Michigan Department
Of Transportation
5100B (05/13)

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

	REQUISITION NUMBER	DUE DATE	TIME DUE
	1927	2/29/2016	noon est
MDOT PROJECT MANAGER Marilyn Hansen, PE	JOB NUMBER (JN) 129394, 129397, 129398	CONTROL SECTION (CS) Various	

DESCRIPTION
Bridge Project Scoping in Monroe, Jackson, Livingston, Ingham, Eaton, and Washtenaw Counties

MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below			**CONSULTANT:** Provide only checked items below in proposal
☐ **TIER 1 ($50,000 - $150,000)**	☑ **TIER II ($150,000-$1,000,000)**	☐ **TIER III (>$1,000,000)**	
☐	☑	☐	Understanding of Service **
☐	☑	☐	*Innovations*
☐	☑	☐	Organizational Chart
☐	☑	☐	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	☐	Quality Assurance/Quality Control **
☐	☑	☐	**Location:** The percentage of work performed in Michigan will be used for all selections unless the project is for on-site p=inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	☐	Presentation **
N/A	N/A	☐	Technical Proposal (if Presentation is required)
3 pages (MDOT Forms not counted) **(No Resumes)**	7 pages (MDOT Forms not counted)	14 pages (MDOT forms not counted)	Total maximum pages for RFP **not including key personnel resumes.** Resumes limited to 2 pages per key staff personnel.

PROPOSAL AND BID SHEET EMAIL ADDRESS – mdot-rfp-response@michigan.gov

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least five (5) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
5100J – Consultant Data and Signature Sheet (Required only for firms not currently prequalified with MDOT)

(These forms are not included in the proposal maximum page count.)

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest (Consultant/Vendor Selection Guidelines for Services Contracts" and "Guideline for Completing a Low Bid Sheet(S)*, if a low bid is involved as part of the selection process. **Reference Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services >Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☑ ENGINEERING SERVICES ☐ BUREAU OF TRANSPORTATION PLANNING ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☑ NO ☐ YES DATED_____ THROUGH _____

☑ **Prequalified Services** – See the attached Scope of Services for required Prequalification Classifications.

☐ **Non-Prequalified Services** – If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. **Form 5100J is required with Proposal for firms not currently prequalified with MDOT**

☑ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the selection team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualification Based Selection / Low Bid** – Use Consultant/Vendor Selection Guidelines. See Bid Sheet instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted. The vendor that has met established qualification threshold and with the lowest bid will be selected.

☐ **Best Value** – Use Consultant/Vendor Selection Guidelines, See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required – no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

Bid Sheet(s) must be submitted in accordance with the "Guidelines for Completing a Low Bid Sheet(s)* (available on MDOT's website). Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: mdot-rfp-response@michigan.gov. Failure to comply with this procedure may result in your bid being rejected from consideration.

PARTNERSHIP CHARTER AGREEMENT

MDOT and ACEC created a Partnership Charter Agreement which establishes guidelines to assist MDOT and Consultants in successful partnering. Both the Consultant and MDOT Project Manager are reminded to review the **ACEC-MDOT Partnership Charter Agreement** and are asked to follow all communications, issues resolution and other procedures and guidance's contained therein.

NOTIFICATION
MANDATORY ELECTRONIC SUBMITTAL

Proposals submitted for this project must be submitted electronically.

The following are changes to the Proposal Submittal Requirements:

- Eliminated the Following Requirements:
  - Safety Program
  - Communication Plan
  - Past Performance as *a separate section*
  - Separate section for DBE Statement of goals. Include information in Qualification of Team section

- Implemented the Following Changes:
  - All proposals require an Organization Chart
  - Resumes must be a maximum of two pages
  - Only Key (lead) staff resumes may be submitted
  - Tier III proposal reduced from 19 to 14 pages
  - Forms 5100D, 5100I, and 5100G combined – 5100D
  - Forms 5100B and 5100H combined – 5100B
  - RFP's will be posted on a weekly basis -- on Mondays

The following are Requirements for Electronic Submittals:

- Proposals must be prepared using the most current guidelines
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include "N/A" after the bookmark title.
  Example: Understanding of Service – N/A
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to MDOT-RFP-Response@michigan.gov
- MDOT's requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
  - Requisition#XXX_Company Name.PDF
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

If the submittals do not comply with the requirements, they may be determined unresponsive.

The Consultant's will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. **Consultants are responsible for ensuring the MDOT receives the proposal on time.**

****Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response****

Required Bookmarking Format:

I. Request for Proposal Cover Sheet Form 5100D
   A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
II. Understanding of Service
   A. Innovations
III. Qualifications of Team
   A. Structure of Project Team
      1. Role of Firms
      2. Role of Key Personnel
   B. Organization Chart
   C. Location
IV. Quality Assurance / Quality Control Plan
V. Resumes of Key Staff
VI. Pricing Documents/Bid Sheet (if applicable)

2/14/12

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NOTIFICATION
E-VERIFY REQUIREMENTS

E-Verify is an Internet based system that allows an employer, using information reported on an employee's Form I-9, Employment Eligibility Verification, to determine the eligibility of that employee to work in the United States. There is no charge to employers to use E-Verify. The E-Verify system is operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration. E-Verify is available in Spanish.

The State of Michigan is requiring, under Public Act 200 of 2012, Section 381, that as a condition of each contract or subcontract for construction, maintenance, or engineering services that the pre-qualified contractor or subcontractor agree to use the E-Verify system to verify that all persons hired during the contract term by the contractor or subcontractor are legally present and authorized to work in the United States.

Information on registration for and use of the E-Verify program can be obtained via the Internet at the DHS Web site: http://www.dhs.gov/E-Verify.

The documentation supporting the usage of the E-Verify system must be maintained by each consultant and be made available to MDOT upon request.

It is the responsibility of the prime consultant to include the E-Verify requirement documented in this NOTIFICATION in all tiers of subcontracts.

9/13/12

Michigan Department of Transportation

SCOPE OF SERVICE
FOR
DESIGN SERVICES
DEVELOPING BRIDGE REPAIR ALTERNATIVES

CONTROL SECTION: 38131, 46062, 47065, 58051, 81103, 23151, 33045, 33084, 33171, 33085

JOB NUMBERS: 129394, 129397, 129398

PROJECT LOCATION:
The bridges are situated in various locations in Monroe County (1 bridge), Washtenaw County (1 bridge), Jackson County (2 bridges), Livingston County (2 bridges), Eaton County (2 bridges), and Ingham County (14 bridges), Michigan (see the BRIDGE SCOPING PROJECT LISTING/WORK PACKAGE for specific bridge numbers and locations).

PROJECT DESCRIPTION:
The purpose of this service is to develop the scope of work and estimate for each bridge.
This scope of service is to evaluate various repair alternatives for a prescribed set of bridges and recommend the most appropriate rehabilitation or preventive maintenance treatment based on current conditions, remaining structure life and sound engineering judgment.

Up to 2 CONSULTANT's will be selected for this work.

Project includes visiting the site for each structure and maintaining traffic to evaluate the bridges.

ANTICIPATED PROJECT START DATE: March 15, 2016

ANTICIPATED PROJECT COMPLETION DATE: February 1, 2017

PRIMARY PREQUALIFICATION CLASSIFICATION:
Design – Bridges: Scoping

SECONDARY PREQUALIFICATION CLASSIFICATION:
Design – Traffic Work Zone: Work Zone Maintenance of Traffic

DBE REQUIREMENT: N/A

MDOT PROJECT ENGINEER MANAGER:
Marilyn Hansen, P.E.
4701 W Michigan Ave
Jackson, MI 49201
Phone: (517) 281-5736
Fax: (517) 750-4397
E-mail: hansenm@michigan.gov

CONSULTANT RESPONSIBILITIES:

Completion of this project will include, but is not limited to the following:

This scope of service is to evaluate various repair alternatives for a prescribed set of bridges and recommend the most economical rehabilitation or preventive maintenance treatment. This process is termed Bridge Scoping.

Each year a number of bridges are selected for repairs based on many factors. Each of these bridges must have a detailed scope of work and an estimate developed prior to submitting for approval and design.

The deliverables will be the Scoping Reports for each bridge. The information contained in the Scoping Reports will be used by the Design Division to prepare rehabilitation plans or a preventive maintenance log project. The content of the reports will need to adequately convey the general physical condition of each structure, the specific areas in need of repair and identify surrounding appurtenances which may affect the project.

The bridges included in this scoping contract are located along US-127 in Ingham and Jackson Counties, I-96 in Livingston, Eaton and Ingham Counties, I-496 in Ingham County, US-23 in Washtenaw County, and US-24 in Monroe County. The work is proposed to be constructed in various years between 2018 and 2022. The determination of the scope of work for these bridges must take into account any road projects in the area. This information will be provided by MDOT.

MDOT has determined the following preliminary maintaining traffic concepts, which may be assumed by the CONSULTANT in developing the scopes of work. All maintaining traffic concepts shall be consistent with the MDOT Work Zone Safety and Mobility Policy.

1. When possible, work on the bridges shall be performed at night or on weekends to keep daytime lane closures to a minimum.

2. When night work is not possible, temporary or permanent widening and traffic shifts on the roadway and bridge shoulders should be evaluated for feasibility, such that as many lanes of traffic can be maintained as possible.

3. The feasibility of incentive/disincentive provisions should be considered and cost estimates added to the scope of work for each bridge as applicable.

ADDITIONAL STAFF

The CONSULTANT must assign additional staff necessary to complete the work in the required time frame. The qualifications and experience of these individuals must be suitable for the assigned tasks.

DURATION AND SCHEDULE

The duration of the project has been/will be established using an average time per bridge determined from previous experience. If the CONSULTANT cannot meet these deadlines, the reason for the required extra time must be detailed in the priced proposal.

A. PROJECT SCHEDULE

By submittal of a price proposal, the CONSULTANT is verifying that they can meet the schedule identified in this scope of work. The priced proposal must include a bridge by bridge schedule showing the required milestones. The CONSULTANT must notify the MDOT PM 48 hours prior to the site review date of any changes to this schedule.

B. MEETINGS

1. A mandatory Project Initiation Meeting will be held with the CONSULTANT prior to the start of the site review work. The CONSULTANT will be required to attend the meeting and it will be held at the MDOT Office in the Region or the appropriate Transportation Service Center, unless an alternative site is mutually agreed upon.

2. A Preliminary Scope Review and Progress meeting will be held with the CONSULTANT after fieldwork has been completed and a preliminary scope of work for each bridge has been determined. The MDOT PM and the CONSULTANT PM (report author) will be required to attend. The CONSULTANT should bring all field review worksheets, old plans, bridge inspection reports, photographs, all information gathered in the field, two copies of a summary sheet describing the proposed work for each bridge and two copies of the proposed maintaining traffic / mobility concepts. Questions on the report preparation may be asked at this time as well.

GENERAL DESCRIPTION OF THE WORK

The work for each bridge in this scope of work is broken down into three main components: A) Site Review B) Engineering Analysis and C) Report Preparation.

1. SITE REVIEW

General

Each bridge and environs must be visited by the CONSULTANT PM. The purpose of this visit is to locate all areas of deterioration, determine feasible repair options, determine associated approach work, determine maintenance of traffic options, and to ascertain quantities. Where necessary, high-reach equipment or an under bridge inspection crane must be used to get close enough to evaluate the structural components (See Section EQUIPMENT AND SAFETY, below). Questions regarding scour are to be directed to Chris Potvin in Design, Hydraulics Unit at (517) 335-1919.

The information collected in the field must be sufficient to determine quantities and locations of repairs and improvements. This information must be detailed in the field notes and/or sketches and these notes are to be included in the report.

a. During the site review of the bridge, the following will be done, at a minimum:

(1) Sound all concrete elements (deck, superstructure, substructure, etc.) for delaminations and unsound areas. All delaminated areas are to be marked with paint, chalk, crayon, or kiel, that will be evident in the photographs. All delamination surveys are part of the site review work (not part of testing). Sketches of the deck and substructure units mapping the areas of delamination and cracking are to be included in the appendix of the scoping report. Percent of total surface area delaminations shall be calculated and shown on the sketches.

The underside of the deck must be visually inspected for wet areas, efflorescence, transverse cracking, longitudinal cracking, map cracking, delaminations, spalling, rust along beam edges, or any other evidence of deterioration. The type of cracking and severity must be described in detail in the report. Note areas of previous repairs, or where false decking is in place. Pictures of the area must be taken and a written description of the deterioration and location must be documented for inclusion into the report. Photos of the top surface of the deck will be taken from a height no less than 10 feet.

Visually inspect all substructure units for signs of settlement, lateral movement, cracking, spalling, exposed reinforcement and material defects. Note the condition of the backwalls, and check the bridge seat for undermining at bearing locations. For pier caps, check for flexural cracks and shear cracks.

(2) Note the type and condition of the bridge railing. Does the railing meet current standards? Is a thrie beam retrofit necessary, or a railing replacement? If pedestrian fencing is present, note its condition. Guardrail on the approaches should also be evaluated. Note the condition of brush blocks, raised shoulders and sidewalks, and how these elements transition from the approaches.

(3) For reinforced concrete and prestressed concrete superstructures, visually inspect for shear or flexure cracking, exposed or broken prestressing strands, crushing of beam end in bearing areas, discoloration of concrete caused by corroding mild reinforcement or prestressing

strands, high load hit damage and signs of previous repairs. Observe live loads crossing structure and note excessive deflections or working cracks. Inspect the concrete diaphragms for spalling or diagonal cracking from structure movement or excessive deflection, and any other concrete defects. Note the use of temporary supports, or if they may be needed for the structure to remain in service until proposed rehabilitation.

(4) For steel beam superstructures visually inspect for areas of section loss, heavily rusted areas or any web buckling due to excessive section loss. Note any areas that are prone to trapping drainage or debris. Note the condition of the paint system. Thickness readings shall be taken at each beam end that exhibits section loss using an ultra-sonic thickness gage. Preparation shall include removing all dirt, debris, and rust scale from the ends of each of the steel beams under the joints so that the steel can be inspected for section loss. Thickness readings on the web and the bottom flange are to be taken at the thinnest locations within 24 inches of the end of the beam. Do not remove paint on beam ends that exhibit no section loss. Mark the sheet as "No visible loss."

These thickness readings will be compared with the original thickness and the percentages of section loss will be calculated. This data will be tabulated in a specific format (as shown in Attachment No. 2, Steel beam section loss detail sheets) and sketches will be prepared of major components, showing the location of the deteriorated areas. Specifically, if beam end repairs are necessary, show the locations of beam ends in need of repair on the existing erection diagram from the as-built plans. This information will be presented in the Appendix of the scoping report. These documents are used by Lansing Bridge Design to prepare rehabilitation plans, and C & T Bridge Operations Unit to perform load rating analyses if requested.

Visually inspect the steel superstructure for any areas that may exhibit out of plane bending or distortion such as web to diaphragm or cross frame connections, lateral gusset plates to web connections, or connections of any other secondary members to beams. Note the existence of any fatigue prone details, or any welding in the tension zones that are transverse to the plane of stress. Inspect any pin and hanger assemblies for proper operation. Does the pin and hanger meet current standards? Note the condition of pin plates and if the ends are touching due to pin and hanger closure.

(5) In other areas of heavy flaking rust, the CONSULTANT will clean as necessary to measure for any section loss.

Thickness readings will be taken at the thinnest locations and recorded.

(6) Note the condition of all bearing devices. For steel bearings such as rocker bearings or pedestal bearings, inspect for pack rust, rocker alignment, section loss and paint condition. For elastomeric bearings, check for excessive bulging of the sides (greater than 15% of bearing thickness), shear deformation due to thermal movement, splitting and tearing, and discoloration from exposure to light.

(7) For timber structures visually inspect for checks (separations of the wood fibers parallel to the grain direction) knots and splits which are natural defects that may provide openings for decay and begin to reduce the strength of the members. Inspect for fungus, insect damage or any other effects of nature. Inspect for in-service defects such as fire damage, vehicular collision, abrasion or mechanical wear, overload distress, excessive deflection of flexural members, weathering or warping and chemical damage. Perform a pick or penetration test at various locations, which involves lifting a small sliver of wood with a pick or pocket knife, and observing whether or not it splinters or breaks abruptly. Sound wood splinters, while decayed wood breaks abruptly. Inspect areas near the support to check for horizontal shear cracks along the grain of the member. Inspect bearing areas for crushing due to decay. Note the condition of fasteners and connections.

(8) The vertical clearance of the bridge must be field verified and noted in the executive summary and stated in the report. A picture of any vertical clearance sign attached to the bridge must be taken. See the MDOT Bridge Design Manual, Volume 5, Section 7.01.08 for minimum vertical clearance requirements. For structures not meeting minimum vertical underclearance criteria, raising the structure to meet current standards must be considered in selecting the repair option. Any option including a deck replacement, superstructure replacement or bridge replacement must meet the minimum vertical underclearance requirement as it is very difficult to obtain a design exception. The cost of raising the grade of the bridge to obtain acceptable underclearance must take into account additional approach work.

(9) The width of the structure must be evaluated to determine whether it is functionally obsolete. If widening is necessary to upgrade the structure to current standards, or for maintaining traffic during construction, this must be stated in the report. Please refer to the MDOT Bridge Design Guides, Section 6.05 for acceptable bridge deck cross sections. This will include possible widening to meet current

standards for radii. The CONSULTANT will describe how and where the widening is to take place and provide a plan view sketch showing the proposed widening. Specify if widening can be done within the deck overhang, or if additional beam lines and substructure width will be needed to accommodate the required deck cross section. Widening may also require additional approach work to transition between the roadway width and the new bridge width.

(10) Any work required for the approaches must be included in the report and these items accounted for on the Estimate Sheet.

b. The area immediately around the structure must be closely evaluated to determine if there are any site issues or constraints that may have an impact during construction. Each quadrant of the structure is to be evaluated and photo-documented. These include items such as:

(1) Businesses or driveways close to the approaches.
(2) Utilities attached to or near the bridge.
(3) Signs or sign brackets attached to the bridge. Specify if the connections are bolted or welded.
(4) Poor alignment or geometrics.
(5) Approach and departure guardrail terminals or the presence of impact attenuators.
(6) Bank erosion or scour. Unusual channel features.
(7) Railroad tracks that have been removed from over or under the bridge.
(8) Proximity of other bridge structures.
(9) Is drainage sufficient? Any evidence of ponding on the structure?
(10) Is Right-of-Way limited and might additional ROW or easements be required?

c. Additionally the following items are some of the items that, if apply, must be evaluated and costs considered:

(1) Is the bridge historical?
(2) Is vertical clearance a problem?
(3) Is widening needed?
(4) Does this bridge have special structural design features which may affect the repair options (e.g., non-redundant or fracture critical)?
(5) Are there environmental issues that may impact the project?

(6) Determine impacts of the proposed bridge treatment on the existing horizontal and vertical alignments, pavements, curb and gutter, drainage, right of way (ROW), etc. Every effort shall be made to minimize ROW impacts within the limits of

the projects. In areas of potential ROW impacts, the CONSULTANT shall identify the potential need for additional ROW, by station or address, type of ROW required (grading permit, easement or fee), and roadside improvements proposed (i.e. fencing, turf establishment, landscaping, non motorized, etc.).

(7) Review and document the final scope for conformance to 3R/4R Guidelines for non freeway jobs and 4R, AASHTO and Interstate Standards for freeway jobs. Documentation shall include existing condition, treatment as per design standards, and recommendation.

(8) Identify areas where bridge design standards cannot be met on the final proposed recommended treatment, give justification and documentation as to the reason, and prepare the design exception. The preparation of a Design Exception Request form for the recommended proposed treatment may be necessary to fulfill the Federal Highway Administration requirements for structures on National Highway System (NHS) routes.

(9) Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation will include location, existing type and condition, and the recommended treatment.

(10) Document and identify any possible utility conflicts and estimate the cost of relocation and/or adjustment.

(11) Document and identify locations of possible environmental issues which may impact the project, and estimate the cost of treatment.

(12) Develop Construction Zone Traffic Control Concepts in accordance with the Michigan Department of Transportation Mobility Policy. See Attachment 1.

(13) All estimates and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by MDOT.

(14) All project related items are subject to review and approval by MDOT.

If, during the site review, the CONSULTANT finds any structural condition that may cause the bridge to be load restricted (such as holes in beams), or which may require other immediate action (such as lane closures or emergency repairs to holes in the deck, etc.) the CONSULTANT will notify the MDOT

PM as soon as possible. The CONSULTANT will provide documentation of the condition (such as beam measurements) to the MDOT PM as quickly as possible.

2. Scoping Checklist and Determining Most Appropriate Repair Option

Complete the Scoping Checklist (provided by MDOT PM) and make an initial determination of the most appropriate repair option, based on the physical condition of the bridge, economic considerations, and engineering judgment, based on field conditions.

The types of repair options that are to be considered must be separated into two major work type categories: 1) Capital Preventive Maintenance and 2) Rehabilitation/Replacement.

Capital Preventive Maintenance (CPM)

a. Joint replacement
b. Pin and hanger replacement
c. Complete painting
d. Zone painting
e. Shallow concrete overlay
f. Thin epoxy overlay (flood coating)
g. Concrete deck patching
h. Scour countermeasures
i. Bituminous overlay
j. Substructure patching

Rehabilitation / Replacement (R &R)

a. Deep concrete overlay
b. Superstructure repairs
c. Extensive substructure repairs
d. Substructure replacement
e. Deck replacement
f. Superstructure replacement
g. Structure replacement

3. Photographs

A photo log of the bridge and the surrounding areas must be included in the report. All of the pictures must be mounted on 8.5” X 11" media and are to be captioned with a description of what the picture is intended to show. Each copy of the bridge report must have this series of pictures showing at least the following items and sequenced in the following order:

a. Elevation views of both sides of the bridge
b. Deck surface (entire deck surface to be photographed, including joints. Photos shall be taken from a minimum height of 10 feet.)

c. Railing, sidewalks, brush blocks, raised shoulders, or any other feature of the deck surface
d. Approaches
e. Underside of deck (to sufficiently show condition)
f. Typical superstructure elements
g. Abutments, including wingwalls and slope protection
h. Piers showing all faces
i. Waterways/railroad tracks
j. Areas of major deterioration
k. Load posting signs
l. Vertical clearance signs
m. Utilities, businesses, etc that could affect the cost.
n. Quadrant photos
o. Guardrail attachments
p. Traffic Signals / Pedestrian Signals with Construction Influence Area
q. Approach sidewalks

In addition, pictures must be taken which will support the CONSULTANT's recommendations. All pictures must be captioned to describe the pictures general view (such as north elevation, etc.) and to describe the pertinent item or deterioration. The deck surface photos will be taken after the deck delamination survey and the areas of delamination are expected to be clearly visible in the photos.

In addition to the photographs included in the report, one electronic copy of labeled photos for each bridge will also be submitted. These may be redundant copies of the same view but may help the Designers to better understand the bridge needs.

4. Testing

During the site review phase, the CONSULTANT may feel that material testing is needed to better understand the condition of the deck to evaluate the best repair option. Approval by the MDOT PM is required **prior** to initiating any testing.

If the CONSULTANT PM feels that material testing is needed, a testing proposal must be submitted to the MDOT PM for approval. The testing proposal will show the bridges for which testing is proposed, what tests are to be performed, what specific information is to be gained from the testing, how this information is to be used, and the cost of testing and necessary traffic control. Proposals submitted with insufficient justification for testing will be denied. Where the deck is beyond saving, as judged by visual indications, or where the appropriate repair option is clearly indicated, material testing will not be performed.

The results and analysis of any testing that is approved and performed will be discussed in the Site Review Findings section of the report and the actual test reports will be included in the Appendix.

B. ENGINEERING ANALYSIS

The engineering analysis phase will include an evaluation of the site review findings and determination of the work type category of the appropriate repair (R&R or CPM). The degree of required analysis and required deliverables vary for the two work type categories.

1. Rehabilitation/Replacement Work Category

For proposed R & R work proceed with the preparation of and evaluation of two or three repair strategies, including the estimate of cost of the repair strategies and the selection of the best repair option. This phase shall also include determining the scope of road work and maintaining traffic concepts as outlined in the scope.

An initial repair option will have been determined during the site review in the field. The CONSULTANT is required to perform an engineering analysis of this option and on the options above and below it from the list in the section "Scoping Checklist and Determining the most appropriate Repair Options". For example, if deck replacement is determined to be the most appropriate repair option, a cost estimate shall be prepared for the overlay and superstructure replacement options.

For the superstructure replacement and bridge replacement options, the CONSULTANT will also analyze eliminating or correcting undesirable or deficient design characteristics (e.g., structural capacity, widening, etc.). Analysis of the load carrying capacity of some components of the bridge may be required.

2. Estimating Various Repair Options

Cost estimates for each of the repair options will be prepared for each bridge. A standard form Estimate Sheet with unit prices will be used (Bridge Cost Estimate Sheet, provided by MDOT PM). The Estimate Sheet provides space to show all of the repairs to be performed. Calculations for the paint area will be prepared by the CONSULTANT and included in the Appendix of the report.

The estimates required are "early preliminary estimates" and not the more detailed "engineering estimates". The object is to determine the most economical method of treatment and to establish the budget. The unit prices on the attachment are averages of various types of repairs regardless of the type of material (steel or concrete for instance). The more detailed estimates will be determined in the design phase (not a part of this scope of work).

If additional information is necessary for a unit price not on the list, contact the MDOT PM.

3. Capital Preventive Maintenance Work Category

For proposed Capital Preventive Maintenance work proceed with the preparation of a cost estimate using the Cost Estimate Sheet. This phase shall also include determining the scope of road and maintaining traffic concepts as outlined in the

scope. If additional information is necessary for a unit price not on the list, contact the MDOT PM.

C. DELIVERABLES

The deliverables for this scope of work will be the reports, photographs, estimate sheets, field notes and scoping checklist. Electronic files will be submitted for the entire scope included in the report on a CD in Microsoft Word and Microsoft Excel format.

For each bridge, a separate three-ring binder containing the scoping reports as described below will be submitted. The binder will contain all information pertaining to the site review findings and recommended repair options for each bridge. Two sets of each binder will be submitted.

a. Table of Contents
   A table of contents will be provided for the complete document.

b. Executive Summary:
   This is to include a statement of the recommended treatment for the bridge and the cost (in 2015 dollars for CPM and 2019 dollars for R&R, or as directed by MDOT PM) of the initial repair. The executive summary will be a stand alone section and will not refer to other sections of the report, nor will the main text refer to information in the executive summary.

c. Field Site Review Findings:
   This section will include, as a minimum, discussion of the following areas:

   Overall assessment of the condition of the bridge including an evaluation of the beam end thicknesses (webs & bottom flanges) taken during the site review.

   Sketches of beam end repair areas, substructure repair areas or widening options.

   Site issues, i.e., geometrics, maintenance of traffic, utilities, scour, etc. In the case where no site issues that would impact the rehabilitation of the structure were identified, a statement will be made that all areas were investigated and no issues were found.

   Test results and implications of the repair options. If no testing was performed, this will be stated in the report.

d. Rehabilitation Options:
   This section will include a discussion of the rehabilitation options considered. For each option evaluated, a discussion of the necessary improvements and the associated costs will be included. The report must discuss and state the

reasoning and judgment for selection of the recommended option. This discussion will also include the reasoning for the elimination of all other options, as appropriate.

e. Summary with Repair Recommendation:
This section will state the recommended course of action for the bridge and the factors used in determining this recommendation. This section will also briefly discuss the effects of postponing the recommended improvements.

f. Maintaining Traffic / Mobility Summary
This section shall include an analysis of the traffic control plan in accordance with the Michigan Department of Transportation's Mobility Policy. Various traffic control alternatives shall be evaluated.

g. Cost Estimate Sheets
A cost estimate must be prepared for each repair option that was considered. The cost estimate sheet can be found in the appendix, attachment number 5.

h. Appendix:
Word document with photos and descriptions
Scoping Checklist(s)
Field notes and sketches
Paint calculations
Table of beam end thickness readings
Lab test reports (if applicable)
Road preliminary estimate (separate spreadsheet)
Existing plan sheets (general plan of site and general plan of structure)
Current bridge inspection reports
General site review procedures

Incomplete final reports or reports with errors will be returned to the CONSULTANT for revision. Failure to make the required changes will be considered a failure to meet the terms of the scope of work.

TRAFFIC CONTROL

The traffic control during the site review will be the responsibility of the CONSULTANT. Permits for the traffic control and for working in the MDOT Right of Way must be obtained from the appropriate Transportation Service Center prior to the start of work. Traffic control will follow standard MDOT procedures. The CONSULTANT will be responsible for obtaining all permits and notifying the MDOT PM in writing of the time and location of the work.

Nighttime lane closures for deck inspection may be allowed at the discretion of the MDOT Region Traffic and Safety Engineer. Approval for nighttime work must be obtained prior to the start of work.

RAILROAD FLAGGING AND PERMITS

If it is necessary to work over an active railroad during the site review phase, the CONSULTANT will be responsible for obtaining the necessary permits and flagmen. Costs for this will be considered an expense and must be detailed in the traffic control section in the Proposal and on the invoice.

SOFTWARE REQUIREMENTS

The CONSULTANT is required to own and use Microsoft Excel and Microsoft Word for all spreadsheets and word processing. The requested electronic files (see DELIVERABLES) must be submitted in these applications. Electronic file templates for all of the attachments can be provided via E-mail, from the MDOT PM. Contact the MDOT PM with your E-mail address.

EQUIPMENT AND SAFETY

The CONSULTANT will be responsible for obtaining and operating the high reach equipment for inspection under the bridge. However, MDOT will provide an under bridge inspection crane for the CONSULTANT's use in certain situations, for example, high river and railroad crossings. The CONSULTANT will be responsible for traffic control and for scheduling. Contact the MDOT PM a minimum of 14 days in advance for scheduling use of the equipment.

During the inspection, the CONSULTANT is responsible for traffic control and all aspects of personal safety of his or her staff.

All other inspection equipment and personal safety equipment such as hard hat, steel toed shoes, and eye protection will be the responsibility of the CONSULTANT.

DIVING REQUIREMENTS

No diving of river crossings is expected as part of this work. However, if it does become necessary, it will be dealt with under a separate authorization.

CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee:

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for

your specific contract terms.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

BRIDGE SCOPING PROJECT LISTING/WORK PACKAGE I (JN 129394)

Control Section	Structure ID	FACILITY	FEATURE	Structure Number
23151	B010	I-96 EB	GRAND RIV & BILLWOOD HWY	2310
23151	B020	I-96 WB	GRAND RIV & BILLWOOD HWY	2311
33045	B010	I-496 EB	RED CEDAR RIVER & RAMP V	3752
33045	B020	I-496 WB	RED CEDAR RIVER & RAMP V	3753
33045	R030	I-496 EB	CSX RR & TROWBRIDGE RMP	3757
33045	R040	I-496 WB	CSX RR & TROWBRIDGE RMP	3758
33045	R050	I-496 EB	GTW RR	3759
33045	R070	I-496 WB RAMP	CSX RR	3761
33045	S060	I-496 WB	US-127 SB	3777
33084	S090	MERIDIAN RD	I-96	3829
33171	B010	US-127 NB	RED CEDAR RIV & RAMP V	3842
33171	B020	US-127 SB	RED CEDAR RIV & RAMP V	3843
33085	S01	I-96 EB	M-52 & M-43	3838
33085	S02	I-96 WB	M-52 & M-43	3839

BRIDGE SCOPING PROJECT LISTING/WORK PACKAGE II (JN 129397 and JN 129398)

Control Section	Structure ID	FACILITY	FEATURE	Structure Number
47065	S10-3	I-96 EB	GRAND RIVER AVE	5785

47065	S10-4	I-96 WB	GRAND RIVER AVE	5786
58051	C030	US-24	LITTLE LAKE CREEK	7118
47065	S08	I-96 BL (ON RMP)	I-96 WB	5783
81103	R01	US-23 SB, M-14 EB	MDOT RR	10907

Control Section	Structure ID	FACILITY	FEATURE	Structure Number
38131	R01-2	US-127 SB	CONRAIL	4457
38131	S030	SPRINGPORT ROAD	US-127	4461
46062	B030	US-223	RAISIN RIVER	5519