Michigan Department
Of Transportation
5100B (11/12)

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

REQUISITION NUMBER	DUE DATE	TIME DUE
1135	3/4/2013	noon EST

MDOT PROJECT MANAGER	JOB NUMBER (JN)	CONTROL SECTION (CS)
Linda M. Reed, P.E.	118821	82112

DESCRIPTION
Bridge Project Scoping on R01-82122 (Evergreen Rd over I-96 & CSX RR), a "Big Bridge" in Metro Region.

MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED GRAY SHADING = OPTIONAL Check the appropriate Tier in the box below			**CONSULTANT:** Provide only checked items below in proposal
☐ **TIER 1 ($25,000-$99,999)**	☑ **TIER II ($100,000-$250,000)**	☐ **TIER III (>$250,000)**	
☐	☑	☐	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

☑ BUREAU OF HIGHWAYS ☐ BUREAU OF TRANSPORTATION PLANNING ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☑ NO ☐ YES DATED_____ THROUGH _____

☑ **Prequalified Services** – See page ____ of 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 section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that 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 Review / 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. The selected vendor may be contacted to confirm capacity.

☐ **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) separate from 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)

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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
PRE-DESIGN SERVICES
Developing Bridge Repair Alternatives

CONTROL SECTION: 82122

JOB NUMBER: 118821

LOCATION: R01-82122 Evergreen Road over I-96 and CSX RR in Detroit

This is a "Big Bridge" with deck area in excess of 100,000 sft.
and includes the off-ramp bridge from EB I-96 to Evergreen Road.

PURPOSE:
The purpose of this service is to develop the scope of work and cost estimate in the form of a Scoping Report for this structure. The information contained in the Scoping Report will be used by the Design Division to prepare rehabilitation plans for a proposed 2016 project. The content of the report will need to be sufficient to adequately convey the general physical condition of this structure and the specific areas in need of repair.

ANTICIPATED SERVICE START DATE: June 3, 2013

ANTICIPATED SERVICE COMPLETION DATE: October 31, 2013

PRIMARY PREQUALIFICATION CLASSIFICATIONS: Bridge Project Scoping

SECONDARY PREQUALIFICATION CLASSIFICATIONS: none

DBE REQUIREMENT: N/A

PROJECT MANAGER:
Linda Reed, P.E.
Bridge Scoping Engineer
Design Division
8885 Ricks Road
Lansing, Michigan 48909
(517)322-5622
reedl@michigan.gov

CONSULTANT RESPONSIBILITIES:

The CONSULTANT PM will be the primary contact with MDOT'S PM, and will report immediately any unusual findings to the MDOT PM or her designate. Only one manager level position will be allowed and paid for in this project. The CONSULTANT PM is considered key staff and if he/she is unable to

finish the work of the entire project, the authorization may be terminated and incomplete work will not be paid for. The CONSULTANT can submit an alternate PROJECT MANAGER who could take the place of the primary PROJECT MANAGER in the event the latter cannot finish the project for approval with the initial submission of the technical proposal.

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.

GENERAL INFORMATION:

The work for each bridge in this scope of work is broken down into three main components: A) Field Work, B) Engineering Analysis, and C) Report Development.

A. FIELD WORK

1. General

Each bridge and environs must be visited by the CONSULTANT PM. The purpose of this visit is to locate all areas of deterioration, to determine feasible repair options, associated approach work, maintenance of traffic options, and to determine quantities. Where necessary, high-reach equipment or an under bridge inspection crane must be used to get close enough to evaluate the structural components.

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. Field work includes a close-up visual inspection (within 3 feet) of all structural elements, sounding of all associated concrete surfaces, visually examining fractured concrete to determine if it contains slag aggregate, measuring beam end section loss greater than 20%, and documenting all findings. Items of deterioration (including cracks, recracking, rust stains, spalls, delaminations, leaking or leaching, corrosion, section loss, fatigue cracking, evidence of externally-caused damage, unusual movements, etc.) will be documented in written form and diagrammed. Areas to be inspected include:

a. Deck surface - All lanes and sidewalks are to be visually inspected and examined for delaminations using traditional sounding methods. Deck defects are to be marked with water soluble paint or chalk so quantities can be measured without leaving permanent markings.

b. Deck underside or soffit – Visually inspect the deck underside for distress, and physically sound (and mark) areas where distress is evident. It is especially pertinent to identify delaminations or spalling potential in spans over roadway or railway, but these spans may be the most difficult to access due to maintenance of traffic restrictions. The CONSULTANT may propose innovations or justify using engineering judgment to address this issue.

c. All joints, including the concrete adjacent to the joints.

d. Barrier railing, with distressed areas marked with water soluble chalk or paint.

e. All pedestrian fencing, drainage piping, signs, lighting, and other appurtenances.

f. Superstructure, including steel or concrete beams, girders, diaphragms, cross-frames, stiffeners, pin and hangers, etc. – Visually inspect and identify areas of section loss or corrosion. If areas of section loss appear to be greater than 20%, measure with an ultrasonic thickness gauge, document the section loss data collected in the Beam End Thickness Table (Attachment C) and prepare sketches of major components, showing the location of the deteriorated areas. These are to be freehand or CAD drawings, not to scale but in relative proportion and dimensioned, on 8.5" x 11" sheets. Specifically, if beam end repairs are necessary, then a plan of the superstructure must be made showing the location of the beam ends needing repair. This information will be presented in the Appendix of the report.

The vertical clearance of the bridge over the road and railroad must be field verified and noted 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. If vertical clearance is insufficient, discuss options for remediation or the need for a design exception.

g. Bearings – Inspect all bearings for any signs of distress and determine if the bearings are functioning as intended.

h. Substructure - Sound and locate distress on all visible abutment and pier surfaces. Visually inspect retaining walls, slope protection, drainage systems, etc.

i. Bridge approaches and approach guardrail.

j. The area immediately around the bridge must be closely evaluated to determine if there are any site issues or constraints that may have an impact during construction. 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) ITS components, such as cameras, changeable message signs, conduit, and other ITS elements.
(5) Poor alignment or geometrics. Does width of structure meet current standards or would widening be required?
(6) Proximity of other bridge structures.
(7) Drainage systems. Document any evidence of ponding on or below the structure or evidence of erosion around pier columns or footings, or abutment slope paving.
(8) Is Right-of-Way limited? Might additional ROW or easements be required?

k. Additionally the following items are some that must be considered:

(1) Is the bridge historical?
(2) Does this bridge have special structural design features which may affect the

repair options (such as slag aggregate, non-redundant or fracture critical)?
(3) Are there environmental issues that may impact the project?

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 also provide documentation of the condition (such as beam section loss measurements) to the MDOT PM as quickly as possible.

l. Traffic Control - The CONSULTANT will consider and propose potential traffic control schemes and will contact the Detroit TSC Traffic and Safety Engineer for assistance estimating the costs for maintaining traffic. Final detailed traffic control costs for construction will be determined by MDOT.

2. Determining Repair Options

Each bridge will be evaluated to determine the most appropriate repair option based on the physical condition of the bridge, economic considerations, and engineering judgment. The Bridge Deck Repair Matrix (Attachment A) must be consulted for reasonable deck repair options based on the condition of the deck surface and soffit, and an initial determination is to be made in the field. The CONSULTANT is required to perform an engineering analysis of this option and on the options more and less extensive. For example, if epoxy overlay is determined in the field to be the most appropriate repair option, an engineering analysis will also be performed on the rigid concrete overlay (deep or shallow) and healer sealer with deck patch options. A post field review discussion will be held with the CONSULTANT and the MDOT PM to formulate and agree upon feasible repair options prior to moving on to the analysis phase.

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 ½" X 11" media (2 photos per page) and are to be captioned with a description of what the picture is intended to show. Each copy of the scoping 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 (to sufficiently show condition of deck surface), including typical bridge railing, deck fascia, joints, sidewalk, fencing, lighting, and drainage structures.
c. Approaches.
d. Underside of deck (to sufficiently show condition of deck soffit).
e. Typical superstructure elements - condition of beams, girders, diaphragms, cross-frames, pin and hangers, paint, bearings, etc.
f. Abutments, including slope protection and return walls.
g. Typical Piers.
h. Roadway, RR, and/or Waterway under.
i. Major deteriorated areas.
j. Utilities.
k. Quadrant photos.

l. Anything else that could affect the cost of rehabilitation.

In addition, pictures must be taken which will support the CONSULTANT's recommendations. All pictures must be captioned to describe the picture's general view (such as north elevation, etc.) and to describe the pertinent item or deterioration. The deck surface photos will be an "aerial view" taken from a height of at least 12 feet above the surface of the deck and will be taken after the deck delamination survey such that the delaminated areas are clearly depicted in the photo.

4. Equipment

MDOT will provide the use of an under bridge inspection truck (Reach-all) for access to the underside of the bridge, bearings, and top of piers. The CONSULTANT will be responsible for contacting the MDOT Operations Field Services Division (Aaron Porter at 517-242-5788 or Jason DeRuyver at 517-322-3320) to schedule one of the Reach-all units a minimum of 14 days in advance. The CONSULTANT will coordinate the use of the Reach-all to ensure the equipment is fully utilized while onsite and released as soon as the high reach areas are inspected. MDOT will provide traffic control during the use of the Reach-all.

The Reach-all is part of the Department's emergency response team and may be called away unexpectedly. The CONSULTANT will plan for this contingency and should this occur, will re-direct the field staff to maintain efficiency and the schedule.

The CONSULTANT will ensure that all personnel have personal protective safety equipment (PPE), including safety shoes, and that it is worn by the staff while onsite.

5. Maintenance of Traffic

Traffic control during the site review (except during the use of the MDOT Reach-all) will be the responsibility of the CONSULTANT. Traffic control will follow standard MDOT procedures. Permits for the traffic control and for working in the MDOT Right of Way must be obtained from the appropriate MDOT Transportation Service Center (Detroit TSC) or Region (Metro) prior to the start of work. Allow ample time for permit issuance. Nighttime or weekend work may be required for lane closures on I-96 at this location. Other traffic control restrictions may be imposed by the Region or TSC.

6. Railroad Flagging & Permits

If it is necessary to work over or immediately adjacent to 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.

7. Testing

If the CONSULTANT PM feels that material testing is needed to better understand the condition of the bridge to evaluate the best repair option, a testing proposal must be submitted to the MDOT PM for approval. The testing proposal will show 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.

The results and analysis of any testing that is approved and performed will be discussed in the Field 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 field work findings; the preparation of and evaluation of three repair strategies, including the estimate of cost of the repair strategies; a Life Cycle Cost Analysis (LCCA); and the selection of the best repair option.

1. Estimating Various Repair Options

Cost estimates for each of the repair options will be prepared for each bridge. A standard form Cost Estimate Worksheet with unit prices will be used (Attachment B). 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. Estimates are to be broken down by work activity and must list the quantity and assumed unit price.

2. Life Cycle Cost Analysis

The CONSULTANT shall evaluate the repair options formulated in the engineering analysis phase on the basis of a Life Cycle Cost Analysis for each bridge. The type of LCCA used for this report will be to determine the "present value" of each cost at the time of its implementation and then to sum these costs. The strategy with the lowest present value cost will normally be selected as the preferred repair option, but engineering judgment may reveal that a strategy with higher cost is actually more reasonable.

The CONSULTANT will propose a method of performing the LCCA. All assumptions used for the LCCA calculations and the estimates must be shown, using the following basic assumptions:

a. Base year for analysis – 2016
b. Life Cycle Analysis Period – 75 years in 5 year increments.
c. Real Discount Rate – 4%
d. User Costs – will not be considered for this report.
e. Salvage Value – zero in terms of dollar value, but stated in terms of remaining serviced life for the last repair.

C. REPORT DEVELOPMENT

The deliverables for this scope of work will be the Bridge Scoping Report(s), with Appendix.

1. Format

The reports must be submitted in Microsoft Word format, with one copy created in Adobe pdf on CD. All reports must be printed on both sides of the paper. Photographs are to be printed in color with two photographs per page. The reports shall be submitted in a **three-ring binder** as described below. The binder will contain all information pertaining to the site review findings, LCCA, recommendations, photos, field notes, inspection reports, etc. for each bridge.

2. Drafts & Final Reports

The reports will be submitted in two phases: draft version and final version. The draft report will be a complete report, with **3 copies** submitted to the MDOT PM. These will be reviewed by the Region Bridge Engineer, Lansing Bridge Design, and the Bridge Scoping Engineer. MDOT reserves the right to request additional drafts for review if, in the opinion of the MDOT PM, the changes required are extensive. Comments and questions arising from those reviews will be given to the CONSULTANT to be incorporated into the final report if appropriate, as well as addressed separately and submitted with the final report. Photographs from the draft reports will also be returned to the CONSULTANT, to be incorporated into the final reports. **Four copies** of the final report will be submitted.

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.

3. Layout

The Scoping Report will be divided into chapters as follows:

a. Table of Contents

b. General Site Review Procedures

This section will summarize the general procedures used during the site reviews (field work). This information will include the site review dates for each bridge, typical equipment used, typical traffic control procedures, typical site review procedures, etc.

c. Executive Summary

This is to include a statement of the recommended treatment for the bridge and the cost 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.

d. Field Site Review Findings

This section will include, as a minimum, discussion of the following areas:

(1) Overall assessment of the condition of the bridge, with each bridge element described separately.

(2) Site issues, i.e., geometrics, maintenance of traffic, utilities, scour, etc. In case of the situation 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.

(3) Testing results and implications to the repair options.

(4) The following outline may be used for a consistent presentation format for the body of this section of the report:

i. Approaches

ii. Deck (surface, soffit, fascia, joints, railing, sidewalk, fencing, lighting, drains)

iii. Superstructure (girders, diaphragms, paint, pin and hangers, bearings)

iv. Substructure (abutments, wingwalls, piers, slope protection, scour)
v. Site Issues (maintaining traffic, geometrics, signs, utilities, etc.)
vi. Material Testing (if applicable)

e. Rehabilitation Options

This section will include a discussion of the rehabilitation options. For each option evaluated, a discussion of the necessary improvements and the associated costs (initial construction costs and the present value of the LCCA) 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.

A table summarizing the initial construction cost and present value of LCCA for each of the options considered will be included in this section for ease of comparison

f. 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.

g. Appendix

(1) Photos with descriptions
(2) LCCA Assumption Sheet
(3) LCCA Presentation Sheets
(4) Estimate Sheets
(5) Field notes and sketches, including sketches of deck repair areas, steel beam repair areas, substructure repair areas, etc.
(6) Bridge Inspection Report (current)
(7) Lab test reports (if applicable)

Do not include (in the appendix) lengthy descriptions of the structure and repetition of the LCCA information already stated in the report.

DURATION & SCHEDULE:

Authorization for this project and "Notice to Proceed" is expected by June 2013. All field work is to be completed by September 15, 2013, and the **final REPORT will be due October 31, 2013**. The CONSULTANT will develop a detailed schedule, including specific dates and milestones as described below which will form a part of the contract. Failure to progress in alignment with the schedule will be considered as failing to meet the terms of this contract and may result in the cancellation of the contract.

A. SCHEDULE OF DATES AND MILESTONES

The Consultant is required to develop a Project Schedule in alignment with the project parameters described above, for this work. The Project Schedule must include a Gantt chart showing meeting dates, draft report submissions, etc. as milestones.

A high level Project Schedule must be submitted as part of the Price Proposal. A fully complete Project Schedule will be submitted, to the MDOT PM for approval, at the project initiation meeting.

Once the project begins, the Consultant will be required to adhere to the schedule and any changes to the schedule must be submitted to the MDOT PM for approval prior to the change.

The Consultant must be prepared to begin the field evaluation work within two weeks after receiving Notice to Proceed.

B. MEETING DATES

1. Project Initiation Meeting – Approximately one week after NTP (Notice to Proceed) and before beginning any field work. Location to be determined.

2. Draft Report Review Meeting – After draft report is submitted and reviewed by MDOT. This meeting will be held at the discretion of the MDOT PM.

PAYMENT SCHEDULE

Compensation for this Scope of Services shall be on an **actual cost plus fixed fee** basis.

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 DECK PRESERVATION MATRIX – Decks with Uncoated "Black" Rebar

DECK CONDITION STATE				REPAIR OPTIONS	POTENTIAL RESULT TO DECK BSIR		ANTICIPATED FIX LIFE
Top Surface		Bottom Surface			Top Surface BSIR #58a	Bottom Surface BSIR #58b	
BSIR #58a	Deficiencies % (a)	BSIR #58b	Deficiencies % (b)				
≥ 5	N/A	N/A	N/A	Hold (c) Seal Cracks/Healer Sealer (d)	No Change	No Change	1 to 4 years
	≤ 5%	> 5	≤ 2%	Epoxy Overlay	8, 9	No Change	10 to 15 years
	≤ 10%	≥ 4	≤ 25%	Deck Patch (e)	Up by 1 pt.	No Change	3 to 10 years
4 or 5	10% to 25%	5 or 6	≤ 10%	Deep Concrete Overlay (h)	8, 9	No Change	25 to 30 years
		4	10% to 25%	Shallow Concrete Overlay (h, i)	8, 9	No Change	20 to 25 years
				HMA Overlay with water-proofing membrane (f, h, i)	8, 9	No Change	8 to 10 years
		2 or 3	> 25%	HMA Cap (g, h, i)	8, 9	No Change	2 to 4 years
≤ 3	>25%	> 5	< 2%	Deep Concrete Overlay (h)	8, 9	No Change	20 to 25 years
		4 or 5	2% to 25%	Shallow Concrete Overlay (h, i)	8, 9	No Change	10 years
				HMA Overlay with water-proofing membrane (f, h, i)	8, 9	No Change	5 to 7 years
		2 or 3	>25%	HMA Cap (g, h, i)	8, 9	No Change	1 to 3 years
				Replacement with Epoxy Coated Rebar (ECR) Deck	9	9	60+ years

(a) Percent of deck surface area that is spalled, delaminated, or patched with temporary patch material.
(b) Percent of deck underside area that is spalled, delaminated or map cracked.
(c) The "Hold" option implies that there is on-going maintenance of filling potholes with cold patch and scaling of incipient spalls.
(d) Seal cracks when cracks are easily visible and minimal map cracking. Apply healer sealer when crack density is too great to seal individually by hand. Sustains the current condition longer.
(e) Crack sealing can also be used to seal the perimeter of deck patches.
(f) Hot Mix Asphalt overlay with waterproofing membrane. Deck patching required prior to placement of waterproofing membrane.
(g) Hot Mix Asphalt cap without waterproofing membrane for ride quality improvement. Deck should be scheduled for replacement in the 5 year plan.
(h) If bridge crosses over traveled lanes and the deck contains slag aggregate, do deck replacement.
(i) When deck bottom surface is rated poor (or worse) and may have loose or delaminated concrete over traveled lanes, an in-depth inspection should be scheduled. Any loose or delaminated concrete should be scaled off and false decking should be placed over traveled lanes where there is potential for additional concrete to become loose.

BRIDGE DECK PRESERVATION MATRIX
DECKS WITH UNCOATED "BLACK" REBAR
USER GUIDELINES

This matrix is a tool for Bridge Engineers to use in the selection of deck repair options when the concrete bridge deck has uncoated "black" rebar. The condition of the deck is usually the driving force, or the key indicator, leading to a structure being considered for preventive maintenance, rehabilitation or replacement. However, there are times when other issues affecting the bridge may elicit the need for a project and this matrix does not address those situations. Some of these situations are super-structure deterioration, sub-structure deterioration, and functional issues such as under-clearance and/or bridge width. Sometimes it is desirable for an entire corridor to be brought up to a specific condition level as part of an overall strategy. So the user is cautioned to interpret the information from the matrix in the context of each specific case and use engineering judgment.

The matrix can be used from left to right or from right to left. If you have scoping inspection data with a deck delamination survey, select the row in the left column that matches the percent of surface defects. Then select the row in the second column that matches the percent of underside defects. To the right of this you will find a repair option and the associated changes to the NBI and the expected service life of that repair, or "Fix Life".

If you are looking for a fix that will last for a given period of time, select a row from the right column that matches the length of service desired and scan to the left to find the repair option. Be advised that the condition of the bridge at the time of the rehabilitation affects the expected service life of the selected repair option. So if the structure is in worse condition than shown on the left side of the matrix, the repair will not last as long. Conversely, if the deck is in better condition than shown on the left, a longer service life could be expected.

This matrix has been constructed based on element deterioration data and the best knowledge of individuals from Construction & Technology, Maintenance, region bridge engineers, bridge design engineers, and FHWA with many years of experience working with bridges. When used in conjunction with the Bridge Safety Inspection Report (BSIR), Pontis element data, and detailed bridge project scoping report, the matrix can be an accurate guide in the majority of situations and will lead to a repair option that is economical and consistent with the Department's goals.

2012

XXXX CALL FOR PROJECTS

BRIDGE REPAIR COST ESTIMATE

REV. 12/07/11

ENGINEER: DATE: DECK AREA: SFT STRUCTURE ID:
LOCATION: DECK DIM:
PRIMARY REPAIR STRATEGY: STR. TYPE:

WORK ITEM	QUANTITY	UNIT	UNIT COST		TOTAL
NEW BRIDGE					
Multiple Spans, Concrete (add demo. & road approach & traffic control)		SFT	$150.00	/SFT	
Multiple Spans, Steel (as above)		SFT	$180.00	/SFT	
Single Span or Over Water, Concrete (as above)		SFT	$190.00	/SFT	
Single Span or Over Water, Steel (as above)		SFT	$210.00	/SFT	
Pedestrian Bridge (includes removal, add traffic control)		SFT	$285.00	/SFT	
Other					
NEW SUPERSTRUCTURE					
Concrete (includes rem of old super, new railing, add t.c. & approach)		SFT	$110.00	/SFT	
Steel (as above)		SFT	$160.00	/SFT	
Over Water (add to new superstructure cost)		SFT	$28.00	/SFT	
Other					
WIDENING					
Added portion only. _____ ft of width (add road approach widening)		SFT	$190.00	/SFT	
Other					
NEW DECK					
Includes removal of old deck & new railing (add t.c. & approach)		SFT	$65.00	/SFT	
Other					
DEMOLITION					
Entire bridge, grade separation		SFT	$27.00	/SFT	
Entire bridge, over water		SFT	$36.00	/SFT	
Other					
SUPERSTRUCTURE REPAIR					
Concrete Deck Patch (includes hand chipping)		SFT	$33.00	/SFT	
Full Depth Patch		SFT	$70.00	/SFT	
HMA Cap (no membrane - add bridge rail if req'd)		SFT	$1.20	/SFT	
HMA Overlay with WP membrane (add bridge rail if req'd)		SFT	$4.50	/SFT	
Removal of Concrete Wearing Course (latex)		SFT	$2.00	/SFT	
Removal of HMA Overlay or Epoxy Overlay		SFT	$1.00	/SFT	
Epoxy Overlay		SYD	$34.00	/SYD	
Shallow Overlay (includes joint replmt & hydro, add bridge rail if req'd)		SFT	$23.00	/SFT	
Deep Overlay (includes joint replmt & hydro, add bridge rail if req'd)		SFT	$24.00	/SFT	
PCI Beam End Repair ($2000-$4000 per beam end)		EA	$3,000.00	EA	
Repair Structural Steel ($2000 bolted, $6000 welded)		EA	$5,000.00	EA	
High Load Hit Repair (PCI Beam)		SFT	$200.00	/SFT	
Paint Structural Steel		SFT	$9.00	/SFT	
Partial Painting		SFT	$18.00	/SFT	
Pin & Hanger replacement (includes temporary supports)		EA	$6,000.00	EA	
Other					
SUBSTRUCTURE REPAIR					
Pier repair (measured x 2) Replace unit if spalled area > 30%		CFT	$180.00	/CFT	
Pier repair over water (measured x 2)		CFT	$200.00	/CFT	
Pier replacement		CFT	$70.00	/CFT	
Abutment repair (measured x 2)		CFT	$180.00	/CFT	
Temporary Supports for Substructure Repair		EA	$1,500.00	EA	
Slope Protection repairs		SYD	$80.00	/SYD	
Other					
MISCELLANEOUS					
Expansion or Construction Joints (includes removal)		FT	$450.00	/FT	
Bridge Railing, remove and replace (type 4 $210, aesthetic parapet $260)		FT	$235.00	/FT	
Thrie Beam Railing retrofit		FT	$34.00	/FT	
Deck Drain Extensions		EA	$500.00	EA	
Scour Countermeasures		LSUM		LSUM	
Other					
ROAD WORK					
Approach Pavement, 12" RC (add C & G, GR, Slope, Shldr.) 40' ea. end		SFT	$11.50	/SFT	
Approach Curb & Gutter (18' ea. quad.)		FT	$37.50	/FT	
Guardrail Anchorage to Bridge (<40')		quads	$1,500.00	/quad	
Guardrail, Type B or T (beyond GR anchorage to bridge, <200')		FT	$21.50	/FT	
Guardrail Ending (end section)		EA	$1,850.00	/EA	
Roadway Approach work (beyond approach pavement)		LSUM		LSUM	
Utilities		LSUM		LSUM	
Other					
TRAFFIC CONTROL - Unit Cost to be determined by Region or TSC T&S					
Part Width Construction		LSUM		LSUM	
Crossovers		EA	$250,000.00	EA	
Temporary Traffic Signals		set	$18,000.00	/set	
RR Flagging		LSUM		LSUM	
Detour		LSUM		LSUM	
Other					
CONTINGENCY (10% - 20%) (use higher contingency for small projects)		%	$0.00		$0.00
MOBILIZATION (estimate at 5% but put "10% max" in pay item description)	5.0	%	$0.00		$0.00
INFLATION (assume 5**%** per year, beginning in **2013**)		%	$0.00		$0.00

(DOES NOT INCLUDE PE & CE)

CONSTRUCTION TOTAL **$0.00**

BEAM END THICKNESS TABLE

Structure ID Number _____

Span No.		Original Dimensions			Field Measurements			Percent Section Loss		
		Bottom Flange		Web	Bottom Flange		Web	Bottom Flange		Web
		Side 1	Side 2		Side 1	Side 2		Side 1	Side 2	
Beam 1	End 1									
	End 2									
Beam 2	End 1									
	End 2									
Beam 3	End 1									
	End 2									
Beam 4	End 1									
	End 2									
Beam 5	End 1									
	End 2									
Beam 6	End 1									
	End 2									
Beam 7	End 1									
	End 2									
Beam 8	End 1									
	End 2									
Beam 9	End 1									
	End 2									
Beam 10	End 1									
	End 2									