

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

| | | | | |
|---|--|---|---|----------------------|
| MDOT PROJECT MANAGER | | | JOB NUMBER (JN) | CONTROL SECTION (CS) |
| DESCRIPTION | | | | |
| MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED GRAY SHADING = OPTIONAL | | | CONSULTANT: Provide only checked items below in proposal | |
| Check the appropriate Tier in the box below | | | | |
| TIER I (\$25,000-\$99,999) | TIER II (\$100,000-\$250,000) | TIER III (>\$250,000) | | |
| | | | Understanding of Service | |
| | | | <i>Innovations</i> | |
| | | | <i>Safety Program</i> | |
| N/A | | | Organizational Chart | |
| | | | Qualifications of Team | |
| | | | Past Performance | |
| 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 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) | 19 pages (MDOT Forms not counted) | Total maximum pages for RFP not including key personnel resumes | |

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 Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced 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 Required with Proposal)**

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 RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning (see address list, page 2). The priced proposal must be submitted in a sealed envelope, clearly marked "**PRICE PROPOSAL.**" The vendor's name and return address **MUST** be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

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.

Qualifications 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 and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor 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

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked "**SEALED BID.**" The vendor's name and return address **MUST** be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

| | | |
|---|-----------------------|----------|
| REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER | PROPOSAL/BID DUE DATE | TIME DUE |
|---|-----------------------|----------|

PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

MDOT Project Manager

MDOT Other

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

| Lansing Regular Mail | OR | Lansing Overnight Mail |
|---|----|--|
| Secretary, Contract Services Div - B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909 | | Secretary, Contract Services Div - B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933 |
| Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909 | | Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933 |

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 four (4) 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

The following two American Recovery and Reinvestment Act of 2009 (ARRA) notifications, **ARRA MONTHLY EMPLOYMENT REPORTS** and **REQUIRED CONTRACT PROVISIONS TO IMPLEMENT AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) SECTIONS 902 AND 1515**, are attached to this Request For Proposal for your understanding. These two notifications are only applicable for those projects/contracts funded with ARRA funds and will be included in contract Exhibits.

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

- 5100D** – Request for Proposal Cover Sheet
- 5100G** – Certification of Availability of Key Personnel
- 5100I** – Conflict of Interest Statement
- 5100J** - Consultant Data and Signature Sheet (Required only for Non-Prequalified Work)

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

Michigan Department of Transportation

**SCOPE OF SERVICE
FOR
EARLY PRELIMINARY ENGINEERING
DESIGN SERVICES**

CONTROL SECTION: 11017 (11018)

JOB NUMBER: 112949

PROJECT LOCATION:

I-94 from I-196 to M-140. The project length is 7.0 miles.

PROJECT DESCRIPTION: Produce scoping products for a future road and bridge design project. The future I-94 project includes a five inch thick HMA overlay, replacement of I-94 WB Bridge over M-140, rehabilitation of I-94 EB Bridge over M-140, widening of I-94 EB and I-94 WB bridges over Hennesey Road, interchange ramp resurfacing, and drainage work. Identify and recommend I-94 roadway and bridge improvements to include in this project for MDOT consideration. Use MDOT feedback to determine all the work that is expected to take place in the future project. Complete a cost estimate and construction/traffic staging concept for future project work.

ANTICIPATED SERVICE START DATE: August 9, 2011

ANTICIPATED SERVICE COMPLETION DATE: June 8, 2012

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Roadway Rehabilitation and Rural Freeways

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Maintaining Traffic Plans & Provisions
Hydraulics
Geotechnical Engineering Services
Bridge Project Scoping
Road Design Surveys
Safety Studies

DBE REQUIREMENT: 7%

MDOT PROJECT MANAGER:

Kyle Rudlaff
MDOT – Coloma TSC
3880 Red Arrow Highway
Benton Harbor, MI 49022
269-849-2347 Office
269-849-1227 Fax
rudlaffk@michigan.gov

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

Consultant is required to use MDOT's current version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design. Consultant shall comply with all MDOT CADD standards and file naming conventions.

CONSULTANT RESPONSIBILITIES:

The CONSULTANT shall prepare Base, Preliminary, and Final Scoping Packages for the project location as detailed in **Attachment A**. As part of this project, the CONSULTANTS shall prepare and evaluate the proposed treatment for each roadway and determine the extent and cost of all work required for its implementation.

For the project, scoping will include but will not be limited to the following:

- A. Verify the project location, the limits and the extents.
- B. Conduct field reviews to obtain missing or supplement incomplete information.
- C. Establish and detail the proposed scope of road work.
- D. Determine Federal requirements and project conformance.
- E. Perform Crash Analysis and recommend countermeasures including cost estimates.
- F. Prepare pavement design recommendations for two different pavement treatments providing a 3R and 4R fix respectively. Reference MDOT Road Design Manual regarding 3R and 4R fixes. The two different pavement treatment recommendations will be the basis for the two courses of action being scoped in this contract.

- G. Determine Maintenance of Traffic strategies for each recommended pavement treatment.
- H. Compute and verify all quantities.
- I. Compute and calculate detailed cost estimate using MDOT Pay Items.
- J. Complete the Project Concept Statement and the Project Scoping Checklist.
- K. Prepare a design hour estimate.
- L. Prepare required documents (to include summary, typical cross sections, photographs, base plans, etc) required to answer all questions relating to the project scope of work (See Attachment A).
- M. Determine Right of Way impacts, including detailed sketches.
- N. Identify and provide solutions to any unique problems that may arise during the design of the project or that may affect the constructability.

DELIVERABLES:

Obtaining, reviewing, analyzing and incorporating project data and recommendations for all scoping related work. Work shall conform to current MDOT, FHWA, and ASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.). This will include, but will not be limited to, the following for the preparation of the Preliminary Scoping and the Final Scoping Packages for the project location. Following each item listed is a notation showing in which report (base, preliminary or final) that items will first appear. Please note that items in the Base Report are carried through the Final Report, etc.

BASE SCOPING REPORT

A Base Scoping Report shall be completed on or before August 27, 2011. This report shall address the items listed under CONSULTANT RESPONSIBILITIES (GENERAL) and Attachment A. Aforementioned items are to be addressed to the extent possible within the limited period of task time available. The CONSULTANT shall make a 30 minute presentation at the Kick-Off meeting that features highlights from the report. The Kick-Off meeting will take place on or after August 27, 2011 .

PRELIMINARY SCOPING REPORT

A Preliminary Scoping Report shall be submitted on or before October 20, 2011, for MDOT review and comment. This report shall address all the items listed under CONSULTANT RESPONSIBILITIES (GENERAL) and Attachment A items as noted as being required in the Preliminary Scoping Report. A Preliminary Scope Review Meeting will be held on or after

October 31, 2011. In the Preliminary Scoping Report, if there are any items, in the CONSULTANT'S opinion, warrant further review, discussion and/or additional information on which to base a sound design concept, those items shall be clearly listed at the end of report.

FINAL SCOPING REPORT

A Final Scoping Report shall be submitted on or before December 15, 2011. This report shall address and document all the items listed under CONSULTANT RESPONSIBILITIES (GENERAL) and Attachment A and items as noted as being required in the Final Scoping Report, and incorporate the comments and/or changes received from the Preliminary Scoping Report and the Preliminary Scope Review meetings. A Final Scope Review Meeting is not anticipated. The MDOT comment period will extend through January 13, 2012.

FINAL DELIVERABLE PACKAGE

The Final Deliverable Report shall be submitted on or before February 10, 2012. This report shall include all items under CONSULTANT RESPONSIBILITIES (GENERAL) and all items as required in Attachments A and D.

All work shall conform to current applicable MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e. Roadside Design Guide, AASHTO Road Side Design Guide, AASHTO A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

PROJECT CONSTRUCTION COST:

A cost estimate shall be developed using year 2011 unit prices. Provide a version of the estimate in *.csv format with Breakdown ID's matching the below work categories (001-013). Some work categories may be unused. The year 2017 cost estimate shall be reported with an adjustment for inflation (5% annual rate). The following are the items that shall be considered and broken down by MDOT Pay Items and then rolled up into the categories as identified in the Project Scoping Checklist:

- A. The estimated construction cost shall address:
1. Safety Related Work
 2. Mainline Pavement (Base, Surface and Shoulder)
 3. Non-Motorized
 4. Geometric Improvements
 5. Improve Alignment (Vertical/Horizontal)
 6. Drainage Adjustment and Improvement
 7. Joint Repair and Pavement Patching
 8. Detours and Maintaining Traffic
 9. Permanent Pavement Markings/Signs/Signals
 10. Environmental
 11. Miscellaneous

- 12. Aesthetic Opportunities
- 13. Municipal Utilities

B. The estimated number of real estate parcels and type (grading permit, easement or fee) and the associated cost for each.

PROJECT SCHEDULE:

The scheduled CONSULTANT’S completion dates are as follows:

| <u>Completion Date</u> | <u>Description</u> |
|------------------------|--|
| 08/27/2011 | Submittal of Base Scoping Report |
| 10/20/2011 | Submittal of Preliminary Scoping Report |
| 10/31/2011 | Preliminary Scope Review Meeting with MDOT Staff |
| 12/15/2011 | Submittal of Final Scoping Report |
| 02/10/2012 | Final Deliverable Report |

MONTHLY PROGRESS REPORT:

On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager. The monthly progress report shall follow the guidelines in Attachment C.

FORMAT:

The Preliminary and Final Scoping Reports (see Attachment A for items that will be included) shall be presented on regular letter size paper (8 ½" x 11") with the exception of base maps, sketches and diagrams which shall be on 11" x 17" paper (and folded to match the 8 ½" x 11" paper).

There shall be fifteen (12) paper copies each of the Preliminary Scoping Report and four copies of the Final Scoping Report. One (1) copy of the existing plans used to develop the scope shall also be submitted with the Preliminary and Final Scoping Reports.

Each copy of the Preliminary Scoping Report will be stapled in the upper left hand corner. The cover sheet shall be entitled “Preliminary Scoping Report” and should include the control section, job number, route, and location description. An index shall also be included in each report. If there are any items, in the CONSULTANT’S opinion, that need further review, discussion and/or additional information from MDOT, those items shall be clearly listed at the end of the report. The photographs included in the documents shall be in an electronic .jpg format with printouts at 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate mile point. No fewer than 8 and no greater than 24 are to be included.

The Final Scoping Report (see Attachment A for items that will be included) shall be labeled (cover and side to be entitled “Final Scoping Report”) and should include the control section, job number,

route, and location description. The report shall be presented in a three ring binder, with an index and tabbed sections, containing 8 ½" x 11" regular letter size paper for the majority of the documents. 11" x 17" paper may be used for base maps, sketches, and diagrams. The photographs included in the documents shall be in an electronic format with printouts at 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate control section mile point. No fewer than 24 and no greater than 50 photos are to be included.

Four sets of the Final Deliverable Package's information shall be presented in three ring binders, each with an index and tabbed sections. This report shall be labeled cover and side. The hard copies of the summaries shall be presented on either 8 ½" x 11" regular letter size paper or 11" x 17" paper. A single CD ROM shall be prepared for all electronic files of the project. The CD ROM shall be contained in a separate envelope labeled with the control section, job number, project location, and the CD contents. The envelope shall be included as part of the report and shall be attached and connected through the three ring binder. The base map, scaled size 1" to 400 ft (as identified in Attachment A) is to be created electronically, using the latest department approved version of Micro Station design software, and following all MDOT drafting standards and guidelines as can be applied in English units. The entire base map for each project location is to be created in English units and is to be placed within a single approved MDOT printed sheet. The full size of the MDOT printed sheet is 24" x 36" however only an 11" x 17" (a reduced size copy) needs be provided. If it is recommended that the projects be designed in plan sheet job format, then the full size of the MDOT printed plan sheet is 11" x 17." All Microstation (Dgn) files shall be delivered in a CD ROM.

Project features shall be located by station according to MDOT Right-of-Way Maps. Stations are allowed to be approximate as additional survey work to obtain accurate stations is not authorized.

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 the Project Manager.

All project related items are subject to review and approval by the Project Manager.

TRAFFIC CONTROL AND MDOT PERMITS:

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.

The CONSULTANT shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT right-of-way. This information can be obtained through the Coloma Transportation Service Center's Permit Agent, Brett Arrans, at (269) 849-1494.

CONSULTANT RESPONSIBILITIES (GENERAL):

NOTE: Below items A through D are the major deliverables to be produced in this service and must be the main focus of effort. The MDOT Project Manager will collaborate with the CONSULTANT on planning the expeditious completion of all other described tasks.

- A. Scoping of the following bridges is a major deliverable of the requested service. See Attachment J for details.
 - a. I-94 EB over M-140
 - b. I-94 EB over Hennesey Road for Structure widening and otherwise as determined.
 - c. I-94 WB over Hennesey Road for Structure widening and otherwise as determined.

- B. The CONSULTANT will collect 13 structure borings for bridge work and estimated 8 structure borings for potential culvert headwall installations. The boring locations will be provided by MDOT.

- C. The drainage work recommendation is a major deliverable in this service.
 - a. Culverts spanning both bounds of I-94 60" diameter or larger shall be inspected in-person and a short report with images made.

 - b. All culverts less than 60" spanning both bounds of I-94 shall be video inspected. The video inspection product shall include live audio narrative from the inspection technician, and streaming distance meter. All joints shall be panned. A line diagram shall be made for each culvert that details distress, obstructions, change in material and etc. Visual inspection observations and images shall be collected for conditions at each culvert inlet and outlet that spans both bound of I-94. This is additional to the video inspection task.

 - c. Design flow and hydraulic design capacity of each pipe crossing both bounds of I-94 shall be calculated. Survey data shall record 5 stream bed elevations spaced at 50 feet and one cross section at each outlet and each inlet and one cross section at bottom of I-94 fill slope at each outlet and inlet. The relative elevation of the edge of

I-94 shoulder shall be recorded. The survey shots are to complete capacity analysis. The horizontal and vertical location of the nearest impacted assets in culvert flood event headwaters and tail waters shall be recorded.

- D. The maintaining traffic concept diagrams and total project cost estimate are major CONSULTANT deliverables of this service.
- E. The Project Manager, Kyle Rudlaff, shall be the official MDOT contact person for the CONSULTANT. The CONSULTANT must either address or send copies of all correspondence to the Project Manager. This includes all subcontractor correspondence and verbal contact records. The Project Manager shall be made aware of all communications regarding this project.
- F. Meet with the Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The CONSULTANT shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the project scoping by the project completion date. Attention shall be given to critical target dates that may require a large lead-time, such as scope review meetings, etc.
- G. Maintain a "Scoping Project Record," which includes a history of significant events (changes, comments, etc.) that influenced the development of the scopes, dates of submittals and receipt of information.
- H. The CONSULTANT shall contact, in writing, the Project Manager whenever discoveries or design alternatives have the potential to require significant changes in the limits, quantities, costs, or right-of-way of the project.
- I. Attend any project-related meetings as directed by the Project Manager.
- J. The CONSULTANT'S representative shall record and submit typewritten minutes for all project related meetings to the Project Manager within two (2) weeks of the meeting. The CONSULTANT shall also distribute the minutes to all meeting attendees.
- K. The CONSULTANT will be responsible for providing elevation view sketches at both sides of each and every bridge in the project area. All under clearance sketches must be shown looking up station and clearly depict the clear roadway width. The sketch must show the elevation of the roadway at 2 feet inside of the inside edge of metal and 2 feet outside of the outside edge of metal, as well as the interior lane lines, crown point and shoulder edges. The consultant shall use MDOT provided measurements and old plans to make sketches.
- L. The pavement designs will be provided by MDOT.
- M. Determine impacts of the proposed pavement treatment on the existing horizontal and vertical alignments, pavements, curb and gutter, drainage, right of way, etc. Every effort shall be made to minimize ROW impact within the limits of each of the project locations. In

areas of potential ROW impact, the CONSULTANT shall document and identify the potential need for additional ROW, by station or address; type of ROW required (grading permit, easement, or fee); and/or proposed roadside improvements (i.e. fencing, turf establishment, landscaping, non motorized, etc.). ROW impacts shall be documented in terms of potential need (grading permit, easement, or fee). The ROW appraisal will be prepared by MDOT. (P/F)

N. Generate a base map created electronically using the Micro Station design software and formatted as described in FORMAT Section, of the existing roadway using information from old plans, and/or on-site field reviews. The base maps are used to visually describe the existing roadway within the limits of the project. The project limits for each project location for this task shall be defined as the greatest of either 400 feet beyond the Point of Beginning (POB) and the Point of Ending (POE) or the limits needed to fully accommodate the maintaining traffic limits as determined in Attachment E. The detail of the base maps is to include the location of existing roadways, bridges, railroads, and cross roads. The base maps are to show existing features; i.e. edge of pavements, edge of shoulders, curb lines, drainage courses etc. The base maps are to represent existing conditions and indicate proposed work with labels.

O. Additional Guidance Items include:

1. Generate base sheets for each project location, using the base maps and formatted as described in FORMAT Section, for the entire project limits.
2. Prepare existing and proposed general typical cross sections for each project.
3. For minor drainage improvements, incorporate the fix into the report narrative and cost estimate. For major drainage improvements, document the location, condition, recommended treatment and cost estimate.
4. Perform storm water design calculations, including appropriate outlets and energy dissipation as necessary, as outlined in the MDOT Drainage Manual. All design calculations, drainage maps and proposed profiles shall be included in the Preliminary and Final Scoping Reports under Attachment A.
5. For each project location, document and identify any possible utility conflicts and estimate the cost of relocation and/or adjustment.
6. If water mains and/or sanitary sewers are present within the project limits, the CONSULTANT shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with MDOT Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. Identify the limits, an explanation for the relocation and a cost estimate for each location within the "Utilities" section of the scoping report.
7. For each project location, submit requests to applicable utility owners for preliminary utility information. Submittals to the utility company shall include: a completed MDOT approved form, and a minimum of two (2) copies of location map, base map and base sheets (see Attachment G). Complete after acceptance of Base Scoping Report.
8. For each project location, review and document scope conformance to design elements as listed in Attachment G and MDOT's 3R/4R Guidelines.

A Level One Design Criteria Checklist (see Attachment B) and a Design Criteria Table (see Attachment B) will be included in the Scoping Report (see Attachment A for location within the Report).

Calculations (computer generated or hand calculations) that support review of the existing and proposed condition conformance to the Level One Design Criteria will be submitted as part of the “Supplemental Project Scoping Information”.

Documentation for the Level One Design Criteria shall include Existing Condition, Treatment as per Design Standards, and Proposed Treatment (if required). The Proposed Treatment will be in accordance with the current MDOT design standards unless otherwise determined by MDOT. If needed, identify what is needed to bring the item into conformance with current standards (i.e. additional ROW, utility relocation, etc). (B/P/F for existing; P/F for proposed)

9. For each project location, 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 to include location, existing type and condition, and the recommended treatment. This information shall be included in the appropriate area of the Attachment A and shall also be entered into a separate spreadsheet and submitted as part of the Final Deliverable Report. Images and observations shall be recorded on unprotected slope conditions that appear to be steeper than 1:4 front slope and 1:4 back slope. (P/F)
10. For each project location, perform crash analysis and recommend countermeasures. This shall include, but not limited to, the following:
 - a. Performing Crash Analysis (see Attachment I). This shall include the last three (3) years of reliable data for the analysis period. If there is a fatality within those three (3) years, the analysis shall include the details of the specific fatality. The CONSULTANT will be furnished three (3) years of data.
 - b. Determine ROW impacts based on the Crash Analysis. Determine ROW impacts for each countermeasure identified. Determine the construction cost estimate for each countermeasure. Summarize countermeasures which shall include each crash pattern and countermeasure individually listed, along with their associated ROW impacts and construction cost estimate. ROW impacts shall be documented in terms area of potential need along with the type of ROW required (grading permit, easement, or fee). The ROW appraisal will be prepared by MDOT. The construction cost estimate for each countermeasure recommendation shall be presented in the Preliminary Scoping Report and shall be reviewed and approved by MDOT prior to inclusion in the Final Scoping Report. (P/F)
11. For each project location, document and identify locations of possible environmental issues (i.e. wetlands, historic properties, 4f properties, regulated streams, etc.) which may impact the project, and estimate the cost of treatment. This information shall be included

- in the appropriate area of the Scoping Report (see Attachment A). (P/F)
12. For each project location if excavation is required, submit the excavation locations (list them by street address) which may contain contamination. This information shall be included in the appropriate area of the Scoping Report (see Attachment A). (P/F)
 13. For each project location, document and identify (location and who has responsibility for) any existing lighting that has potential for being impacted, or should be included, in the project. Incorporate work into the estimate. (Lighting on Non-Freeway roads is the responsibility of the local jurisdiction). (P/F)
 14. Develop the Maintaining Traffic Concept as per Attachment E.
 15. For each project location, specifically identify any local participation that is required and/or requested for the project location. Examples where local participation is required are: water, sanitary, storm sewer upgrades, work beyond the spring points on local streets, and/or drainage. For each agency (there may be more than one per project location), individually identify the type of work/improvement, itemize the costs and then separately estimate the amount of the respective agencies participation. (P/F)
 16. For each project location, identify, contact and coordinate with all affected governmental agencies (County, and/or city, township) within the project limits (and directly abutting, if any part of the construction influence area will be within another agencies area). Coordination will comply with the meeting and public involvement criteria as outlined in Attachment F. (P/F)
 17. For each project location, incorporate any MDOT identified and/or approved (if approved, include copy of MDOT approval) local needs/requests into project scope. (P/F)
 18. Provide photographs and digital files (.jpg files) of the existing roadway and roadside conditions to document the needs as identified in the project scope.

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 1. Project related meetings.
 2. Coordinate all scoping activities that require MDOT personnel.
- B. Furnish prints or electronic files of old plans and a copy of the Control Section Log of the area, if available.
- C. Provide pavement design and supply information on existing pavement structure as necessary/available.
- D. Furnish a list of the utility companies present within the control section(s) of the project.

- E. Furnish ROW maps of the area
- F. Furnish project selection justification data, including Pavement Management System data and Sufficiency Rating data.
- G. Furnish inspection reports for the structures in the area, for information purposes.
- H. For each project location, furnish hard data for Crash Analysis.
- I. Furnish list of people invited to each Scope Review Meeting.
- J. Furnish the Project Area Contamination Study (PACS).

UTILITY COORDINATION:

The CONSULTANT shall be responsible for requesting the location of all existing utilities within the limits of the project. The CONSULTANT shall make recommendations to resolve potential utility conflicts.

PAYMENT SCHEDULE:

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

CONSULTANT PAYMENT:

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.

ATTACHMENT A
CS 11017 - JN 112949
I-94 from I-196 to M-140

The Preliminary and Final Scoping Reports

The Base, Preliminary, and Final Scoping Reports shall contain the following, and shall be assembled in the order as listed. Please note these are not tabbing sections, but report sections.

The scoping report is the complete written description and explanation of the entire project scope, as well as a comparison as needed between multiple courses of action where relevant.

A unique scope report is to be written and shall follow the format as described below.

The scope report is to be written using complete sentences and sentence structure. In addition, simple, clear, and concise language is required to ensure that the report is both readable and understandable.

Also the listed format contains many sections, which may or may not apply to the project. Sections, which do not apply, may be omitted from the report as directed by the Project Manager. Information, which has no apparent section, may be placed within a related section, or within a newly created section. Keep the addition of new sections to a minimum.

Project Description

Provide a general statement regarding the project type, length, and nature of work being proposed in the scoping of the project. Average length should be no more than one to three sentences.

Project Limits

Establish the projects limits (roadway name, roadway number, project beginning, project ending, mile points (both Control Section and PR), project length, major cross streets, local municipalities affected, etc.). List also if this roadway is an NHS route, a non-NHS route, or if it registered as a National Historic Highway.

Design Speed

List the following information for each of the major roadways within the project limits:
Posted Speed (mph) = _____ Design Speed (mph) = _____

If speeds change within the project limits, list all segments and associated mile points.

Pavement Treatments

Address each pavement treatment for each course of action.

Cross Section

A brief description of the existing and proposed cross section (pavement type, lane width, curb and gutter, catch basins, storm sewer location, side slopes, ditch location, setback to existing right of way line, etc.) for each course of action being proposed as potential scope alternatives. Include a statement regarding the impact the proposed pavement treatment will have upon existing, or proposed, curb and gutter. Include a brief statement to establish the presence and location of existing pedestrian sidewalk, and existing sidewalk ramp terminals at sidewalk street intersections. Note: At locations of sidewalk street intersections, if not already present, ramp terminals will be

installed.

Discussion of the existing and proposed cross sections through the project length will also address the existing pavement crown and super elevation, and the impact that the proposed project will have upon it (to include any potential corrections or recommended adjustments).

Include a statement addressing the existing slopes and ditches, and the impact that the proposed project will have upon them (include any potential corrections or recommended adjustments).

Vertical Alignment

Address the existing vertical alignment of the roadway and the impact that the proposed project will have upon it (include any potential corrections or recommended adjustments). The basis of any correction should be reflective of existing conditions being substandard (i.e. K value too low, not enough sight distance, etc).

Horizontal Alignment

Address the existing horizontal alignment of the roadway, and the impact that the proposed project will have upon it (include any potential corrections or recommended adjustments).

Interchanges

Include a brief description of the existing interchanges and the impact that the proposed project will have upon them (include any potential corrections or recommended adjustments). Discuss alterations based on analysis of the existing geometric conditions and the existing and future traffic volumes through the intersection. Include any potential economic growth impacts that are expected by local governmental agencies. Include in the intersection analysis and discussion, additional recommended geometric improvements, in particular the recommended countermeasures as identified through the crash analysis, and the impact that these improvements will have on the proposed project.

Driveways

List the number and type of driveways present within the limits of this project. Include a brief description of the type of driveways and the impact that the proposed project will have upon them. Where access management concerns exist, note concerns, and make recommendations (to include any potential corrections or recommended adjustments or closures).

Guardrail, Barriers and Attenuators

Discuss the existing guardrail, barriers and attenuators and the impact that the proposed project will have upon them (include any potential corrections or recommended adjustments). Make note of locations where culvert extensions and/or slope flattening would be recommended to eliminate the need for guardrail.

Other Safety Improvements

Address additional recommended geometric improvements, in particular the recommended

countermeasures as identified through the crash analysis, and the impact that these improvements will have on the proposed project. DO NOT reiterate recommendations from crash analysis reflected in other portions of the report (i.e. typical section changes, intersection improvements, etc).

Bridges

List all existing bridges within the limits of this project in which the roadway crosses over a bridge. Explain for each bridge how the pavement transition into the bridge deck will be addressed. Provide lane and shoulder widths on bridges.

List all existing bridges within the limits of this project in which the roadway passes under a bridge. List the existing under clearance for each bridge; explain how the pavement will be treated below the bridge; and how the issue of bridge under clearance will be addressed. Provide lane and shoulder widths under bridges.

Drainage

Address the existing drainage throughout the project length. Include any potential corrections or recommended adjustments that are required in order to alleviate any existing drainage issues within the project limits. Note drainage issues that need to be addressed and are not specific to any course of action being presented to deal with pavement life span.

Environmental Issues

Document existing environmental issues and the impact that the proposed project will have upon them. Include any potential corrections or recommended adjustments to mitigate environmental impacts. Make note of potential permit needs.

Local Concerns

Address local concerns or issues that were raised through the public involvement process as outlined in Attachment F. All issues raised do not need to be addressed here as all comments and responses are captured in Appendix C. Discuss only those issues that resulted in scope changes or have potentially significant impact on the proposed project.

Maintenance of Traffic

Provide the maintenance of traffic recommendations developed through the process as outlined in Attachment E.

Right-of-Way Needs

For the roadway in general for each recommended geometric/safety improvement (include the crash analysis recommended countermeasures, slope flattening recommendations and culvert extensions), each intersection, each commercial and/or residential driveway, each signal and each sign; write a brief statement addressing the existing right-of-way, and the impact that the proposed project will have upon it (include any potential corrections or recommended adjustments). If additional right-of-way is required note the type that will be needed (fee take, grading permit, permit to grade drive, etc.).

Signage Recommendations

Address the existing traffic signs and the impact that the proposed project will have upon them (include any potential corrections or recommended adjustments). Any modifications or replacements of overhead sign structures will be included in this discussion.

Utilities

Address the existing utilities present within the roadway right of way and the impact that the proposed project will have upon them.

Detail Cost Summary

Provide a summary of the estimated construction cost after scoping for each course of action, list the number of lane miles within the project limits, and a price per lane mile.

Appendix A: Level One Design Criteria Checklists

Provide the Level One Design Criteria Checklists as shown in Attachment B. Note that there is a checklist for existing and proposed conditions. Design exceptions will not be allowed and all courses of action being presented in the scoping reports must have provisions to eliminate any design exception conditions as determined by the Engineer.

Appendix B: Final Design Criteria

Provide a summary of the design criteria utilized to evaluate and constrain the scope for each course of action. Use the format provided in Attachment B.

Appendix C: Public Involvement Public Comments

Include comments made at each meeting that solicited public comment. Provide response to each public comment that states how that comment was integrated into the project scope, or how that comment was used to affect the scope in some fashion.

Appendix D: Detail Cost Estimate

Estimates are to be as detailed as possible. They shall be developed using the most recent MDOT pay items and are to be provided in spreadsheet format. Individual pay item costs shall be rolled up into a construction cost estimate.

Appendix E: Detailed Design Hours Estimate

Estimates are to be as detailed as possible, attempt to breakdown hours per PPMS tasks.

Appendix F: Crash Analysis Data

Summary of countermeasure recommendation(s) that shall include each location's crash pattern and countermeasure individually listed along with the

associated ROW impacts (area and type) and construction cost estimate.

Appendix G: Field Notes & Photographs

Provide actual photographs and digital files (.jpg files on attached CD ROM) of the existing roadway and roadside conditions to document the needs as identified in the project scope. The photographs included in the documents shall be 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate mile point. No fewer than 8 and no greater than 24 photos per project location are required.

Appendix H: Base Sheets

Location Map: A location map shall show a map of the project area showing the roadway name, roadway number, project beginning, project ending, project length, major cross streets, interchanges and local municipalities affected. The Location Map shall be presented on a regular letter size paper (8 ½" x 11")

Typical Cross Sections: Prepare existing typical cross sections and proposed typical cross sections - generally one per standard cross section area (i.e. if the road changes from a three lane to a five lane section, a cross section for the three lane and for the five lane sections will be needed) for each course of action being presented as potential scope alternates.

The typical cross sections, for each standard cross section area, are to be created on 8 ½" x 11" sheets, with the existing typical cross section for the standard cross section area, drawn above the proposed typical cross section for the same standard cross section area.

The existing typicals for each standard cross section shall detail the existing conditions (pavement type, lane width, curb and gutter, shoulders, side slopes, ditch locations, setback to existing right of way limits, storm sewer/drainage structure locations, etc.). The proposed typicals for each standard cross section shall detail the proposed pavement treatments (cold mill, resurface or reconstruct, etc.). The proposed typicals shall also show new lane widths, curb and gutter/shoulders, drainage structures (new, adjusted or tapped into existing), storm sewers and ditches, etc. (See Appendix A for an example).

The MDOT reviewer, by viewing the typical cross sections, should be able to understand the existing pavement section, the proposed pavement section, and all of the work that is expected to implement the project. For example, if

additional right of way will be required, the typicals should provide a visual explanation as to why so that the MDOT reviewers can evaluate options.

Base Map: Generate a single Base Map, created electronically using the Micro Station design software and formatted as described in Section VIII. FORMAT, of the existing roadway using information from old plans, and/or, on site field reviews. The Base Map is used to visually describe the existing roadway within the limits of the project on one page. The project limits for this task shall be defined as the greatest of either 400 feet beyond the Point of Beginning (POB) and the Point of Ending (POE) or the limits needed to fully accommodate the maintaining traffic limits as determined in Attachment E. The detail of the Base Map is to include the location of existing roadways, bridges, railroads and cross roads. The Base Map is to show all existing features; i.e. edge of pavements, edge of shoulders, curb lines, drainage courses etc. and label all roads, railroads and drainage features. The Base Map is to represent existing conditions without showing proposed work.

An 11" x 17", a reduced size copy, of the electronically created base map, showing the entire project limits, on 1 page, is to be provided. If it is recommended that the project can be designed in log job format, then an 8 1/2" x 11", full size copy, of the electronically created base map, showing the entire project limits on one (1) page, is to be provided.

Maintenance of Traffic Typical Sections and Base Map: Requirements for these sheets are the same as for the corresponding sheets (typical sections and Base Map). All maintenance of traffic courses of action are to be detailed with sets of typical sections and base maps providing base detail of the course of action. Include narrative bullets on each sheet that describe the work occurring during the construction/traffic stage.

ATTACHMENT B
CS 11017 - JN 112949

| | | | | |
|-------------|--|--|-------------|--|
| Road | | | Design Unit | |
| Design Year | | | CS | |
| AADT | | | | |
| Date | | | JN | |
| | | | Page | |

Pre-Design Services on I-94 from I-196 to M-140

LEVEL ONE DESIGN CRITERIA CHECKLIST

The following format will be utilized to report conformance for existing and proposed conditions for the FHWA’S level one design criteria. No other format will be accepted. Calculations supporting these checklists will be provided in the “Supplemental Project Scoping Information” (see Attachment D).

FINAL DESIGN CRITERIA

The following format will be utilized to display the design criteria used to constrain the project scoping process. No other format will be utilized for this purpose. If additional design criteria are needed to fully convey the constraints of the design, they may be added to the table.

Level One Design Criteria Checklist – Existing Conditions

Enter the lane width provided, etc. in the appropriate column.

| Design Criteria (Provide numerical value for project, where indicated) | Reference | Do the existing conditions meet MDOT criteria? | | |
|--|-----------|--|----|-----|
| | | Yes | No | N/A |
| 1. Design Speed: Mainline: mph Ramps: mph | | | | |
| 2. Lane Width Mainline: ft Ramps: ft Auxiliary lanes: ft | | | | |
| 3a. Uncurbed Sections – Shoulder Width adjacent to: | | | | |
| Mainline: ft Ramps: ft | | | | |

Level One Design Criteria Checklist – Proposed Design

| | | | | |
|------------------|--|--|-------------|--|
| Road | | | Design Unit | |
| Design Year AADT | | | CS | |
| Date | | | JN | |
| | | | Page | |

Enter the lane width provided, etc. in the appropriate column.

| Design Criteria (Provide numerical value for project, where indicated) | Reference | Does proposed design meet MDOT criteria? | | |
|--|-----------|--|-----|-----|
| | | Yes | No* | N/A |
| 3. Design Speed: Mainline: mph Ramps: mph | | | | |
| 4. Lane Width Mainline: ft Ramps: ft Auxiliary lanes: ft | | | | |
| 3a. Uncurbed Sections – Shoulder Width adjacent to: Mainline: ft Ramps: ft Auxiliary lanes: ft | | | | |
| 3b. Curbed Sections – Curb Offset: Mainline: ft | | | | |
| 8. Bridge Clear Roadway Widths | | | | |
| 9. Structural Capacity | | | | |
| 10. Horizontal Curvature (minimum Radius) | | | | |
| 11. Super Elevation Rate | | | | |
| 8a. Stopping Sight Distance – Horizontal Curves | | | | |
| 8b. Stopping Sight Distance – Vertical Curves | | | | |
| 13. Maximum Grades | | | | |
| 14. Through Travel Lane Cross Slope ft | | | | |
| 15. Vertical Clearances | | | | |
| 16. Accessibility Criteria for Handicapped Individuals | | | | |

* If a design criterion is not met, documentation must be provided that the TSC is aware and has approved the project scope aware of the sub-standard item.

FINAL DESIGN CRITERIA

| ITEM | REFERENCE | STANDARD | EXISTING | PROPOSED |
|--|--|----------|----------|----------|
| DESIGN YEAR 2025 AADT | | | | |
| DESIGN YEAR 2025 COMMERCIAL AADT (%) | | | | |
| DESIGN SPEED (MPH) | MDM SECTION 3.06, 3.11.03 AASHTO TABLE X-1 | | | |
| DESIGN LEVEL OF SERVICE | AASHTO TABLE II-6 | | | |
| HORIZONTAL ALIGNMENT | | | | |
| MAX. DEGREE OF CURVE | MDM SEC. 3.03.01A | | | |
| MIN. LENGTH OF CURVE (FT) | MDM SEC. 3.03.01B | | | |
| MAX. DEGREE OF CURVE W/O SPIRAL | MDM SEC. 3.04.04 | | | |
| MAX. SUPERELEVATION (%) | MDM SEC. 3.04 & STD. R-107 | | | |
| MAX. ROLLOVER BETWEEN PAVEMENT AND SHOULDER (%) | STANDARD R-107 | | | |
| MAX. ROLLOVER BETWEEN PAVEMENTS CROSS SLOPES (%) | STANDARD R-107 | | | |
| VERTICAL ALGINMENT | | | | |
| MAX. PERCENT GRADE - UP (%) | AASHTO TABLE VIII-1 AASHTO P.922 | | | |
| MAX. PERCENT GRADE - DOWN (%) | AASHTO TABLE VIII-1 AASHTO p.922 | | | |
| MIN. PERCENT GRADE | AASHTO p.235 | | | |
| STOPPING SIGHT DISTANCE (FT) | STANDARD G-700 | | | |
| K-VALUE (CREST) | AASHTO EXHIBIT 3-76 | | | |
| K-VALUE (SAG) | AASHTO EXHIBIT 3-79 | | | |
| VERTICAL CLEARANCE (FT-IN) OVER PAVEMENT | MDM BRIDGE DESIGN SEC 7.01.08 | | | |
| VERTICAL CLEARANCE (FT-IN) | MDM BRIDGE | | | |

| | | | | |
|--------------------------------------|---|--|--|--|
| OVER SHOULDER | DESIGN SEC 7.01.08 | | | |
| CROSS-SECTION ELEMENTS | | | | |
| TOTAL NUMBER OF LANES | FIELD VERIFIED | | | |
| LANE WIDTH (FT) | MDM SEC. 3.07.A | | | |
| MEDIAN SHOULDER WIDTH (FT) | STANDARD R-110B MDOT PLANS | | | |
| RIGHT SHOULDER WIDTH (FT) | STANDARD R-110B MDOT PLANS | | | |
| MEDIAN SIDE SLOPE | MDM SEC. 2.03.01 MDOT PLANS | | | |
| RIGHT SIDE SLOPE | MDM SEC. 2.03.01 MDOT PLANS | | | |
| BACKSLOPE | MDM SEC. 2.03.01 | | | |
| DITCH WIDTH (FT) | MDM SEC. 4.04.02 STANDARD R-105 | | | |
| MIN. DITCH GRADE (%) | MDM SEC. 4.04.01 | | | |
| NORMAL CROSS SLOPE (PAVEMENT) (%) | MDM SEC 3.11.03.E, STANDARD R-107E | | | |
| NORMAL CROSS SLOPE (SHOULDER) (%) | STANDARD R-107E STANDARD R-110 | | | |
| MISCELLANEOUS | | | | |
| STOPPING SIGHT DISTANCE | AASHTO TABLE III-1 & MDOT DESIGN GUIDE VII-700 | | | |
| CLEAR ZONE DISTANCE (FT) | MDM SEC 7.01.11 | | | |
| RAMP TERMINAL DETAILS | STANDARD V11- 370 | | | |

ATTACHMENT C
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

Control Section 00000
Job Number 00000C
Structure Number S00
Date 00/00/00

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
- B. Anticipated work items for the upcoming month.
- C. Real or anticipated problems on the project.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
- E. Items needed from MDOT.
- F. Copy of Verbal Contact Records for the period (attached).

CS - JN

I-196 BL from M-140 to 73rd Street and M-43 from I-196 to I-196 BL in the City of South Haven, and South Haven Township, in Van Buren County

Scoping Schedule as of 00/00/00

| <u>Original Authorized Start Date</u> | <u>Original Authorized Finish Date</u> | <u>(Anticipated) or Actual Start Date</u> | <u>(Anticipated) or Actual Finish Date</u> | <u>Task Description</u> |
|---------------------------------------|--|---|--|--|
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Initial Project Meeting |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Maintaining Traffic Meeting |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Fieldwork and Documentation |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | First Local Coordination Letters |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Review/Check/Analyze Field Data |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Generate base map, base sheets, cross sections, and maintaining traffic typicals |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Perform crash analysis and determine countermeasures |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Prepare Maintaining Traffic Write Up |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Submit Utility Requests |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Submit Preliminary Scoping Report |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Scope Review Meeting |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Second Local Coordination Letters |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Submit Final Scoping Report |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Third Local Coordination Letters |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | Submit Final Deliverable Report |

SAMPLE

Control Section 12345
Job Number 11111C
Structure Number S02
Date:

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
1. During the last month we completed the Final Right of Way plans and submitted them to Mr. Project Manager on 00/00/00.
- B. Anticipated work items for the upcoming month.
1. Submit the Preliminary Plans and related material on 00/00/00.
 2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 00/00/00.
- C. Real or anticipated problems on the project.
1. We foresee no problems at this time.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.
- E. Items needed from MDOT.
1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.
- F. Copy of Verbal Contact Records for the period (attached).
1. Discussed bridge and ramp geometries with Traffic Safety Eng. of MDOT Traffic and Safety Division on 00-00-00.

VERBAL CONTACT RECORD

Control Section XXXXX

Job Number XXXXX

Structure Number N/A

Date 00/00/00

Joe Engineer talked to Joe Safety and decided to use a 0.05/ft super on ramp A leading into the bridge.

ATTACHMENT D
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

SUPPLEMENTAL PROJECT SCOPING INFORMATION

The following information is to be provided in notebook format after acceptance of the Final Scoping Report by the Project Manager:

1. **3R/4R Breakdown and Scope Conformance to Design Elements**
For the Preliminary Scoping Report, documentation shall include existing condition, treatment as per design standards, and proposed treatment. If the proposed treatment is not in accordance with the treatment as per design standard, an additional section shall be added entitled “Reason for not Meeting Design Standards”. This section shall provide documentation for the justification for not being in conformance.
2. **Project Concept Statement and Project Scoping Checklist**
Compute and verify all quantities necessary to complete the Project Concept Statement and Project Scoping Checklist for each of the projects (see Attachment I).
3. **Correspondence** (MDOT, Utility, Local, and Other)
Actual correspondence sent and received, organized by correspondent, in order of latest date first.
4. **Quantity Calculations**

ATTACHMENT E
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

DEVELOP MAINTAINING TRAFFIC CONCEPT

1. **Scope**

This procedure covers the development of a concept to maintain and control traffic during construction.

2. **Work Steps**

A. Review the type of construction task(s) included in the project.

B. Contact the Project Manager and request a meeting with the Coloma TSC Traffic & Safety Engineer and Delivery Engineer (allow a minimum of two (2) weeks for a meeting date to be determined). Review the traffic data and the project site to determine project specific construction zone traffic requirements. Requirements shall be consistent with the constraints identified at the meeting with the Coloma TSC Traffic & Safety Engineer. Any necessary or recommended exceptions shall be clearly identified and justification provided.

C. Prepare preliminary written recommendations for maintaining traffic. Items that **WILL** be included in the recommendations at a minimum are:

- 1) Constraints as identified by the Coloma TSC Traffic and Safety Engineer.
- 2) Method for maintaining traffic. Typical and non-typical areas shall be addressed. All areas where the pavement widths are narrower than typical shall be clearly noted and the recommendations for maintaining traffic shall address these areas.
- 3) Exceptions to constraints as identified by the Coloma TSC Traffic and Safety Engineer. Justification shall be required for any exceptions.
- 4) Need for detour, staging and/or flagging operation.
- 5) Need for temporary widening and/or shoulder upgrading.
- 6) Time constraints and laneage requirements (number and width).
- 7) Method for maintaining traffic at cross streets.
- 8) Local considerations (school buses, emergency vehicles, large traffic generators, etc.).
- 9) Need for temporary traffic signals (a minimum of two signal heads in view at all times).
- 10) Construction zone speed limits.
- 11) Special events (parades, festivals, etc.).
- 12) Recommendations for expedited construction.

D. Based on the preliminary written recommendation (developed above), prepare maintaining traffic typical. Typical shall be prepared using the existing typical

cross sections developed in item 11 under Section XI CONSULTANT RESPONSIBILITIES (GENERAL) as a base. Each of the items recommended in Section 2, Task C, of this attachment shall be superimposed onto those typicals.

- E. Submit the written recommendations for maintaining traffic as developed in Section 2, Task C, of this attachment and the maintaining traffic typicals as developed Section 2, Task D, of this attachment with the Preliminary Scoping Report.
- F. Receive any items returned by the Coloma TSC Traffic and Safety Engineer and/or from meetings at which maintaining traffic has been discussed, as incomplete or deficient and make the necessary revisions.
- G. Submit the revised recommendations and maintaining traffic typicals with the Final Scoping Report.

MAINTAINING TRAFFIC WORK SHEET

Author: _____ Return by (date): _____

Date Completed: _____

| Reviewed by: | <i>Initials</i> | <i>Date</i> |
|------------------------------------|-----------------|-------------|
| Coloma TSC Development Engineer | _____ | _____ |
| Coloma TSC Traffic/Safety Engineer | _____ | _____ |
| Coloma TSC Manager | _____ | _____ |

Project Location: _____

Job Number: _____ Control Section: _____

Type of Work: _____

Length of Project: _____

Number of Lanes: *Existing* _____ *Proposed* _____

Lane Widths: *Existing* _____ *Proposed* _____

Number of lanes during construction: _____ Lane widths during construction:

Shift traffic to shoulder during construction: *yes no*

Traffic regulator operation required: *yes no*

Length of traffic regulator operation: _____

Capacity of traffic regulator operation:

ADT: _____ a.m. peak hours: _____ p.m. peak hours: _____

Is capacity greater than peak hour volumes? *yes no*

Traffic Characterization (commuter, tourist, retail, industrial): _____

Load Restrictions: *Height* _____ *Weight* _____ *Width* _____

Other projects in vicinity? *yes no* MDOT ___ Local ___ Permits ___ Maintenance ___

Coordination clause required? *yes no* Clause written: _____

Project Description: _____

| Traffic Signal Locations | Loops | | Temporary/Permanent Modifications Required | | Contact Signals Unit | |
|--------------------------|------------|-----------|--|-----------|----------------------|-----------|
| | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |
| _____ | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> |

Railroad Crossings? *yes no*

Locations: _____

Railroad flagging special provisions needed? *yes no*

Pedestrians? *yes no* Pedestrian Counts: _____

Schools:

Transit Routes/Bus Stops? *yes no* CATA, EATRAN: _____

Locations: _____

Jurisdictions Affected (county, city, township, and municipality): _____

Local Contact Person(s): _____ Phone: _____

Local Ordinances: _____

Adjacent Recreational Facilities? *yes* *no*

Locations: _____

Major Traffic Generators:

Special Events (event, date, time, work restrictions, lane closure, restrictions, etc.): _____

Proposed Maintaining Traffic Scheme: _____

Best Practice Maintenance of Traffic Scheme? *yes* *no*

Work Restrictions (days/hours of operation): _____

Weekend Work? *yes* *no*

Staging: _____

Adjacent Alternate Routes Available? *yes* *no*

Alternate routes available: _____

Detour Needed: *yes* *no*

Proposed detour: _____

Advanced Signing (PCMS, static): _____

Locations of Advanced Signs: _____

Incentive/Disincentive: *yes* *no* Type: _____

Details:

User Delay Calculations Complete? *yes* *no*

User Delay Values:

Other Considerations:

ATTACHMENT F
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

Public Involvement Schedule

Engagement of municipalities, townships, and other stake holders will take place in step with the scheduled review steps. The CONSULTANT will collaborate with MDOT on identifying the appropriate engagement of stakeholders beyond information sharing to be accomplished with review steps.

ATTACHMENT G
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

Preliminary Utility Information Submittal

Submittals to all of the utility companies are to include:

1. A completed MDOT approved form to be provided by the Coloma TSC Utility and Permit Engineer.
2. Two (2) copies each (except for Consumers Energy that requires four (4)) of the following:
 - o Location Map
 - o Base Map
 - o Base Sheets

Utility information is to be marked on the provided sheets and returned to:

MDOT Utility Coordinator: MDOT - Coloma TSC
Jarrett Burgess, Utility & Permit Engineer
3880 Red Arrow Highway
Benton Harbor, MI 49068

Requests for preliminary utility information are to be mailed prior to the delivery of the Final Scoping Report. Receipt of mailing and a copy of the completed MDOT approved form to be included with the Final Scoping Report, along with a list of all of the utility companies contacted.

MDOT is to provide the CONSULTANT with a list of the utility companies present within the control section(s) of the project.

ATTACHMENT H
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

Project Concept Statement / Project Scoping Checklist

The MDOT Project Scoping Checklist will be completed as a CONSULTANT task.

ATTACHMENT I
CS 11017 - JN 112949
Pre-Design Services on I-94 from I-196 to M-140

Draft and Final Crash Analysis Reports

The Consultants shall provide MDOT with a Crash Analysis Report which shall detail the safety performance of the project location (includes not only the mainline but all ramps, major and minor intersections and crossovers within the project limits) and provide detailed graphic depiction of countermeasures and cost/benefit analysis for crash concentration locations. The Crash Analysis Report shall at a minimum compare the project location features (mainline, ramps, major intersections, minor intersections and crossovers) to regional averages, identify crash concentration locations, examine crash concentration locations for crash patterns and provide countermeasures for correctable crash patterns. The Consultants shall combine a thorough review of computer-based crash records with field reviews of the roadways characteristics (geometric and operational features shall be specifically noted) to identify crash concentration locations. Crash diagrams shall be provided for the crash concentration locations. The Consultants shall provide a Draft Crash Analysis Report and upon review and comment by MDOT, the Consultants shall make any changes identified and submit a Final Crash Analysis Report.

The Consultants shall review and analyze the most recent five years of MDOT crash data. For the analysis, the Consultants shall stratify the data by location and the crash data shall also be aggregated by similar roadway segment characteristics. The Consultants shall quarry SEMCOG to determine regional crash averages which will provide a normative measure of comparison to aid in the identification of crash concentration locations.

The Consultants shall identify crash concentration locations and determine crash patterns. Based on the crash patterns identified for each crash concentration location the Consultants shall develop proposed crash countermeasures. The countermeasures shall be graphically depicted, to scale, with sufficient detail to determine the countermeasures impact to the existing roadway and the proposed roadway improvement.

The countermeasures may range from simple sign / marking / signal modifications up through substantial reconstruction. The Consultants shall present countermeasures stratified into short and long-term solutions. The Consultants shall provide a construction cost estimate for each countermeasure using MDOT Pay Items and shall clearly identify any right-of-way impacts a countermeasure may have. The Consultants shall provide a full cost/benefit analysis for each countermeasure. The Consultants shall also evaluate the crash impacts on design exceptions sought.

Develop a Time of Return (TOR) analysis for each countermeasure using the MDOT TOR format as provided by the MDOT Region Traffic Safety Engineer.

This information shall be included in the appropriate area of the Attachment A.

ATTACHMENT J

CS 11017 - JN 112949

GENERAL DESCRIPTION OF BRIDGE SCOPING WORK

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

A. SITE REVIEW

1. General

Each bridge must be visited by the CONSULTANT PM. The purpose of this visit is to locate all areas of deterioration, determine feasible repair options, associated approach work, maintenance of traffic options, and 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).

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 that will be evident in the photographs. (Delaminations are to be marked with chalk or Kiel, per the direction of the MDOT

PM.) All delamination surveys are part of the site review work (not part of testing). If a substructure unit needs to be replaced, a plan view of the substructures must be made showing the specific location of the areas to be replaced. The approximate size and location of areas needing substructure patching should also be shown on a sketch of the substructure unit.

The underside of the deck must be sounded whether there is any evidence of deterioration or not. Pictures of the area must be taken and a written description of the deterioration and location must be documented for

inclusion into the report.

- (2) Note the type and condition of the bridge railing. Is the railing up to standard? 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.
- (3) All dirt, debris, and rust scale must be removed 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 12 inches of the end of the beam. 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. 5**, Beam End thickness Table) and sketches will be prepared, of major components, showing the location of the deteriorated areas. These are to be freehand 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.
- (4) 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. Areas of section loss are to be sketched showing location and dimension.
- (5) The vertical clearance of the bridge must be field verified, noted on the checklist and stated in the report. Point out any evidence of high load hits. A picture of any vertical clearance signs attached to the bridge must be taken. If the bridge has less than the minimum vertical clearance, as defined in the current MDOT Bridge Design Manual (note the section regarding minimum underclearance on "Special Routes"), then this must be considered in selecting the repair option and the options to correct the situation stated in the report. Keep in mind that raising the grade of the bridge to obtain acceptable underclearance will require additional approach work.

if

additional
roadway width and

- (6) The width of the structure must be evaluated to determine widening is necessary to upgrade the structure to current standards (refer to the MDOT Bridge Design Manual), or for maintaining traffic during construction. The CONSULTANT will describe how and where the widening is to take place and provide a plan view sketch showing the proposed widening. Widening may also require approach work to transition between the the new bridge width.
 - (7) The CONSULTANT must determine if part-width construction is possible or if the entire crossing must be closed and a detour used. The CONSULTANT must contact the TSC Traffic and Safety Engineer for assistance estimating the costs for maintaining traffic. Final detailed traffic control costs for construction will be reviewed by the TSC and MDOT PM.
 - (8) Any work required for the approaches must be included in the report and these items accounted for on the Estimate Sheet. Note that widening the bridge or raising the grade to obtain minimum underclearance will require additional approach work. Please include these associated costs in the scoping cost estimate.
- b. 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. Are they welded or bolted?
 - (4) Poor alignment or geometrics.
 - (5) Bank erosion or scour. Unusual channel features.
 - (6) Railroad tracks that have been removed from over or under the bridge.
 - (7) Proximity of other bridge structures.
 - (8) Is drainage sufficient? Any evidence of ponding on structure?
 - (9) Is Right-of-Way limited and might additional ROW or easements be required?

c. 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 (e.g., non-redundant or fracture critical)?
- (3) Are there environmental issues that may impact the project?
- (4) If the structure is a pedestrian bridge, does it's geometrics meet current ADA Guidelines? If not, consider what repair options would be necessary to meet the guidelines set by the ADA.

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 measurements) to the MDOT PM as quickly as possible.

2. Scoping Checklist and 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. An initial determination is to be made in the field and the Scoping Checklist completed accordingly. A blank Bridge Scoping Checklist (**Attachment No. 3**) is attached and must be completed before leaving the field.

The following are the types of repair options that are to be considered (See ENGINEERING ANALYSIS for more discussion about the option choices):

- a. "Hold", or defer work three to five years
- b. Selective repairs
- c. Overlay
 - (1) Concrete overlay (Deep or Shallow)
 - (2) Asphalt overlay with waterproofing membrane
 - (3) Thin epoxy overlay
- d. Deck replacement
- e. Superstructure replacement
- f. Bridge removal or replacement

The Bridge Deck Repair Matrix (**Attachment No. 2**) must be consulted for reasonable deck repair options based on the condition of the deck surface and

soffit.

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 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 a typical of the bridge railing and joints).
- c. Approaches.
- d. Underside of deck (to sufficiently show condition of soffit).
- e. Typical superstructure elements (beams, bearings, pin and hangar, etc.).
- f. Abutments, including slope protection.
- g. Piers.
- h. Waterways / railroad tracks.
- i. Major deteriorated areas.
- j. Load posting signs.
- k. Vertical clearance signs.
- l. Utilities.
- m. Quadrant photos, showing businesses or other items that could affect the cost of the construction.

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. These photos will be taken after the deck delamination survey and the areas of delamination are expected to show clearly in the photo.

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. Advance 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; 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.

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 Repair Options. For example, if deck replacement is determined in the field to be the most appropriate repair option, the engineering analysis will also be performed on 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., insufficient structural capacity, underclearance, width, etc.). Analysis of the load carrying capacity of the bridge will not be required.

If the final recommended repair option is different from the one determined in the field, a second Scoping Checklist for the final recommendation will be completed and included in the report.

1. 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 (**Attachment No. 4, Bridge Cost Estimate Worksheet and Key**). The updated Estimate Sheet, on 8 1/2" x 11" paper, will be provided by MDOT PM. Calculations for the paint area will be prepared by the CONSULTANT and included in the Appendix of the report.

It is recommended that a line item be provided on the Cost Estimate for "bridge aesthetics", in the amount of 1% of the construction estimate (before mobilization or inflation is figured in).

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, and a description of what is included in the unit price can be found in the "key". 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 or Linda Reed, Bridge Scoping Engineer in Construction and Technology at (517) 322-5622. Questions regarding utilities and scour are to be directed to MDOT PM.

C. REPORT

The deliverables for this scope of work will be the reports, photographs, printed worksheets, sketches, and notes. The electronic files will be submitted for the entire estimate sheets included in the report on CD.

For each bridge, a 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 recommendations for each bridge. Two sets of each binder will be submitted, first in draft form, then revised as necessary and submitted in final form.

The Report will be submitted in two phases: draft version and final version. The draft report will be a complete report, with 3 copies (without binder) submitted to the MDOT PM. These will be reviewed by the Region MDOT PM, Lansing Bridge Scoping Engineer and TSC Manager. Comments and questions arising from those reviews will be given to the CONSULTANT to be incorporated into the final report if appropriate or addressed separately and submitted with the final report.

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.

1. Table of Contents

For complete document.

2. General Site Review Procedures

This section will summarize the general procedures used during the site reviews. This information will include a table showing the site review dates for each bridge, typical equipment used, typical traffic control procedures, typical site review procedures, etc. Any significant variations from this typical information can be stated under the section for a specific bridge.

3. 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.

4. Field Site Review Findings

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

- a. Overall assessment of the condition of the bridge including an evaluation of the beam end thicknesses (webs and bottom flanges) taken during the site review.
- b. 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.
- c. Testing results and implications to the repair options. If no testing was performed, this will be stated in the report.
- d. The following outline may be used for a consistent presentation format for the body of this section of the report:
 - (1) Approaches
 - (2) Deck (surface, soffit, joints, sidewalk, and railing)
 - (3) Superstructure (beams, diaphragms/cross frames, paint, bearings, pin and hangar)
 - (4) Substructure (abutments, wingwalls, piers, slope
scour)
 - (5) Site Issues
 - (a) Maintaining Traffic
 - (b) Geometrics
 - (c) Vertical Clearance
 - (d) Signs
 - (e) Utilities
 - (6) Material Testing

protection,

5. Rehabilitation Options

This section will include a discussion of the rehabilitation options, as described in Sections Scoping Checklist and Determining Repair Options. For each option

evaluated, a discussion of the necessary improvements and the associated costs (initial construction 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.

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

6. 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.

7. Maintenance Strategies

This section will state the recommended actions to further extend the life of the bridge and ensure the safety of the structure before a major repair project scheduled.

8. Appendix

- a. Mounted photos with descriptions
- b. Scoping Checklist(s)
- c. Estimate Sheets
- d. Field notes and sketches, including sketches of beam end repair areas, substructure repair areas, and widening options.
- e. Paint calculations
- f. Table of beam end thickness readings

The CONSULTANT will be responsible for obtaining and operating the high reach equipment for inspection under the bridge. During the inspection, the CONSULTANT is responsible for traffic control and all aspects of personal safety of his or her staff. Traffic control will follow standard MDOT procedures.

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

XII. APPENDICES

- A. ATTACHMENT NO. 1 - Bridge Scoping Project List
- B. ATTACHMENT NO. 2 - Bridge Deck Repair Matrix

- C. ATTACHMENT NO. 3 - Bridge Scoping Check List
- D. ATTACHMENT NO. 4 - Bridge Cost Estimate Worksheet and Key

ATTACHMENT NO. 1 BRIDGE SCOPING PROJECT LIST

| Bridge ID | Year Built | Facility Carried | Features Intersected | Freeway | Inspection Date | Comments |
|-----------|------------|------------------|----------------------|---------|-----------------|----------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

ATTACHMENT NO. 2 BRIDGE DECK PRESERVATION REPAIR MATRIX

| CONDITION STATE | | | | REPAIR OPTIONS (c) | POTENTIAL RESULT TO NBI | | Next Anticipated Evaluation |
|------------------------|---------------------------------|------------------|-----------------------------------|--|--------------------------------|-------------------------------|-----------------------------|
| Deck Surface NBI # 58a | Deck Surface Deficiencies % (a) | Deck NBI # 58 | Deck Underside Deficiencies % (b) | | Item # 58a Deck Surface Rating | Item # 58 Overall Deck Rating | |
| N/A | N/A | N/A | N/A | CSM Activities | No Change (d) | No Change (d) | 1 to 8 years |
| NBI = 5, 6, 7 | 2% to 5% | NBI > 5 | N/A | Deck Patch / Seal Cracks | Up by 1 pt. | No Change (d) | 1 to 8 years |
| | | | | Epoxy Overlay | NBI now 8, 9 | No Change | 10 to 15 years |
| | | NBI ≤ 5 | N/A | Deck Patch | Up by 1 pt. | No Change | 1 to 8 years |
| | | | | Hold | No Change | No Change | 3 to 10 years |
| NBI = 5 | 5 % to 15% | N/A | | Hold | No Change | No Change | 3 to 10 years |
| | | | | Deck Patch | Up by 1 pt. | No Change | 1 to 8 years |
| NBI = 4 or 5 | 15% to 30% | NBI = 5, 6 | < 10% | Deep Concrete Overlay | NBI now 8, 9 | Up by 1 or 2 pts. | 25 to 30 years |
| | | NBI = 3 or 4 | 10% to 30% | Shallow Concrete Overlay | NBI now 8, 9 | Up by 1 pt | 10 to 15 years |
| | | NBI = 2 or 3 | > 30% | HMA Overlay with waterproofing membrane(e) | NBI now 8, 9 | No Change | 8 to 10 years |
| NBI = ≤ 4 | >30% | NBI ≥ 5 | < 5% | Deep Concrete Overlay | NBI now 8, 9 | Up by 1 or 2 pts. | 20 to 25 years |
| | | NBI = 3, 4, or 5 | 5% to 30% | Shallow Concrete Overlay | NBI now 8, 9 | Up by 1 pt | 10 years |

| | | | | | | | |
|--|--|--------------|-------|--|--------------|-----------|--------------|
| | | | | HMA Overlay with waterproofing membrane(e) | NBI now 8, 9 | No Change | 5 to 7 years |
| | | NBI = 2 or 3 | > 30% | Replace Deck | NBI now 9 | NBI now 9 | 40+ years |
| | | | | HMA Cap (f) | NBI now 8, 9 | No Change | 1 to 3 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.) Sustains the current condition longer.
- e.) Hot Mix Asphalt overlay with waterproofing membrane. Deck patching required prior to placement of waterproofing membrane.
- f.) Hot Mix Asphalt cap without waterproofing membrane for ride quality improvement. Deck must be replaced in 1 to 3 years and be in the 5 year plan.

Bridge Deck Repair Matrix.wpd

August 15, 2003 Rev.

BRIDGE DECK REPAIR MATRIX USER GUIDELINES

This matrix is a tool for Bridge Engineers to use in the selection of deck repair options. The condition of the deck is usually the driving force, or the key indicator, leading to a structure being considered for rehabilitation or replacement. However, there are times when other issues affecting the bridge may elicit the need for a rehabilitation 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 delaminating 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.

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 the best knowledge of individuals from Construction & Technology, Maintenance, and Design Support Areas, and FHWA with many years of experience working with bridges. When used in conjunction with the Bridge Inspection Report and 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 Departments goals.

ATTACHMENT NO. 3 BRIDGE REHABILITATION SCOPING CHECKLIST ---OPTION

Scoping Engineer _____ Structure
 Number _____
 Route & Location _____ Date _____

Primary Repair Strategy _____ Priority _____

Structure Type _____ Proj. Dev. Engineer _____ Region _____

Length _____ ft Width _____ ft

| | | | |
|--------------------------------------|--------|-----------|-----------|
| D e c k A r r a | Web | Tail Span | Main Span |
| | Flange | | |
| | Length | | |
| | Numbe | | |
| | | _____ sft | |

NEW BRIDGE

_____ Total bridge replacement. New size; Length _____ ft, Width _____ ft, Lanes _____.

DECK REHABILITATION

- _____ Patch isolated spalls. _____ sft. Measured surface spalls & delams. _____ sft or %
- _____ Replace expansion joints. _____ ft.
- _____ Polymer overlay. _____ sft.
- _____ Bituminous cap. Bridge railing? _____ ft. (Only when deck replacement is scheduled within two years.)
- _____ Asphalt overlay with waterproofing membrane. Estimated patch area _____ sft. Railing? _____
- _____ Concrete overlay. Deep? _____ Shallow? _____ Railing? _____ Full depth patching? _____ sft.
- _____ Replace deck slab. Salvage existing beams.
- _____ Widen deck _____ ft on existing substructure; _____ ft extend substructure units.
- _____ Replace entire superstructure.
- _____ Other, describe;

SUPERSTRUCTURE REHABILITATION

- _____ Beam end repairs. Concrete _____ sft. Steel _____ sft.
_____ Reinforce deteriorated members with plates and/or angles. See notes.
_____ Replace pin & hanger assemblies.
_____ All pins & hangers. Total _____
_____ Selected pin & hangers. Location _____
_____ Paint complete structure. _____ sft.
_____ Zone paint under joints. _____ sft.
_____ Replace bearing assemblies. _____ ea. See notes.
_____ Realign rockers. _____ ea. See notes.
_____ Other, describe; _____

SUBSTRUCTURE REHABILITATION

- _____ Patch spalls
_____ Abutments. _____ sft.
_____ Piers. _____ sft.
_____ Other, describe; _____

MISCELLANEOUS REHABILITATION

- _____ Scour analysis required?
_____ Scour repairs. See notes.
_____ Replace approach pavement. 40 ft each end typical.
_____ Repair slope protection. _____ sft.
_____ Parks or business concerns. See notes.
_____ Other, utilities, signs, etc. Describe; _____

SAFETY UPGRADING

- _____ Replace bridge railing. _____ ft, measure each side separately.
_____ Block out existing railing with thrie beam guardrail. _____ ft. Measure as above.
_____ Upgrade approach guardrail _____ ft & anchorage, or _____ quads.
_____ Add concrete barrier between pier columns. _____ ft.
_____ Add guardrail for pier protection. _____ ft.
_____ Other, describe; _____

MAINTAINING TRAFFIC RECOMMENDATIONS

- _____ Part width construction.
_____ Maintain _____ lanes over. Maintain _____ lanes under.
_____ Upgrade _____ ft of shoulders.
_____ Detour, describe; _____ . Upgrade
_____ _____ miles of detour route.
_____ Other,
describe; _____

**ATTACHMENT NO. 4 BRIDGE REPAIR COST ESTIMATE WORKSHEET
- KEY -**

ATTACHMENT NO. 5 – Beam End Thickness Table

Region will provide a updated copy.

