the Federal Highway Administration regulations 23 CFR 771.135.

3.2 Proposed Action and Need for the Project

The primary purpose of the proposed project is to correct deficiencies of the bascule bridge so traffic flow on Fort Street (M-85) over the Rouge River, as well as boat traffic within the river channel, can be maintained. The secondary purpose is to establish a traffic flow preference for M-85.

The need to rehabilitate or replace the bridge is driven by its deteriorating condition. Specific bridge deficiencies include inward pier migration, structural deterioration, inadequacies in the electrical and mechanical systems, a substandard fender system, and a horizontal clearance that does not meet current U.S. Coast Guard standards. Refer to *Section 1.1.3* of the Environmental Assessment for a further description of specific bridge deficiencies.

3.3 Historic 4(f) Property

Description. The Fort Street Bascule Bridge, erected in 1922, is a double-leaf Chicago-style bascule bridge served by two approach structures. Refer to Section 1.1.1 for a detailed description of the bridge. See Appendix A for photographs of the bridge.

Ownership. Currently the bridge is owned by MDOT, with routine maintenance performed under special agreement by the Wayne County Road Commission for the department.

Historic Significance. The State Historic Preservation Office (SHPO) verifies the historic nature of the bridge in its November 28, 2000, letter to MDOT (Appendix C). The Fort Street Bascule Bridge, despite continued deterioration and loss of architectural integrity, remains eligible for listing on the National Register of Historic Places under Criteria A, B and C¹. The bascule bridge itself represents complex engineering and therefore is eligible under Criterion C. The bridge is also significant for its connection with the explosive growth of Detroit in the face of unprecedented industrial expansion, an expansion that was critical to the economic growth of the nation in the Post World War I period (Criterion A). As a gateway into a modern and flourishing city, its rising bascule spans permitted an unobstructed channel to the factories that helped fuel the growth of the city. Criterion A is also expressed by its connection with the Hunger March of 1933, a key event in the rise of the *International Union, United Automobile, Aerospace and Agricultural Implement Workers of America*, commonly referred to as the United Auto Workers Union (UAW). Criterion B is met because the Fort Street Bridge and the bascule bridges at Jefferson and Dix avenues, were leveraged by Henry Ford along with navigation improvements to the Rouge River to assure freighters could reach his docks with no delays.

Under direction of the War Department, the Army Corps of Engineers transformed what was little more than a winding stream into a 300 foot wide, 22 foot deep shipping channel capable of efficiently handling large-scale freighter traffic. Like the Jefferson Avenue Bascule Bridge, the Fort Street Bascule Bridge replaced earlier swing type bridges that were determined to be obsolete in the face of the federal government's plans to modernize the Rouge River to better serve the expanding Ford Rouge complex (which had been a critical defense supplier during World War I) and other industries upstream.

The Fort Street Bascule Bridge was erected in 1922 by the Wayne County Road Commission, headed by the dynamic team of Edward N. Hines, John S. Haggerty, and William F. Butler, locally prominent and visionary leaders in the Wayne County Road Commission. Leroy C. Smith was the engineer manager, and working under him were Harry A. Shuptrine, bridge engineer, and Lewis M. Gram, consulting engineer. The Chicago Bascule Bridge Company, experienced with this type of structure, served as design engineers. The contractors included Greiling Brothers Company (substructure), Bethlehem Steel Bridge Corporation (superstructure), Turner Engineering Company (electrical) and Wolverine Engineering and Construction, who performed the construction of architectural elements. The Fort Street Bascule Bridge was one of three double-leaf bascule bridges built across the River Rouge during the 1920s. Built the same year

¹ The National Register of Historic Places was established in the National Historic Preservation Act of 1966 (NHPA). The register is administered by the Secretary of the Interior. While listing is primarily honorific, the register does offer some benefits and limited federal protections, including Section 106 review and Section 4(f) provisions in the Federal Highway Act of 1966. It should be noted that eligibility for listing, not just listing, triggers the Section 106 of the NHPA and Section 4(f) mandates. The register provides four Criteria. Criterion A applies to properties associated with events that have made significant contribution to the broad patterns of our history. Criterion B applies to properties associated with the lives of persons significant in our past. Criterion C is for properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction. Criterion D is used where a property is potentially eligible if they have yielded, or may be likely to yield, information important in prehistory or history. Typically properties must be at least fifty years old for consideration, however a property of exceptional importance can be eligible earlier.

was the nearby Jefferson Avenue Bascule Bridge. The Dix Avenue Bascule Bridge, built in 1926, is a close kin in design and dimensions.

World War I was a critical trigger to Detroit's explosive economic growth in the 1920s, centered on the burgeoning automobile industry. The Rouge River was a prime location for industrial expansion, in large part influenced by Henry Ford's decision to build his dream facility, the massive Ford Rouge complex, where he could control the production of automobiles from raw material to showroom ready. Ford had already revolutionized auto production by introducing large-scale mass-production techniques. His still new Highland Park plant was unable to meet production demands, but the full development of the Rouge plant would take many years to fulfill.

Ford, however, recognized political expedience and moved quickly to open his Eagle boat factory. The factory supplied eagle boats, used as submarine chasers, to the United States World War I effort. The craft were important to the national defense, but also infused cash into Ford's coffers. It also provided the political clout to influence public investment in major transportation improvements – roads and bridges—that would be needed for his processing and manufacturing plants to be viable.

Ford's five-dollar-a-day wage structure was another revolutionary shift in industry. Ford's willingness to pay a higher wage was designed to forestall efforts to organize his workers. With the relatively high wage came more intrusive elements of Ford's paternalism, including strict control of workers within the plants, and oversight of their private lives as well. In addition, workers lacked any form of "safety net" during economic hard times. In 1932, a march was organized by the unemployed councils to call attention to the dire condition of the unemployed. The march was one of the defining moments that led to the creation of the UAW. The story of the Hunger March is summarized on the State Historical Marker displayed on the bridge operator's house:

FORD HUNGER MARCH

On March 7, 1932, in the midst of the Depression, unemployed autoworkers, their families and union organizers braved bitter cold temperatures and gathered at this bridge, intent on marching to the Ford Rouge Plant and presenting a list of demands to Henry Ford. Some three thousand "hunger marchers" paraded down Miller Road. At the city limit Dearborn police blocked their path and hurled tear gas; the marchers responded with rocks and frozen mud. Near Gate No. 3 the demonstrators were bombarded by water from firehoses and a barrage of bullets. In the end, five marchers were killed, nineteen wounded by gunfire and numerous others by stones, bricks and clubs. Newspapers alleged the marchers were communists, but they were in fact people of all political, racial and ethnic backgrounds.

Four of the deceased were white² and were buried at Woodmere Cemetery. The fifth decedent, Curtis Williams, was black. According to Shelton Tappes in *Untold Tales, Unsung Heroes*, this man was refused internment with the others.³ Eventually, his remains were cremated and scattered over the Rouge plant by airplane.

² Joseph DeBlasto, Joseph York, Joseph Bussell & Coleman Leny

³ Moon, Elaine Latzman. *Untold Tales, Unsung Heroes. An Oral History of Detroit's African-American Community, 1918-1967.* Detroit: Wayne State University Press, 1994.

3.4 Impacts on the Section 4(f) Property

Alternative A, Alternative B, and replacement on a 5° skewed alignment call for the removal and replacement of the bridge and would be considered an adverse effect.

No Action Alternative

This strategy involves no commitments beyond normal and routine maintenance activities. This approach would not address the Purpose and Need and the bridge would continue to deteriorate, resulting in an eventual closure and possible failure of the structure. Therefore, this alternative is not recommended but is used as a benchmark for analyzing the other alternatives.

Replacement on Existing Alignment (Alternative A)

Alternative A, shown in Exhibit 2, would build the new bridge on the same alignment as the existing bridge. This alternative would not address the intersection problems at the junction of Oakwood Boulevard and South Fort Street, which would fail to meet a significant element of the project Purpose and Need. Also, this alternative would create special engineering challenges to avoid existing and active utility tunnels which run beneath the existing bridge piers. Alternative A would require a long-term detour of two or more years because full demolition would be required prior to the construction of the new bridge.

Preferred Alternative - Replacement a 13° Skewed Alignment (Alternative B)

Alternative B, illustrated in Exhibit 4, would construct the new bridge 13° south of the existing alignment. This skewed alignment would allow for geometric improvements at the substandard junction of Oakwood Boulevard and South Fort Street. The new alignment would require right-of-way from Marathon Oil and the Wayne County Department of Public Works (vacant land at the southwest quadrant), Morton Salt (a portion of a salt storage yard at the southeast quadrant), and a portion of the parking lot at the corner of Oakwood Boulevard and Denmark Avenue. A very small amount of right-of-way would also be needed from the parcel located at the corner of Fort and Reisener streets across from Morton Salt. Alternative B would allow the potential retention of the operator's house (and related pier structure) for use in a proposed labor history/transportation interpretive site.

Replacement on 5° Skewed Alignment (Alternative C)

Replacing the new bridge 5° south of the current alignment, as shown in Exhibit 5, would result in unacceptable geometrics at both the westerly and easterly approaches and would require the taking of potentially historic residential properties on the south side of Fort Street, east of Reisener Street. This alternative has been removed from consideration because of the unsatisfactory geometrics but was initially considered for study as an alternative because it would not require a detour.

3.5 Avoidance Alternatives

Rehabilitation of the Existing Bridge (Alternative D)

The historic bridge would be rehabilitated to meet current American Association of State Highway and Transportation Officials (AASHTO) standards while following the Secretary of Interior Standards for Rehabilitation. This alternative was not carried forward because there are

no known feasible ways to stop the active inward migration of the bridge piers. Rehabilitation of the existing bridge would also preclude improvements to the Oakwood Boulevard - South Fort Street intersection and this would not meet U.S. Coast Guard's navigable width of 135 feet between the fendering system.

Building on a New Location without Removing the Existing Bridge (Alternative E)

Under this alternative, the existing historic bridge would be retained but be closed to vehicular or all traffic. A new crossing would be developed at an alternate location. This alternative was not considered as there are no feasible or prudent alternate crossing points.

Relocation of the Bridge to a New Site (Alternative F)

The historic bridge would be relocated and reconstructed at a new location, while a new bridge would be constructed on the existing alignment. This alternative would not be feasible or prudent due to the high costs of reconstruction and dismantling, storing and transporting the bridge components; all of this presuming an appropriate location could be identified and secured for relocation.

3.6 Measures to Minimize Harm

Proposed mitigation measures appear in a draft Memorandum of Agreement (MOA) between FHWA, the SHPO, and MDOT. See Appendix G for the draft MOA.

3.6.1 Full Recordation of the Bridge Prior to Demolition (see Section 3.6.4)

Proposed mitigation measures to record the bridge and neighboring area include:

- Photographic documentation of structure, site, interior spaces, and machinery
- Measured drawings of exterior and interior and plan and elevation views
- Textual history and description of the bridge
- Documentation of historical graphics including plans, specifications, press releases, articles, and historic photographs
- Textual and photographic documentation of the immediate neighborhoods on both sides of the existing bridge

3.6.2 Development of an Architecturally Appropriate Bridge Design

The new bridge needs to be treated as a gateway bridge and the design will be architecturally appropriate. The design should draw from design trends prevalent during the period of prime significance for the bridge, roughly 1920 to 1945. The SHPO will be consulted through the design phase and will be invited to comment on the bridge design and approach design.

3.6.3 Establishment of an Interpretive Site Adjacent to the New Bridge

The interpretive site will be linear and located within MDOT right-of-way adjacent to a parcel currently owned by the CSX Corporation. The site would:

- Interpret site significance in development of the UAW (including display of the existing state register marker)
- Interpret the significance of the site/bridge to the development of Detroit/Dearborn as industrial cities in post World War I
- Provide linkage with Ford Rouge Plant tourism and regional GreenWays Initiative
- Provide landscape design compatible with the Rouge River Gateway Master Plan

One option under study is the retention of the existing operator's house and a portion of bridge pier structure for incorporation into an interpretive site. If feasible, MDOT would stabilize and secure the interior and stabilize and restore the exterior of the operator's house. A crucial element of feasibility would be the identification of the appropriate agency, agencies, and/or stakeholders to assume responsibility for maintaining and promoting the facility once completed. These agencies and stakeholders would be included during discussions concerning site design.

3.6.4 Publication of Historic Bridge Documentation (see Section 3.6.1)

Using the materials collected and developed for the bridge documentation discussed in section 3.6.1, MDOT would produce a popular history of the bridge and distribute it to appropriate repositories, including the State Library and Archives, Detroit and Dearborn public libraries, Wayne State University, and other potential recipients. Additional copies may be made available through MDOT or possibly through selected repositories, on-request and through just-in-time production.

3.7 Coordination

Coordination regarding the historic resource associated with the Fort Street bridge project has been ongoing. Effects of the bridge replacement, the alternatives considered, and the proposed measures to minimize harm were reviewed by and developed in consultation with the State Historic Preservation Officer.

MDOT has coordinated with local public agencies and citizen groups concerning the project and will hold a public hearing. The availability of this document and the public hearing will be advertised locally.

3.8 Conclusion

Based on the considerations contained in this Section 4(f) Evaluation, there is no prudent and feasible alternative to using the historic property described in this section. The proposed bridge replacement includes all possible planning to minimize harm to this resource from such use.

SECTION 4 - AGENCY AND PUBLIC INVOLVEMENT

4.1 Agency Coordination and Participation

The Michigan Department of Transportation has coordinated with the following agencies and government units concerning the proposed replacement of the Fort Street Bascule Bridge:

- Federal Highway Administration
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Fish and Wildlife Service
- City of Detroit
- Southend Neighborhood City Hall
- Southwest Neighborhood City Hall
- Michigan State Historic Preservation Office
- Michigan Department of Natural Resources
- Michigan Department of Environmental Quality

Correspondence from resource agencies is included in Appendix C.

4.2 Public Involvement

A public hearing on the proposed project will be held after the Environmental Assessment has been approved and made available to the public. MDOT will complete the environmental review process by requesting a Finding of No Significant Impact (FONSI) from FHWA upon public and agency concurrence that the project does not have significant impacts.

SECTION 5 - PROJECT COSTS

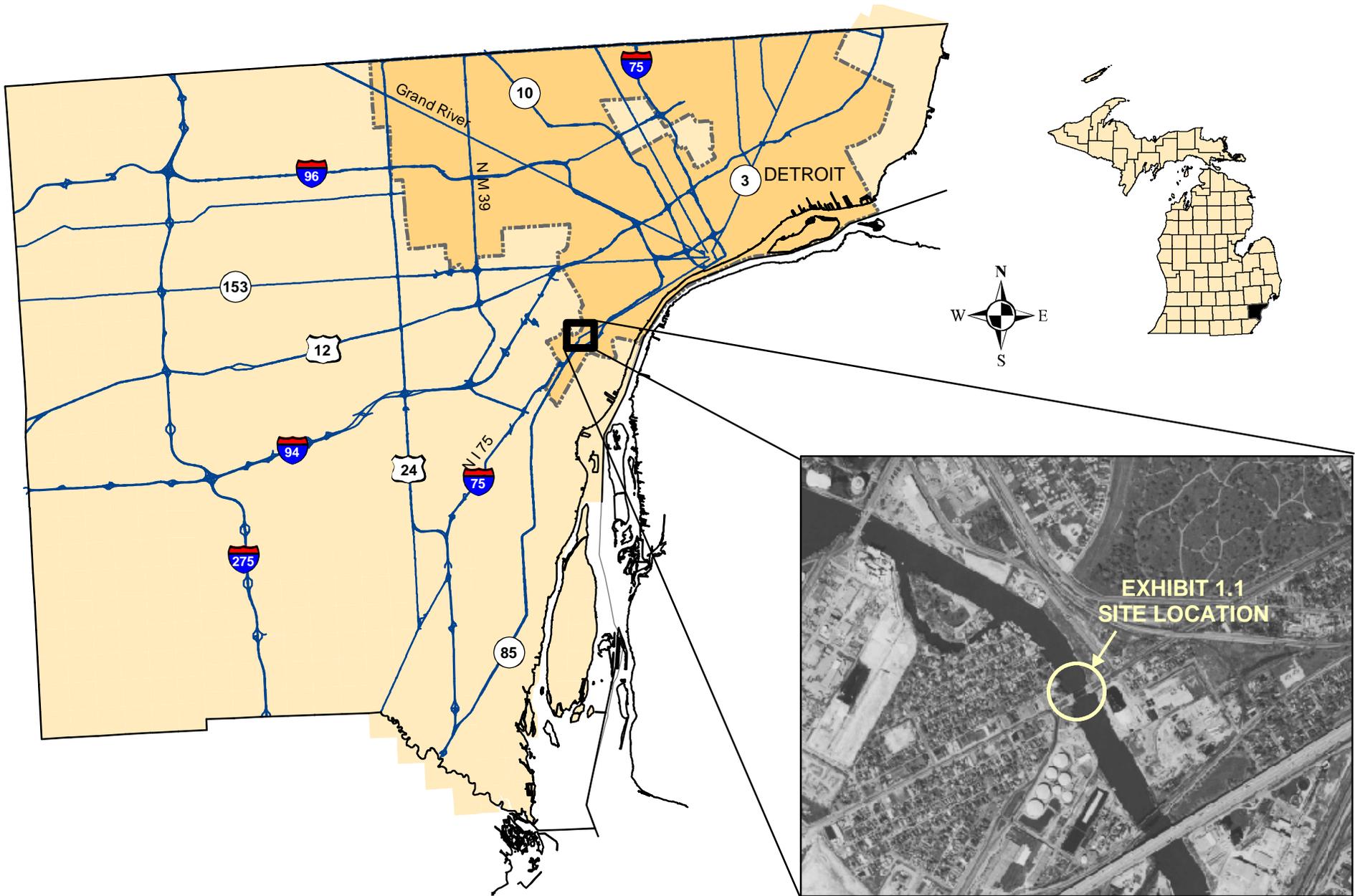
5.1 Project Costs

The estimated cost for constructing the replacement bridge is approximately \$35 million (2004) dollars. The cost includes right-of-way acquisition, design, engineering, construction of the bridge and approaches, and intersection improvements at Fort Street and Oakwood Boulevard.

SECTION 6 - CONCLUSION

6.1 Conclusion

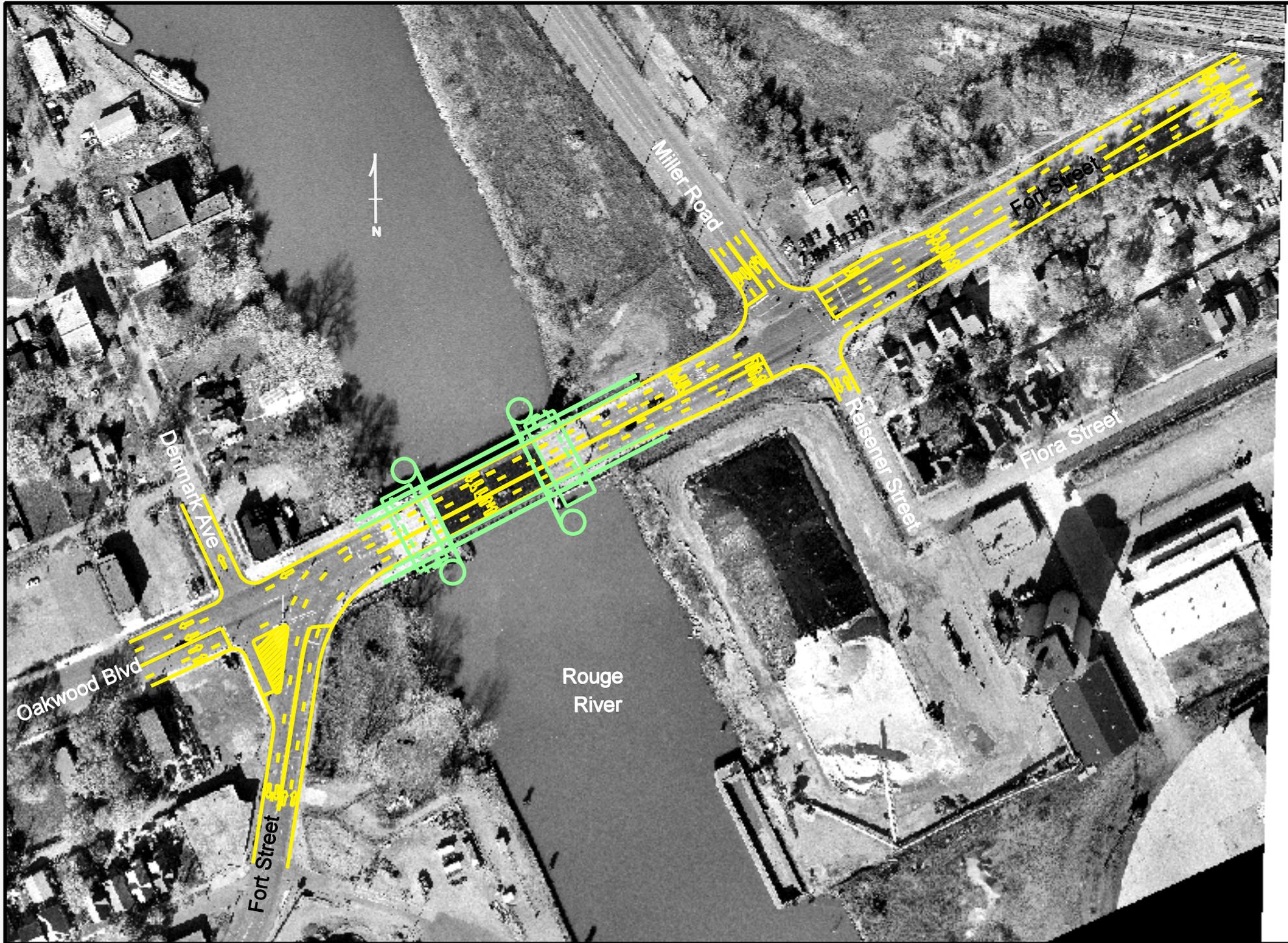
The Michigan Department of Transportation has reviewed this project for potential impacts on the human and natural environments. Based on the information in this Environmental Assessment, field reviews, and coordination with other agencies and the public, it is anticipated that this project will have no long-term significant negative impacts on the natural or human environment within the project area.



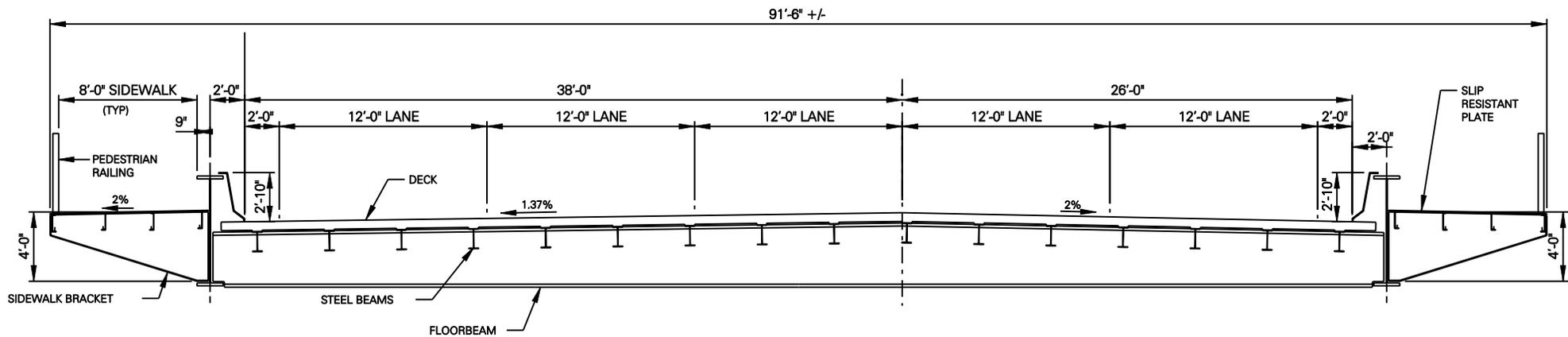
Sources: USGS 1998 Aerial Photograph,
Michigan GIS Framework

Location of Proposed Fort Street (M-85) Bridge Project

Exhibit 1



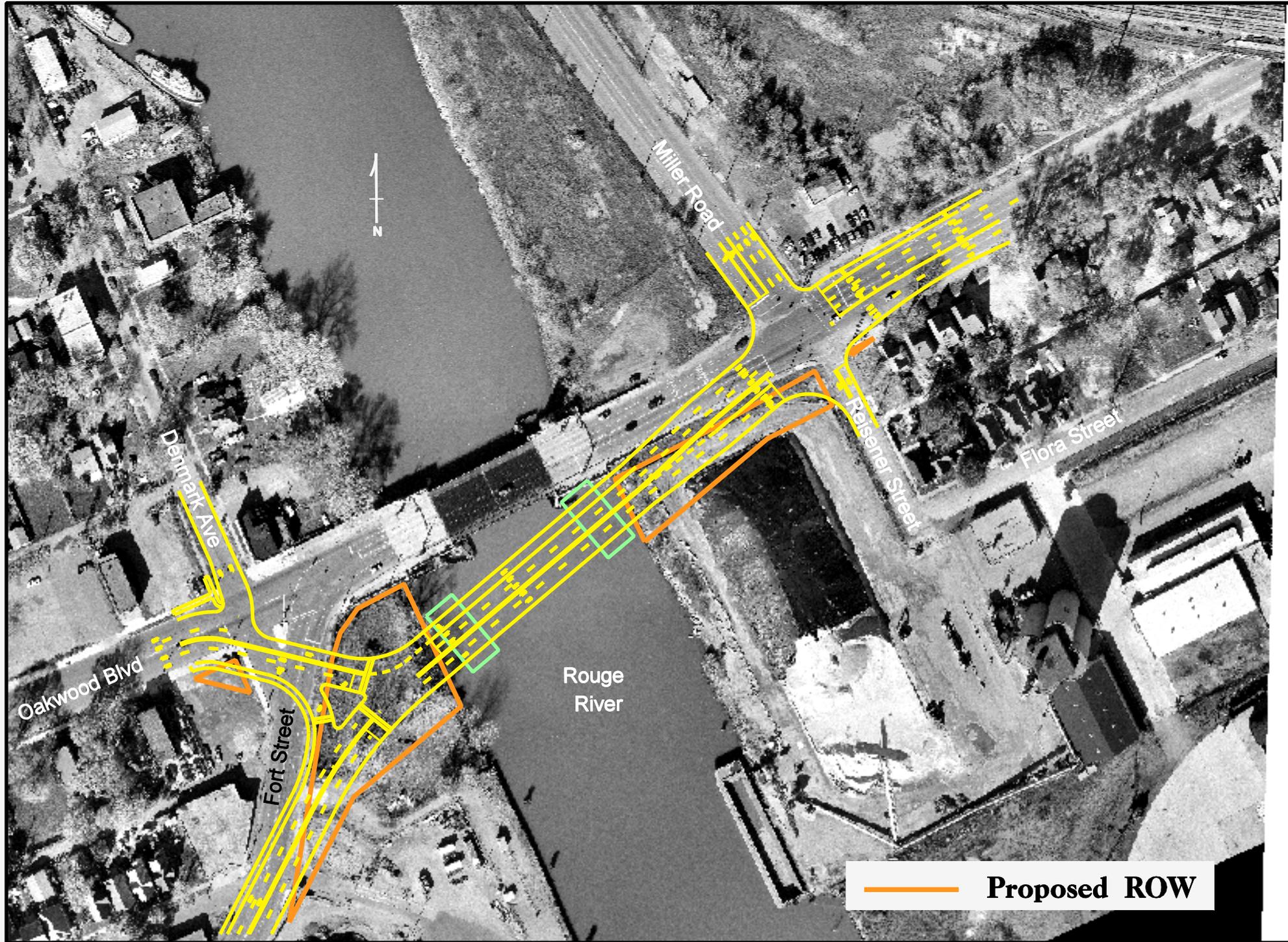
Fort Street (M-85) Bridge Alternative A



Bridge Cross-Section

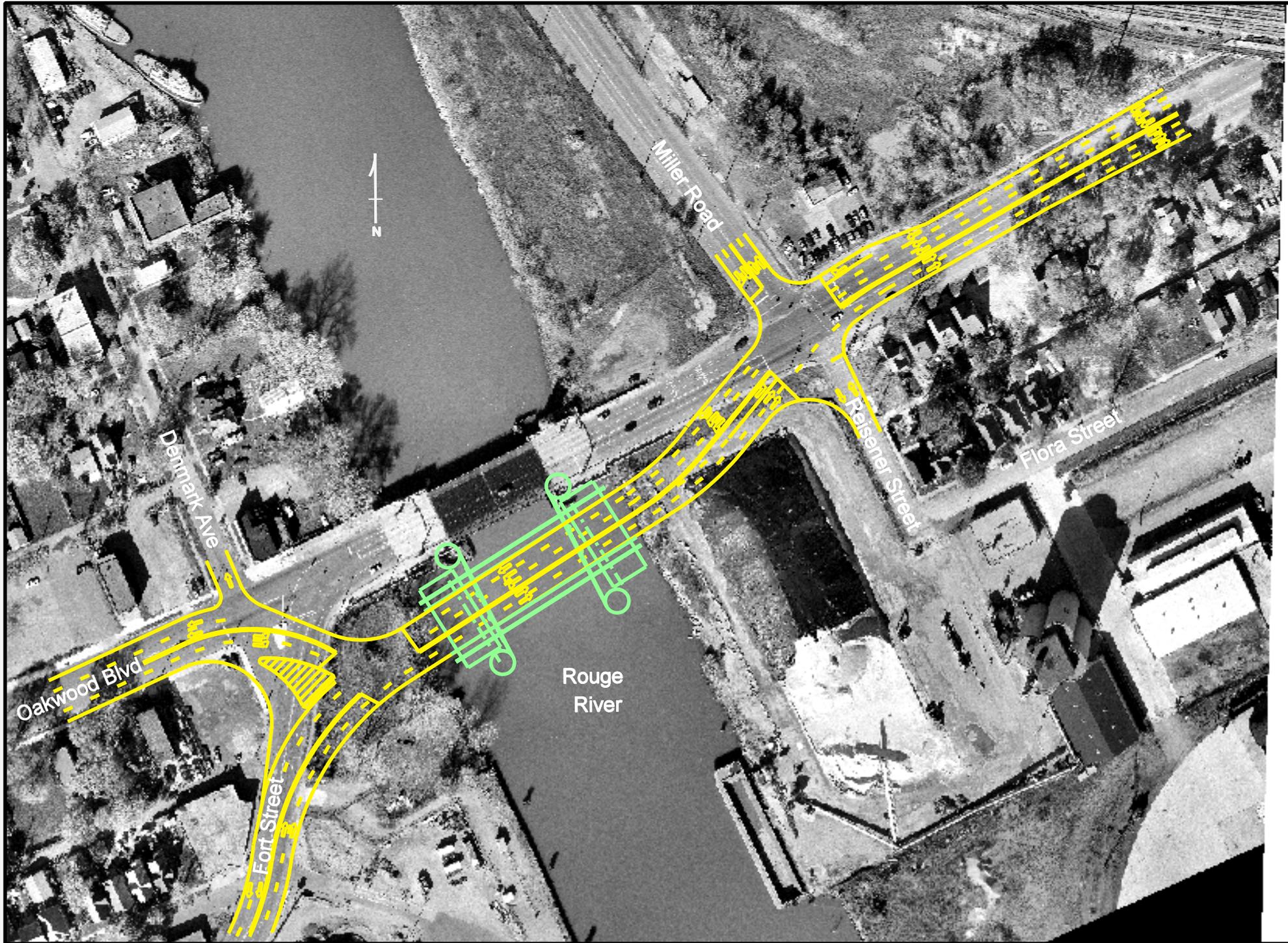
Proposed Cross-Section Fort Street (M-85) Bridge Replacement

Exhibit 3

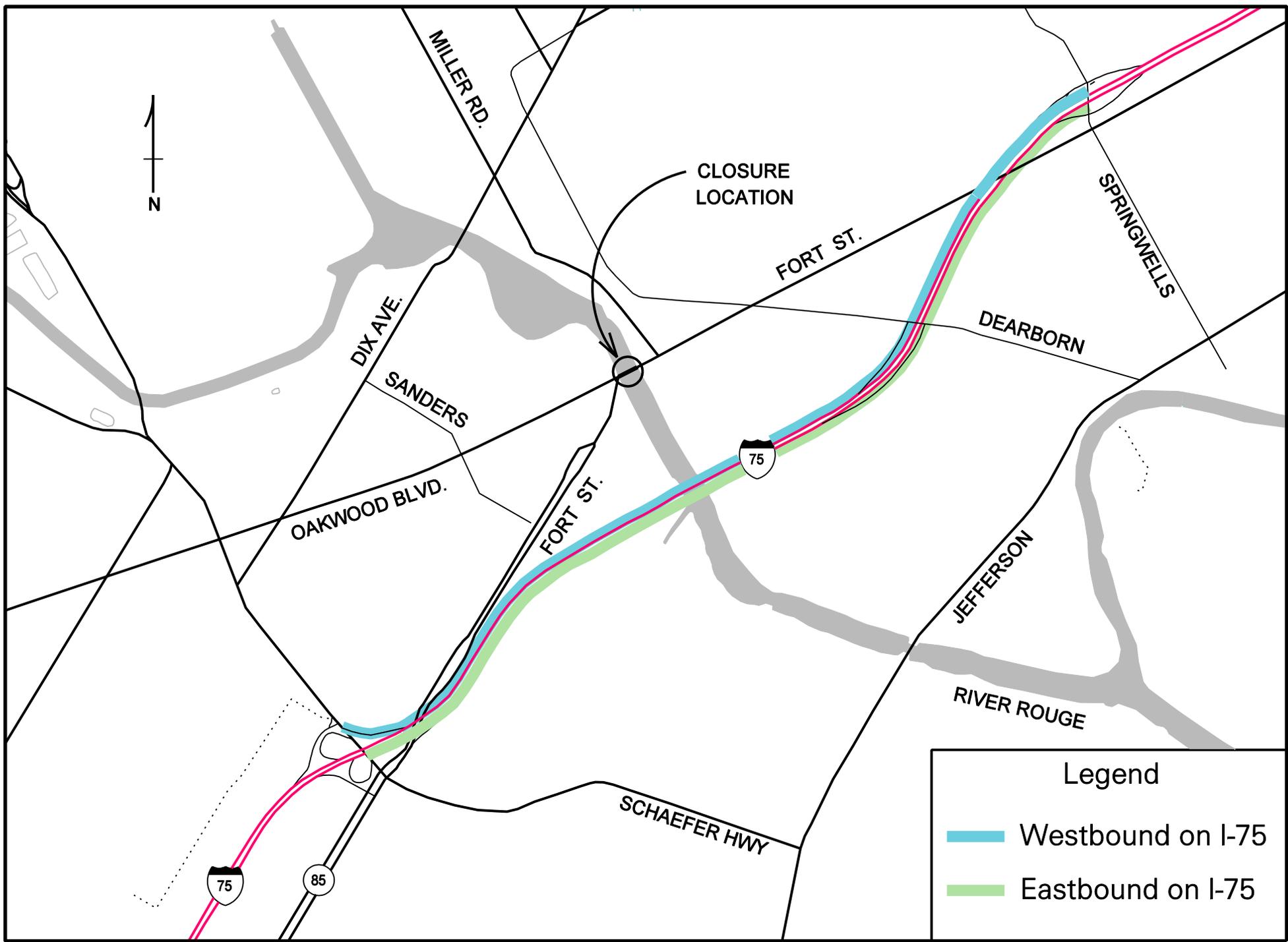


Fort Street (M-85) Bridge Alternative B

Exhibit 4



Fort Street (M-85) Bridge Alternative C



Through Traffic Detour for the Fort Street (M-85) Bridge Closure

Exhibit 6

APPENDIX A

Bridge Photographs

Bridge Photographs



Photograph 1. A general view of the bridge looking toward the southwest

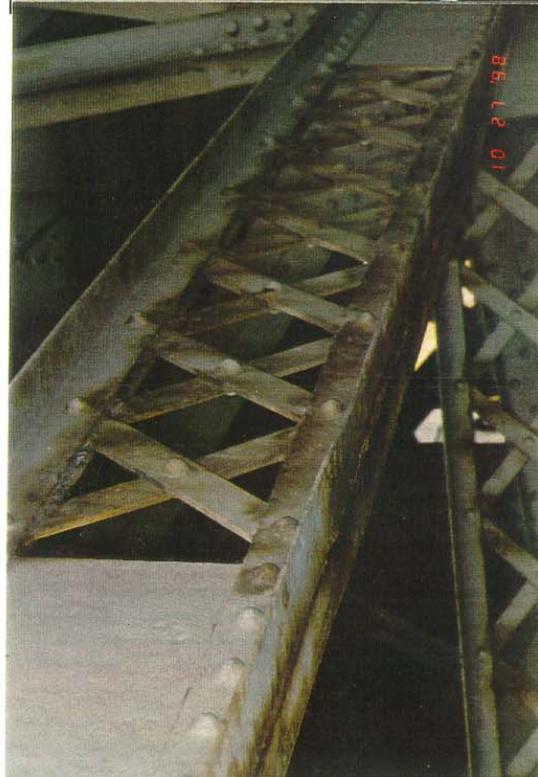


Photograph 2. The operator's house at the east end of the bridge

STRUCTURAL SYSTEM INSPECTION PHOTOGRAPHS

BRIDGE: FORT STREET BRIDGE (STRUCTURE ID NO. 82 1820710000000B04)

DATE: OCTOBER 1998



PHOTOGRAPH S-11 - View showing typical corrosion between back-to-back angles of floorbeam lower struts and reduced horizontal flange angle legs.



PHOTOGRAPH S-12 - View showing loss of floorbeam lower strut fastener due to occasionally occurring pack rust at inboard truss upper connection plates.

Photographs 3 (S-11) and 4 (S-12). Structural Inspection Photographs



Photograph 5. View of bridge fender system, northeast quadrant



Photograph 6. View of the Oakwood Boulevard/South Fort Street intersection

APPENDIX B

Bridge Safety Inspection Report

Bridge Safety Inspection Report

Facility	Federal Structure ID	Inspector Name	Agency / Consultant	Inspection Date			
M-85	82182071000B040	Lou Taylor	MDOT - BOU	10/29/2003			
Feature	Latitude	Longitude	Struc Num	Insp Freq	Insp Key		
ROUGE R	421729.53	830832.17	11321	15	DKFJ		
Location	Length	Width	Year Built	Year Recon	Br Type	Scour Eval	No.Pins
IN DETROIT 10400 FORT ST	281.8241	73.818	1926		3 16	5	

01 02 03 **NBI INSPECTION**

LEGEND	
9	New
7-8	Good
5-6	Fair
3-4	Poor
2 or Less	Critical

Deck

- 1. Surface SIA-58A 5 5 Galvanized metal grating, bent/dented 3 sy. several small snagged bars. Several holes throughout grating.(2003), Galvanized metal grating, bent/dented 3 sy. several small snagged bars. Several holes throughout grating.(2002),
- 2. Expansion Jts 6 6 Finger dams missing bolts at toe ends of bascule leaves.(2003), Finger dams missing bolts at toe ends of bascule leaves.(2002),
- 3. Other Joints 5 5 Loss of joint seals, joints filled with dirt, some leakage. Small spalls along edges making neoprene loose.(2003), Loss of joint seals, joints filled with dirt, some leakage. Small spalls along edges making neoprene loose.(2002),
- 4. Railings 7 7 3 tube Aluminum railing NW channel at lift span loose.(2003), Aluminum post and rails NW channel at lift span loose.(2002),
- 5. Sidewalks or curbs
- 6. Deck SIA-58 4 4 Deck cracked with efflorescence, map cracked approximately 20% of area under sidewalks (hole in NE). Str encasement spalled, Beams BF exposed and rusted, leaching stalactites. Debris and dirt along both approach span curbs.(2003), Deck cracked with efflorescence, map cracked approximately 20% of area under sidewalks (hole in NE). Str encasement spalled, Beams BF exposed and rusted, leaching stalactites. Debris and dirt along both approach span curbs.(2002),
- 7. Drainage

Superstructure

- 8. Stringer SIA-59 4 4 Bascule span pack rusted seams, b to b angles, pitted, loss of section at connections, gussets holed, lacing and battens poor. Flbm/girder conn rusty conn plate, with some repaired in 2001.(2003), Bascule span pack rusted seams, b to b angles, pitted, loss of section at connections, gussets holed, lacing and battens poor. Flbm/girder conn rusty conn plate, with some repaired in 2001.(2002),
- 9. Paint SIA-59A 4 4 Rusted seams, lacing, battens, and connections with greater than 10%, pack rust(2003), Rusted seams, lacing, battens, and connections with greater than 10%, pack rust(2002),
- 10. Section Loss 0 0 Gusset plates with holes, pack rust, connections with greater than 10% loss of section West end has cracked cover plate at pivot and beams have holes in corners.(2003), Gusset plates with holes, pack rust, connections with greater than 10% loss of section West end has cracked cover plate at pivot and beams have holes in corners.(2002),
- 11. Bearings 5 5 General rusting, anchors and bracing reduced at longitudinal trunnion support truss bearings. Ctw.rear stop block bearing angle of anchor column cracked and gaps exist.(2003), General rusting, anchors and bracing reduced at longitudinal trunnion support truss bearings. Ctw.rear stop block bearing angle of anchor column cracked and gaps exist.(2002),

Substructure

- 12. Abutments SIA-60 4 4 Several spalls and some map pattern cracking at corners and edges of the abutment seats. Old inactive vertical cracks exist full height of abutment stem. Brickwork indicates settling of ends(2003), Several spalls and some map pattern cracking at corners and edges of the abutment seats. Old inactive vertical cracks exist full height of abutment stem. Brickwork indicates settling of ends(2002),
- 13. Piers SIA-60 4 4 Heavy scale, spalls. Some timber fenders and plate missing, fender damage.S.W.(2003), Heavy scale, spalls. Some timber fenders and plate missing, fender damage.S.W.(2002),
- 14. Slope Protection

Approach

- 15. Approach Pavt 4 3 Settled (dip), poor vertical alignment, uneven, heavily cracked, raveling. Curb spalling and sidewalk heavily cracked and uneven. manhole covers have cold patch in large deep potholes. 1 foot drop at both ends. Vehicles bouncing and pounding bridge.(2003), Settled (dip), poor vertical alignment, uneven, heavily cracked, raveling. Curb spalling and sidewalk heavily cracked and uneven. manhole covers have cold patch in large deep potholes. 1 foot drop at west end. Vehicles bouncing.(2002),
- 16. Approach Shldr Swalks
- 17. Approach Slopes
- 18. Utilities
- 19. Channel SIA-61 7 6 Fender on west end needs repair.(2003), Fender on west end needs repair.(2002),

Bridge Safety Inspection Report

Facility	Federal Structure ID	Inspector Name	Agency / Consultant	Inspection Date	LEGEND 9 New 7-8 Good 5-6 Fair 3-4 Poor 2 or Less Critical		
M-85	82182071000B040	Lou Taylor	MDOT - BOU	10/29/2003			
Feature	Latitude	Longitude	Struc Num	Insp Freq		Insp Key	
ROUGE R	421729.53	830832.17	11321	15		DKFJ	
Location	Length	Width	Year Built	Year Recon	Br Type	Scour Eval	No.Pins
IN DETROIT 10400 FORT ST	281.8241	73.818	1926		3 16	5	
<input type="checkbox"/> 01 <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/>							

NBI INSPECTION

20. Drainage
Culverts

Guard Rail		Crit Feat Insp(SIA-92)		MISCELLANEOUS	
	<input type="checkbox"/> 01 <input type="checkbox"/> 03 <input type="checkbox"/> 03 <input type="checkbox"/>			71	Watr Adeq <input type="checkbox"/> 8
36A	<input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1	92A	Frac Crit <input type="checkbox"/> 24 <input type="checkbox"/> 10/29/2003	72	Appr Align <input type="checkbox"/> 8
36B	<input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1	92B	Und. Watr <input type="checkbox"/> 60 <input type="checkbox"/> 04/01/1996		Temp Supp <input type="checkbox"/>
36C	<input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1	92C	Spl.Insp <input type="checkbox"/>		Hi Ld Hit (M) <input type="checkbox"/> 0
36D	<input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1				Special Insp Equip. <input type="checkbox"/> 5
				General Notes	
				REPLACE APPROACH PAVEMENT AND FILL BOTH ENDS PRIOR TO NEW BRIDGE CONSTRUCTION.	

APPENDIX C

Correspondence from Resource Agencies



CITY OF DETROIT
MAYOR'S OFFICE
NEIGHBORHOOD CITY HALL

COLEMAN A. YOUNG
MUNICIPAL CENTER
2 WOODWARD AVE., SUITE 308
DETROIT, MICHIGAN 48226
PHONE 313-224-3450
FAX 313-224-1475
WWW.CI.DETROIT.MI.US

February 18, 2004

Mr. Paul Wisney, Project Manager
Michigan Department of Transportation, Metro Region
18101 West Nine Mile Road
Southfield, Michigan 48075

I am writing on behalf of the City of Detroit, Neighborhood City Hall in full support of the project to repair M-85 (Fort Street) Bascule Bridge. However, there are some concerns that should be addressed as we move forward.

During the two (2) year closure of M-85 (Fort Street) Bascule Bridge, the proposed detour route will cause a delay in response time of emergency vehicles. In order to ensure the safety of our citizens, it is necessary that additional police officers be hired to respond quickly if an emergency should occur on either side of the bridge. It is therefore requested that M-DOT provide the funding to hire the additional police officers during this two (2) year period.

We truly commend your efforts in this endeavor, and look forward to the opportunity of working with you on this worthwhile project.

If you have any questions or concerns, please don't hesitate to call. I can be reached at (313)383-6783. Again, thank you. I look forward to your response.

Sincerely,

A handwritten signature in cursive script that reads "Carl Ramsey".

Carl Ramsey, Manager
Mayor's Office-Southend Neighborhood City Hall
2900 S. Fort Street
Detroit, Michigan 48217
(313)383-6783

cc: Lori Noblet



MICHIGAN DEPARTMENT OF STATE
Candice S. Miller, Secretary of State

Lansing, Michigan 48918-0001

STATE HISTORIC PRESERVATION OFFICE
Michigan Historical Center
717 West Allegan Street
Lansing, Michigan 48918-1800

November 28, 2000

MR JIM KIRSCHENSTEINER
315 W ALLEGAN STREET
ROOM 207
LANSING, MI 48933

RE: ER-00-571 Replacement of US-25/Fort Street Bridge over the River Rouge, Detroit, Wayne County (FHWA)

Dear Mr. Kirschensteiner:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, it is the opinion of the State Historic Preservation Officer (SHPO) that the proposed undertaking will have an **adverse effect** on the Fort Street Bridge over the River Rouge, Detroit, Wayne County, which is listed in the National Register of Historic Places.

This undertaking meets the criteria of adverse effect because: *the undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association*[36 CFR § 800.5 (a)(1)]. Specifically, the undertaking will result in:

- Physical destruction of or damage to all or part of the property.

The finding of adverse effect will prompt the Federal Highway Administration, hereinafter referred to as "Agency", to consult further to resolve the adverse effect pursuant to 36 CFR § 800.6 by proceeding with the following steps:

(1) Per 36 CFR § 800.6(a), the Agency shall continue consultation with the SHPO and other consulting parties to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties. The Agency shall submit a case study outlining these efforts for review by the SHPO.

(2) In accordance with 36 CFR § 800.6(a)(4), the Agency shall make information regarding this finding available to the public, providing the public with an opportunity to express their views on resolving adverse effects of the undertaking. Pursuant to 36 CFR § 800.11(e), copies or summaries of any views provided by consulting parties and the public shall be made available to the SHPO as part of the case study outlined in (1).

(3) The Agency shall immediately notify the Advisory Council on Historic Preservation (Advisory Council), Old Post Office Building, 1100 Pennsylvania Avenue, NW, Suite 809, Washington, D.C. 20004, of the adverse effect finding per 36 CFR § 800.6(a)(1). The notification to the Advisory Council should be similar to the project information submitted to this office and should include the following documentation as outlined in 36 CFR § 800.11(e):

- A description of the undertaking, specifying the federal involvement, and its area of potential effects, including photographs, maps and drawings, as necessary.
- A description of the steps taken to identify historic properties.
- A description of the affected historic properties, including information on the characteristics that qualify them for inclusion in the National Register of Historic Places.
- A description of the undertaking's effects on historic properties.
- An explanation of why the criteria of adverse effect were found applicable or inapplicable, including any conditions or future actions to avoid, minimize or mitigate adverse effects.
- Copies or summaries of any views provided by consulting parties and the public.

(4) The Agency shall invite the Advisory Council to participate in consultation if the undertaking will affect a National Historic Landmark, if a Programmatic Agreement will be developed as a result of the finding of adverse effect, or if the Agency wants the Advisory Council to participate in consultation. The Advisory Council will advise of its decision to participate in consultation within fifteen (15) days of receipt of this notification or other request. If the Advisory Council chooses not to participate in consultation, the Agency shall resolve the adverse effect without Advisory Council participation and pursuant to 36 CFR § 800.6(b)(1).

(5) If the Agency, the SHPO and, if applicable, the Advisory Council agree on how the adverse effects will be resolved, they shall execute a Memorandum of Agreement (MOA) pursuant to 36 CFR § 800.6(c).

(6) If the Agency and the SHPO fail to agree on the terms of the MOA, the Agency shall request the Advisory Council to join the consultation. If the Advisory Council decides to join the consultation, the Agency shall proceed in accordance with 36 CFR § 800.6(b)(2). If the Advisory Council decides not to join the consultation, the Advisory Council will notify the Agency and proceed to comment in accordance with 36 CFR § 800.7.

The views of the public are essential to informed decision making in the Section 106 process. Federal Agency Officials or their delegated authorities must plan to involve the public in a manner that reflects the nature and complexity of the undertaking, its effects on historic properties and other provisions per 36 CFR § 800.2(d). We remind you that Federal Agency Officials or their delegated authorities are required to consult with the appropriate Indian tribe and/or Tribal Historic Preservation Officer (THPO) when the undertaking may occur on or affect any historic properties on tribal lands. **In all cases**, whether the project occurs on tribal lands or not, Federal Agency Officials or their delegated authorities are also required to make a reasonable and good faith effort to identify any Indian tribes or Native Hawaiian organizations that might attach religious and cultural significance to historic properties in the area of potential effects and invite them to be consulting parties per 36 CFR § 800.2(c-f).

Please note that the Section 106 process will not conclude according to 36 CFR § 800.6 "Resolution of Adverse Effects" until the consultation process is complete, an MOA is developed, executed and implemented, and, if applicable, the formal comments of the Advisory Council have been received.

The State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.

If you have any questions, please contact Martha MacFarlane-Faes, Environmental Review Coordinator, at (517) 335-2721. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,



Brian D. Conway
State Historic Preservation Officer

BDC:JRH:ROC:kmp

copy: Advisory Council on Historic Preservation
Andrea Cluley, MDOT
Ron Kinney, MDOT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

East Lansing Field Office (ES)
2651 Coolidge Road, Suite 101
East Lansing, Michigan 48823-6316

IN REPLY REFER TO:

September 10, 2003

Cynthia Warzecha,
Project Planning Division
Bureau of Transportation Planning
Michigan Department of Transportation
425 W. Ottawa Street
Lansing, Michigan 48909

Re: Environmental Assessment for the Replacement or Rehabilitation of the M-85
Bascule Bridge Over the Rouge River, Detroit, Michigan

Dear Ms. Warzecha:

Thank you for your August 6, 2003 letter regarding the replacement or rehabilitation of the M-85 bascule bridge over the Rouge River in Detroit, Michigan. These comments are prepared under the authority of the Fish and Wildlife Coordination Act and are consistent with section 7 of the Endangered Species Act (Act) of 1973, as amended.

Endangered Species Act Comments

As discussed by telephone last month, information in our files does not indicate the presence of any federally endangered, threatened, or proposed species, or designated or proposed critical habitat, in the action area. If the project requires modification, or new information becomes available that suggests species listed or proposed for listing may be present and/or affected, you should initiate consultation with us as required by section 7 of the Act. Since threatened and endangered species data changes continuously, we recommend you contact this office for an updated Federal list of the species occurring in the project area every six months during the remaining planning and building period.

Fish and Wildlife Coordination Act Comments

The proposed work may require a Michigan Department of Environmental Quality permit for which this office would have review responsibilities. In the review of these permit applications, we may concur (with or without stipulations) or object to permit issuance depending upon whether specific construction practices may impact public trust fish and wildlife resources of concern.

We appreciate the opportunity to provide these comments. Please refer any questions directly to Jack Dingledine of this office at (517) 351-6320 or the above address.

Sincerely,

Craig A. Czarnecki
Field Supervisor

cc: MDNR, Wildlife Division, Lansing, MI (Attn: Pat Lederle)

G:\ADMINISTRATION\ARCHIVES\2003\Sept03\RougeRiver_m85bridge.jvd.wpd



STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

K. L. COOL
DIRECTOR

May 19, 2003

Ms. Cynthia Warzecha
Bureau of Transportation Planning
Michigan Department of Transportation
P.O. Box 30050
Lansing, MI 48909

Dear Ms. Warzecha:

**Environmental Assessment for the Proposed Replacement of Bridge
on US-25 over the Rouge River in Detroit, Wayne County**

This letter is in response to Ms. Margaret Barondess' letter of April 15, 2003. We appreciate the opportunity to review the Environmental Assessment for the proposed bridge replacement.

The project should have no impact on rare or unique natural features at the location specified above if it proceeds according to the plans provided. Please contact Ms. Lori Sargent, Natural Heritage Specialist, for an evaluation if the project plans are changed.

Thank you for your cooperation in protecting Michigan's natural resource heritage. Responses and correspondence can be sent to: Ms. Lori Sargent, Natural Heritage Specialist, Michigan Department of Natural Resources (DNR), Wildlife Division – Natural Heritage Program, P.O. Box 30180, Lansing, Michigan 48909. If you have further questions, please call Ms. Sargent at 517-373-1263.

Sincerely,

A handwritten signature in blue ink, appearing to read "George E. Burgoyne, Jr.", written over a white background.

George E. Burgoyne, Jr.
Resource Management Deputy
517-373-0046

cc: Ms. Lori Sargent, DNR Wildlife Division

DEPARTMENT OF THE ARMY

DETROIT DISTRICT, CORPS OF ENGINEERS

BOX 1027

DETROIT, MICHIGAN 48231-1027

December 9, 2002

IN REPLY REFER TO

Engineering & Technical Services
Regulatory Office
File No. 98-009-004-1

Abdelmoez Abdalla
Environmental Program Manager
U.S. Department of Transportation
Federal Highway Administration
315 West Allegan St., Rm. 207
Lansing, Michigan 48933

Dear Mr. Abdalla:

This is in regard to your agency's request for our agency to become a cooperating agency with your agency, the U.S. Department of Transportation and the Michigan Department of Transportation on review of the environmental assessment for the Fort Street bridge replacement over the Rouge River in Detroit.

We would be happy to give input to the issues and participate in meetings. Please accept my apology for missing the response date. We would be happy to review and comment on environmental documents related to the bridge replacement and to become a cooperating agency. We have also requested that the Michigan Department of Transportation submit an application for a Department of the Army permit for the proposed work.

Should you have any questions, please contact Thomas M. Freitag at the above address or telephone (313) 226-6706. Please refer to File Number: 98-009-004-1.

Sincerely,

ORIGINAL SIGNED BY

Wally Gauthier
Chief, Permit Evaluation Branch B
Regulatory Office

Copy Furnished:
MDOT

U.S. Department
of Transportation

United States
Coast Guard



Commander (obr)
Ninth Coast Guard District
1240 East Ninth Street
Cleveland, Ohio 44199-2060

Phone: (216) 902-6084
FAX: (216) 902-6088

16590
Ser. B-111/rwb
22 November 2000

Ms. Andrea Cluley
Michigan Department of Transportation
Bureau of Transportation Planning
425 West Ottawa
P. O. Box 30050
Lansing, Michigan 48909

Dear Ms. Cluley:

This refers to Mr. Ronald S. Kinney's letter of 17 October 2000 concerning the planned replacement of the old US-25 (Fort Street) bascule bridge across the River Rouge in Detroit.

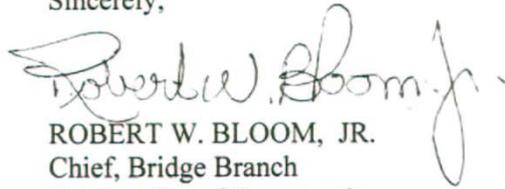
This letter will establish the Coast Guard as a cooperating agency for the project in the event the Federal Highway Administration (FHWA) is the lead federal agency for the proposed project. Whether or not the FHWA is the lead agency, a Coast Guard Bridge Administration Program permit will be required for construction of the proposed bridge. Accordingly, my 16 October 2000 e-mail comments to you are reiterated in this letter.

The Coast Guard will require the replacement bridge provide a horizontal clearance of not less than 135 feet. This clearance shall be that distance provided between the faces of a fendering system that will be required for protection of both vessels and the bridge structure. This increased horizontal clearance, as compared to the existing structure, will provide for safer vessel maneuvering through the bridge when going into the turn upstream of the bridge, or when coming out of the turn and aligning for passage through the bridge when coming downstream. Any clearance less than the 135 feet would not be conducive to maintaining safety to the bridge and to transiting vessels, nor could a lesser clearance be established to meet the needs of future navigation on the waterway. As other bridges are proposed to be replaced, or plans developed for other crossings, the 135 feet horizontal clearance will be the minimum to be considered for approval.

Obviously, while the letter from Mr. Kinney indicates the MDOT proposes no changes to the horizontal or vertical clearances, nor to the piers and abutment locations, plans will have to be changed to meet the minimum horizontal clearance requirements of the Coast Guard. The vertical clearance of the existing bridge when the spans are in the closed position may remain the same for the proposed structure. While vehicular traffic can be detoured during the bridge project, vessel traffic has no detour available and the shipping channel shall be maintained for passing vessels.

The above comments and clearance requirements are based upon comments received from the navigation interests which frequent the River Rouge, as voiced through the Lake Carriers' Association and the International Ship Masters' Association.

Sincerely,

A handwritten signature in cursive script that reads "Robert W. Bloom, Jr." with a long, sweeping flourish at the end.

ROBERT W. BLOOM, JR.
Chief, Bridge Branch
By direction of Commander,
Ninth Coast Guard District

STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

LAND & WATER MANAGEMENT DIVISION
PO BOX 30458
LANSING MI 48909-7958

December 5, 2000

Ms. Andrea Cluley
Michigan Department of Transportation
Bureau of Transportation Planning
425 West Ottawa County
P. O. Box 30050
Lansing, Michigan 48909

Dear Ms. Cluley:

SUBJECT: US-25 Fort Street bascule bridge over the Rouge River, City of Detroit

I am writing in response to your request for comments on the proposed replacement of this bridge in 2005. Information that you have provided indicates that the existing bridge will be replaced with a new bridge having the same dimensions and the new piers and abutments will be replaced in the same location.

The proposed bridge replacement will be reviewed by the Land and Water Management Division under the authority of Part 301, Inland Lakes and Streams and the Floodplain Regulatory Authority, Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. A September 25, 2000 site inspection indicated that there were no wetlands present in the immediate vicinity of the bridge that would be impacted.

Under Part 31, any new or replacement bridge (including temporary haul roads or access pads) needs to be evaluated hydraulically to ensure that the proposal does not cause a harmful interference. In addition, compensating cut must be provided for any fill (in excess of 300 cubic yards) placed below the 100-year floodplain elevation.

Under Part 301, projects must be designed to ensure that sediment does not enter any watercourse as a result of construction activities associated with the project. It is preferred that all runoff from the bridge or roadway flow through vegetated areas before entering a waterbody. The use of curb sections over stream crossings should be used where possible to eliminate any direct runoff to the watercourse. Before the design phase starts we would like to know how the construction would be accomplished. Will all work be done from the existing bridge, from barges or will temporary haul roads and access pads be needed?

The sediment in the vicinity of the bridge appears to be contaminated. Any dredged material will require disposal at the Point Mouille confined disposal facility or a Type II landfill. Testing of the dredged material prior to disposal may be required. Mr. Alex Sanchez of our office previously sent you a copy of the sediment testing procedure. This procedure is currently being revised. As the project gets closer to the design stage you should obtain an updated copy of the procedure. The use of an environmental clam shell bucket should be investigated to minimize the potential dredging impacts (see attached handout).

Mr. Sanchez also sent you a copy of the preferred dredging periods and restrictions for working in the Rouge River. It appears that there are restrictions for working in the river from March 15 through May 31. These restrictions should be built into your construction schedule. Generally work within steel sheet piling cofferdams can continue during the restricted dates.

Finally, this project falls under jurisdiction of the U.S. Army Corps of Engineers and will require a separate permit from their office. Coordination from the U.S. Coast Guard will also be needed to ensure that the navigational channel is kept open during construction.

If you have any questions, please contact Mr. Alex Sanchez at 517-335-3473, or you may contact me.

Sincerely,



Gerald W. Fulcher, Jr., P.E. Chief
Transportation and Flood Hazard Management Unit
Land and Water Management Division
517-335-3172

Attachment

cc: Mr. Gary Mannesto, U.S. Army Corps of Engineers
Mr. Ron Kinney, MDOT
Mr. Mary Vanderlaan, MDEQ
Mr. Alex Sanchez, MDEQ

APPENDIX D

Hydraulics Analysis

Fort Street at Rouge River
CS82071 JN540490
Revised 8/12/04

Summary of Preliminary Hydraulic Analysis:

The Fort Street crossing of the Rouge River is undergoing preliminary design for a planned reconstruction. Two alternatives for the crossing are being analyzed. Alternative A keeps Fort Street on its existing alignment and increases the span while Alternative B shifts the bridge downstream 122 feet (at the stream centerline), placing the bridge on a 13-degree skew across the river, and increases the bridge span. Alternative B also retains the operator tower and some embankment fill from the existing structure on the left bank (looking downstream) of the river.

The project is in the earliest stages of design and obtaining precise information on each Alternative's design was not possible. The only piece of information that could be verified was the structure span would increase from 135 feet to at least 200 feet. Detailed vertical information is not available at the time of preliminary analysis however it is estimated that the low chord of the bridge will be at least 584.24 feet for Alternative A and 588.6 feet for Alternative B (NAVD-88 datum) at the stream centerline. This represents a .5 foot to 4.9 foot increase over the existing low chord at this location. No additional lanes are planned and the bridge length (measured parallel to the stream) is the same as existing for each alternative.

Existing Condition:

The existing model contains two stream crossings. The downstream crossing is a railroad crossing and the upstream crossing is the Fort Street lift bridge. No changes will be made to the railroad crossing and the Fort Street bridge will be reconstructed.

Cross sections were taken at regular intervals upstream and downstream of the Fort Street bridge. Water surface elevations were also recorded during the stream survey to obtain a stream slope and to serve as a calibration for the existing model. The data was input into HEC-RAS and the stream slope was adjusted so the model would produce water surface elevations near the surveyed water surface elevations.

The existing bridge is a bascule bridge with an arched truss underclearance. To keep the model as simple and conservative as possible, the bridge was modeled assuming that the road support structure was solid from the road surface down to the proposed low steel elevations. Since there is such limited information available on the proposed structure, the existing underclearance was simplified in the model by using only 3 points to describe the arch. This conservative approach produced a triangular underclearance. The bridge was modeled with a length (measured parallel to the stream) of 90 feet, a hydraulic span of 118 feet, and a maximum low chord of 583.74 feet. The hydraulic span was set at 118 feet to reflect the minimum width between the shipping fenders. This represents a conservative width because water will be allowed between the fenders and the abutments so the actual flow width will most likely be greater than 118 feet.

The model shows no overtopping of the Fort Street bridge for flows up to and including the 1% chance flow. The energy grade line elevation immediately upstream of the Fort Street bridge was 584.14 feet at the 1% chance flow.

Alternative A

This alternative includes an arched bascule bridge on the same alignment as the existing condition. The abutments are set farther apart in the proposed condition. To model this alternative, the existing stream information was carried forward but the structure information was changed. The entire low chord of the structure was raised 6 inches to reflect the minimum increase suggested by the consultant. Raising the low chord will most likely result in a corresponding increase in road grade elevations. However, the road grade was left at the existing conditions elevations to model a “worse case” scenario for the development of weir flow.

The structure hydraulic span was increased to 135 feet while the structure length and alignment remained unchanged from existing. The hydraulic span was set at 135 feet to reflect the minimum width between the fender system. This represents a conservative width because water will be allowed between the fenders and the abutments so the actual flow width will most likely be greater than 135 feet.

As in the existing model, Alternative A shows no overtopping of the Fort Street bridge for flows up to and including the 1% chance flow. This shows that a road grade lift should not affect flood flows. The energy grade line elevation immediately upstream of the proposed structure is 584.08 feet for the 1% chance flow. This is a reduction of 0.06 feet from the existing conditions energy grade line. This alternative meets the intent of the state’s floodplain statute by not causing a harmful interference.

Alternative B:

This alternative includes a movable arched center span along with two shorter tail spans between the existing ground and the piers housing the machinery to raise the center bridge. The center span is 200 feet. Because the bridge piers are skewed to the stream and a fender system is required to protect the bridge from shipping traffic, the hydraulic center span was set at 135 feet to reflect the minimum width between the fender system. This represents a conservative width because water will be allowed between the fenders and the piers so the actual flow area will most likely be greater than 135 feet

To model this alternative, the existing stream information was carried forward but the structure information and location were changed. The structure was placed on a new alignment with the proposed structure’s centerline 122 feet downstream of the existing structure’s centerline (measured along the stream centerline) and skewed 13 degrees to the existing alignment. This results in approximately a 17-degree pier skew to channel flows. Only the operator tower and associated embankment fill remain from the current structure. All approach fill on the right overbank (looking downstream) from the existing structure was removed down to natural ground elevations in this analysis.

The arch center span was simplified to 3 points because of limited bridge deck information. The entire low chord of the structure was raised to reflect the minimum increase suggested by the

consultant. The low chord was set at 588.6 feet at the stream centerline and 581.45 feet at the edge of the piers to reflect the latest potential design and geometry constraints. This represents an increase of 4.9 feet over the existing low chord at the stream centerline.

Raising the low chord will most likely result in a corresponding increase in road grade elevations. However, the existing analysis shows no weir flow at the current road elevations so increases in road grade will not interfere with flood flows. The road grade was assumed to be 593.0 feet in the analysis of Alternative B. The hydraulic structure span was increased to 135 feet while the structure length remained unchanged from existing.

As in the existing model, Alternative B shows no overtopping of the Fort Street bridge for flows up to and including the 1% chance flow. This shows that a road grade lift should not affect flood flows.

Since the structure is on a different alignment, a common cross section must be found in each model to compare the energy grade line elevations. Cross section 40 is a common cross section. Cross section 40 lies 2 feet downstream from the structure outlet in the existing model. In the proposed model, cross section 40 is 34 feet upstream from the structure entrance (at the stream centerline). The existing energy grade line elevation is 584.05 feet and the energy grade line elevation for Alternative B is 584.02 feet at the 1% chance flow. This is a decrease of 0.03 feet from the existing conditions energy grade line.

The next common upstream cross section is cross section 60. The existing energy grade line is 584.14 feet and the proposed energy grade line is 584.02 feet. This is a reduction of 0.12 feet from the existing condition. From cross section 60 to the upstream limit of the model, the proposed condition has reduced energy grade line elevations when compared to the existing model.

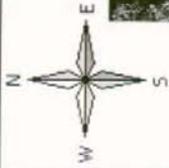
The model shows that leaving the existing operator tower and embankment fill will not adversely affect the hydraulics upstream of the crossing. Due to the complexities of the model, navigational hazards, and uncertainties of flood events, MDOT should consider removing as much of the existing structure as possible while still retaining its historical aspects. This will allow the historical aspects of the structure to remain while having the least impact on backwater.

As in the existing model, Alternative B shows no overtopping of the Fort Street bridge for flows up to and including the 1% chance flow. A potential road grade lift will not affect flood flows. The model shows a decrease in the energy grade line at all cross sections upstream of the proposed alignment extending to the study limits. The energy grade line elevation at the first upstream cross section common to both the existing and proposed models (cross section 60) is 584.02 feet for the proposed condition 1% chance flow. This is a reduction of 0.12 feet from the existing energy grade line. Alternative B meets the intent of the state's floodplain statute by not causing a harmful interference over a range of flows up to and including the 1% chance flood.

APPENDIX E

Site Map of Sampling Locations

Fort Street (M-85) at Rouge River Bridge - Detroit, Wayne County, MI



LEGEND
 Approx. Scale: 1 inch = 100 feet
 B-1 ⊗ Soil Boring

<p>Environmental Services 1000 N Opdyke Rd Ste C, Auburn Hills MI 48326 Tel 248.373.1970 Fax 248.373.0794</p>	<p>Information To Build On Engineering • Consulting • Testing MDOT Fort St at Rouge River Bridge, Detroit, MI</p>
<p>Figure 2</p>	
<p>Site Map</p>	
<p>166-3G021</p>	

APPENDIX F

Environmental Risk Assessment

**ENVIRONMENTAL RISK ASSESSMENT
FOR
M-85 FORT STREET BRIDGE OVER THE ROUGE RIVER**

Environmental Contamination Risk Assessment Process

MDOT reviews environmental contamination issues and provides some type of risk assessment for improve and expand projects in the Environmental Assessment (EA) and during the design phase. Known and potential sites of environmental contamination are evaluated for their impact to the project design, cost, schedule, and worker safety. Liability issues are also evaluated in terms of future risks and costs to the department.

MDOT staff or consultants hired by MDOT perform an initial site assessment through a records search to determine if any known or potential sites of environmental contamination are present within or adjacent to the project area. Once these sites have been identified a determination is made whether to conduct further investigation to assess the environmental contamination risk for the project. Further investigation could include additional records review or environmental testing in areas of concern. In order to evaluate worker safety potentials, environmental testing is performed in the proposed right-of-way to determine if contamination exists and what level of contamination is present. MDOT is exempt from environmental liability under Section 201126 of Act 451, P.A. 1994, as amended. The testing provides “due diligence” which is required under Part 201 and acts as a mechanism to assess contamination risks for worker safety, exacerbation potential, and to provide some type of cost estimate for construction activities due to environmental issues.

Project Background and History Information

A Preliminary Site Investigation (PSI) was performed along the proposed Fort Street (M-85) bridge replacement project located along the Rouge River in the city of Detroit, Wayne County. The proposed alignment will affect properties along the south side of the existing roadway. In the southwest corner Marathon Oil owns property and on the southeast corner of the project Morton Salt has property in active use and there is also an old gas station.

Risk Assessment Testing for all alternatives

The consultant’s PSI consisted of analysis of eight soil borings and two groundwater samples in the project area. Concentrations of each compound tested for were compared to the State of Michigan Part 201 Generic Cleanup Criteria and Screening Levels as established by the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Summary for Proposed Alternative

Test results from the groundwater sample at B-4 detected metal constituents at concentrations above state criteria. Chromium and silver exceeded one or both of the drinking water protection and groundwater-surfacewater interface protection criteria. Some of the soil samples collected

did have concentrations of contamination above state criteria. Boring B-7 has levels of benzo(a)pyrene that exceed the direct contact criterion for residential and commercial I exposure and fluoranthene and phenanthrene exceeded the groundwater-surfacewater interface protection criteria. Soil samples from borings B-1, B-2, B-3, B-4, and B-7 contained one or more metals that exceeded the groundwater- surfacewater interface protection criteria. Arsenic levels exceeded the residential and commercial I direct contact criterion in B-1 and B-4. One small area under the existing road on the west end of the bridge will need additional environmental testing to determine if any contamination exists that will affect the removal of the pavement in that area. If testing indicates that contamination is present, MDOT will properly remove and dispose of any contamination.

Mitigation

Exceedances of groundwater-surfacewater interface and direct contact criteria will require mitigation measures to be taken for this project. All areas of contamination must be noted in the plans and marked with a shaded area. Contaminated soils that are excavated and reused as fill shall not be relocated to a different area within the construction site. If contaminated soil must be removed from the site it will need to be tested and transported to a licensed landfill that will accept these wastes. If dewatering is required during construction, the groundwater may require treatment before being discharged. Permits may be required for the discharge of the groundwater. Sediment in the Rouge River may be contaminated and proper measures must be taken to contain the sediment if it is disturbed. Due to the fact that groundwater-surfacewater interface criteria was exceeded for all land uses a sub-surface utility plan will be needed to insure that no deep utility cuts will impact any contaminated areas. A Worker Health and Safety Plan will be needed to address direct contact issues for contaminants. Construction site precautions must be taken to reduce dermal exposure. Soil erosion and sedimentation controls should also be installed and monitored during soil disturbance activities.

Reference: Preliminary Site Investigation Report by *psi* consulting firm

APPENDIX G

Draft Memorandum of Agreement

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**MEMORANDUM OF AGREEMENT BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
THE MICHIGAN STATE HISTORIC PRESERVATION OFFICE
REGARDING
THE REPLACEMENT OF THE M-85 / FORT STREET BASCULE BRIDGE,
CITY OF DETROIT, WAYNE COUNTY, MICHIGAN
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR PART 800.6(b)(1)**

WHEREAS, the Federal Highway Administration (FHWA) of the U.S. Department of Transportation has determined that the replacement of the National Register of Historic Places (NRHP) eligible M-85 / Fort Street Bascule Bridge, city of Detroit, Wayne County, Michigan will pose an adverse effect, and has consulted with the Michigan State Historic Preservation Office (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) (the Act); and

WHEREAS, The Michigan Department of Transportation (MDOT) participated in the consultation and has been invited to concur in this Memorandum of Agreement (MOA);

NOW, THEREFORE, FHWA and SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the historic M-85/Fort Street Bascule Bridge.

Stipulations

FHWA shall ensure that the following measures are carried out:

1. Recordation

- A.** Prior to the commencement of any demolition or construction activity, MDOT will record the M-85/Fort Street Bascule Bridge to create a permanent record of its existence. The recordation shall be completed at a level to be determined by the SHPO. MDOT will provide original copies of the recordation package to the SHPO for placement in the State Archives of Michigan and appropriate local repositories designated by the SHPO.
- B.** MDOT shall include as part of the recordation package original or archival – quality copies of historic bridge plans and historic photographs; additionally, electronic versions of these historic plans and photographs, will be submitted.

2. Bridge Design

- A.** The replacement bridge will be built on the alignment recommended in the Preferred Alternative, Alternative B. The skewed alignment avoids the taking of residential and commercial buildings, corrects the functionally deficient Oakwood

Boulevard/South Fort Street intersection, meets U.S. Coast Guard clear channel requirements, limits impacts to the riverine environment effected, and permits, if technologically feasible, the retention of the existing operator's house and associated abutment structure/mechanical housing and approach, which will be incorporated into an interpretive site, described below, Stipulation 4.

- B.** The replacement structure will be a two-leaf bascule bridge; the design shall be architecturally appropriate and context sensitive, reflective but not imitative of the historic bridge and reflective of the communities linked by the crossing.
- C.** The SHPO, Wayne County, city of Detroit, and other consulting parties shall have an opportunity to contribute to, review, and comment on the architectural plans for the replacement bridge. Consulting parties shall be construed to include other affected federal, state, and local agencies, community businesses and citizen organizations, and private citizens.

3. Retention of the Operator's House and Associated Structures and Equipment

- A.** If technologically feasible, the existing historic operator's house, pier/mechanical housing and a portion of the bridge approach shall be retained.
- B.** A fender system, meeting current AASHTO standards will be incorporated into the retained pier.
- C.** Operating equipment within the operator's house and pier/mechanical housing shall be retained for future interpretive functions. The operator's house, equipment areas and pits shall be videotaped to provide alternative delivery of the interpretive functions where or when accessibility cannot be assured due to liability issues and/or Americans with Disabilities Act (ADA) guidelines. An interpretive plan for the structures shall be developed in cooperation with the SHPO, MDOT, FHWA, city of Detroit, and other consulting parties.
- D.** The retained structures shall be rehabilitated following the Secretary of the Interior Standards. The SHPO shall be afforded the opportunity to review, comment and approve the rehabilitation plans.
- E.** The retained structures shall be incorporated into the interpretive site to be developed within existing MDOT right-of-way and shall, upon completion of construction, be turned over to an appropriate local agency, agencies, and/or stakeholder(s) ("owners") for ongoing maintenance and administration (see Stipulation 4).

4. Interpretive Site

- A. Boundaries for the Interpretive Site shall be within existing MDOT right-of-way, although the site design will be coordinated to meet the overall design intent for the Rouge River Gateway Master Plan and GreenWays Initiative.
- B. Design of the interpretive site shall be a collaborative effort and shall include the SHPO, MDOT, FHWA, Wayne County, the city of Detroit, and other consulting parties. The design will be complementary to the retained historic structures and the design intent of the Rouge River Gateway Master Plan and GreenWays Initiative.
- C. Interpretive functions will include opportunities for permanent and changeable interpretive exhibits. The site will also accommodate a river overlook and other amenities.
- D. Ownership of the completed project will be turned over to an appropriate agency, agencies, and/or stakeholder(s) upon the termination of construction activities. Ownership will carry the responsibility for long-term administration and maintenance of the site facilities and resources, including interpretive functions. The standards and guidelines for the maintenance of the site, and the general interpretive plan, will be developed through consultation between MDOT, the SHPO, FHWA, Advisory Council on Historic Preservation, and the owner.

5. Amendment

Any party to this MOA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36 CFR800.6(c)(7) to consider such an amendment.

6. Dispute Resolution

Should the SHPO or MDOT object within 30 (thirty) days to any actions proposed pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (Council). Within 45 (forty-five) days after receipt of all pertinent documentation, the Council will either:

- A. Provide the FHWA with recommendations, which the FHWA will take into account in reaching a final decision regarding the dispute; or
- B. Notify the FHWA that it will comment pursuant to 36 CFR 800.7(c) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

Execution and implementation of this MOA and submission to the Council evidences that FHWA has afforded the Council a reasonable opportunity to comment on the project and that the FHWA has taken into account the effects of the project on historic properties.

FEDERAL HIGHWAY ADMINISTRATION

By: _____ Date: _____
James J. Steele, Division Administrator

MICHIGAN STATE HISTORIC PRESERVATION OFFICE

By: _____ Date: _____
Brian Conway, State Historic Preservation Officer

Concur:

MICHIGAN DEPARTMENT OF TRANSPORTATION

By: _____ Date: _____
Susan Mortel, Deputy Director, Bureau of Transportation Planning