



Project Scoping and Package Requirements

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Chapter 7: Project Scoping and Package Requirements

Introduction

Checklists for complete scoping



Several checklists to use

The purpose of this chapter is to help educate and create an understanding of the importance of a detailed scope and to give examples of items that are often overlooked in the scoping process.

In addition, the Scoping Report & Details Worksheet has been structured to allow the estimator to go through the scoping process in an organized fashion and collect or consider the information required for the estimate. This information will be used during the estimating, planning and decision making process of scoping. The information will be filed in ProjectWise and will then be summarized and noted for the scoping package.

Checklists

To assist in the scoping process, several checklists have been developed. Road Scoping Report & Details Worksheet, Bridge Scoping Report & Details Worksheet, Road CPM Scoping Report & Details Worksheet and Bridge CPM/CSM Scoping Report & Details Worksheet. These checklists will enable an individual to proceed through the scoping of a project in a productive and systematic manner while minimizing errors.

Where to find checklists



Checklists have been developed to assist in scoping projects, ensuring that all documents required in a scoping package are included and provide guidance for items to be reviewed during the scoping process. The checklists discussed can be found in Appendix B.

Each checklist shall be completed with the option of providing additional information and documentation where needed. Information in this chapter has been added to help guide the user. Completing each checklist that is applicable to the project/template being scoped is critical to the successful completion and approval of the scoping package.

If Innovative Contracting Concepts are considered, additional information is to be placed within the checklist. This detailed information should be placed in the space labeled "*Other General Notes on Proposed Improvement*", under the Proposed Work (typical) section, on each checklist.

The Scoping Package Master Checklist

Function of the Scoping Package Master Checklist



The Scoping Package Master Checklist is required for every project scoped. This checklist provides the information to be included in each scoping package and the order of the scoping package contents. Utilizing the checklist ensures uniformity in all scoping packages. This checklist provides spaces for signatures for reviews and approvals.

Identification Conventions

A Control Section (CS) is assigned to every section of a roadway in which MDOT has jurisdiction. The first two digits of the CS indicate which county the roadway is located in. Every project has at least one CS. The major CS associated with a job is the one having the most amount of work, based on largest amount budgeted for the work and/or length in route miles. Once a CS is selected as major, all other control sections associated with that job, are considered to be minor. A Major CS should not be revised after plan completion since it is referenced in the construction contract process as part of the Contract ID.

A Physical Reference (PR) number is another way to identify a section of roadway. All roadways have a PR number assigned to them.

MDOT bridges are identified by specific coding. Bridges are Y## of XXXXX where:

- Y designates the type of crossing
 - S = Grade Separation
 - B = Structure over Stream
 - R = Road over Railroad
 - C = Culvert (10-20 feet)
 - X = Railroad over Road

designates the bridge number
 XXXXX designates the Control Section (CS) where the bridge is located.

Cost

Once the project estimate has been completed, all of the costs for the project shall be summarized on the Statewide Scoping Package Master Checklist. These costs include Preliminary Engineering (PE), Construction, Construction Engineering (CE) and Right-of Way. Refer to Chapter 8 of this manual for guidance in estimating project costs.

Roadway and Bridge Condition Indicators

Remaining Service Life (RSL) is the estimated number of years, from a specified date in time, until a pavement section reaches the threshold distress index. The RSL is a function of the distress level and rate of deterioration. This information will be included on the Statewide Scoping Package Master Checklist, for the roadway segment associated with the project. See Chapter 4 of this manual for additional information.

Fix life – how long fixes will last Fix Life is the anticipated pavement life provided by the fix, excluding any future preventive maintenance treatments. The Fix Life applies to Road and Road CPM projects as well as substantial lengths of roadways modifications on Bridge projects. The Fix Life does not apply to Bridges or Bridge CPM/CSM projects.

How to calculate RSL at Construction

RSL at Construction is a theoretically projected RSL value calculated by first determining the number of years from the year of the existing RSL value to the proposed year of construction and then subtracting that value from the existing RSL value. For example, if a segment of road has an existing RSL of 5 years in 2008, and an improvement is programmed in year 2013, the RSL at construction is 0 years (5-5 = 0).

The Sufficiency Rating information for the section(s) of roadway will also be included on the Statewide Scoping Package Master Checklist. See Chapter 4 of this manual for additional information.

In addition, the National Bridge Inspection (NBI) rating will be shown on the Statewide Scoping Package Master Checklist - Bridge and Statewide Scoping Package Checklist - Bridge CPM/CSM. For additional information on the NBI rating see Chapter 4 of this manual.

Project Scoping Document Package (revised 6-24-2019)

This section of the Statewide Scoping Package Master Checklist includes a list of all the items that should be reviewed and included in the completed scoping document. Once an item is included in the final scoping document it may be checked off the list. The items to include in a scoping document may vary by template; therefore the checklist is also spilt by template. The items listed to be included in the scoping package correspond to the folders in ProjectWise where each item is to be filed.

Project Quantity Spreadsheet (PQS) will be the tool to itemize the project quantities, and AASHTOWare Project (AP) Preconstruction will be the tool used to estimate the project at the scoping phase. Refer to Chapter 8 of this manual for more information on estimating projects and the use of PQS and AP Preconstruction.

Not all items listed on the checklist will be available or applicable to the project being scoped, therefore a box marked NA appears on the checklist. For example, when a project is scoped for the first time, there will not be any Previous Call For Projects Information available to include in the scoping package.

Photos

The value of photos

The inclusion of photos, or video, in the scoping document is very useful. Certain items lend themselves more readily to photos and should be included in the scoping document. Other photos are helpful but not necessary and they may also be included in the scoping document. The photo log photos can be a valuable tool and maybe printed and included in the package. Color photos are not required, but often add clarity and detail to the item being photographed. Some items that should be photographed include (see Scoping Report & Details Worksheet):

Examples of helpful photos

- Areas showing unusual deterioration or distress relative to the remainder of the road, bridge or culvert
- Areas with erosion issues or slope stability concerns
- Sample pictures of roadway and/or shoulder condition

- Areas of proposed work for roadways, needed to describe or show the relative location of the feature (i.e. intersections, drives, guardrail, drainage structures, culverts, tree lines, sidewalks (or worn paths indicating evidence of pedestrian activity, bridge, bridge railing, bridge approach(es), utilities, ditches, waterways, building location relative to ROW/roadway, signs, ROW fence, etc.)
- Areas of proposed work for structures (i.e. elevation views (both sides of bridge), deck surface, joints, railing, approaches, underside of deck, superstructure elements (beams, bearings, pin and hanger, etc.), substructure abutments (including slope protection) and piers, waterways/railroad tracks, signs (Vertical clearance signs, load posting signs) and quadrant photos)
- Deck surface photos (if required) shall be an "aerial view" taken from a height of at least 12 feet above the surface of the deck.

How to annotate the photos Identification of each photo is important. Where was the photo taken? What direction was the photo taken? What was photographed or what was the purpose of the photo? If the photo is of a culvert, what size is the culvert? The date a photo was taken is important information to provide.

Bridge Scoping Report (revised 6-24-2019)

This section identifies the items and order of those items that comprise the Bridge Scoping Report. The Bridge Scoping Report is a separate document that is prepared during the scoping phase (for review by Lansing C&T) and included in ProjectWise, with all the documents and items listed on the checklist.

The Bridge Scoping Report consists of five sections and an appendix. The sections are the:

- Executive Summary
- Field Site Review
- Rehabilitation Options
- Summary of Repair Recommendations
- Maintaining Traffic/Mobility Summary

The Executive Summary includes 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 reference other sections of the report, but will summarize the content of the other sections.

The information to be included in the Executive Summary shall be as follows:

- Recommended repair option and cost
- The general condition, and NBI ratings for item 58A (deck surface), item 58B (deck underside), item 58 (deck), item 59 (superstructure) and item 60 (substructure), with any of the recommended NBI ratings that may apply (based on the detailed scope evaluation that may differ from the latest rating provided) in parentheses.
- The percent of each type of deficiency (spall, delamination and map cracking) of the deck surface, deck underside and

substructure units. State if recommended repair option is consistent with the Bridge Deck Preservation Repair Matrix and justification why or why not.

- Eligibility for FHWA funding and current sufficiency rating. State whether structure is on or off the National Highway System (NHS).
- The field measured existing vertical underclearance and any utilities (that are) on the structure

The Field Site Review section will include, as a minimum, discussion of the following areas:

- Overall assessment of the condition of the bridge including an evaluation of the beam end thicknesses (webs and bottom flanges) taken during the site review. State percent deck surface and underside deficiencies.
- Sketches of beam end repair areas, all substructure elements showing repair areas for all faces and typical deck sections for widening options.
- Site issues, such as geometrics, vertical clearance, maintenance of traffic, utilities, scour, etc. In cases where no site issues that impact the rehabilitation of the structure were identified, a statement will be made that all areas were investigated, and no issues were found.
- Any testing results and implications to the repair options. If no testing was performed, this will be stated in the report.

The Rehabilitation Options section of the report will include an evaluation of the site review findings, the preparation of and evaluation of a minimum of three repair strategies, including the preparation of cost estimates and finally the selection of the best repair option. For each option, a discussion of the necessary improvements and the associated costs will be included. The report must discuss and state the reasoning and judgment for selection of the recommended option. This discussion will also include the reasoning for the elimination of all other options, as appropriate.

For the deck replacement, superstructure replacement and bridge replacement options, it is necessary to address eliminating or correcting undesirable or deficient design characteristics (i.e. structural capacity, minimum underclearance, stopping sight distance (SSD), horizontal clearances, capacity, functional operation, multi-modal accommodations, etc.). Early coordination with FHWA, on potential oversight (3R & 4R NHS) projects, will help with the proposed scoping. In addition, the roadway geometrics should be reviewed with any 4R bridge work so that the bridge does not preclude bringing the road system to standard with the current project or future road projects. Reference to the Bridge Deck Preservation Repair Matrix is to be made, and justification as to agreement or disagreement with the rehabilitation option outlined by the Bridge Deck Preservation Repair Matrix.

The Summary of Repair Recommendations will state the recommended rehabilitation for the structure and the factors used in determining this recommendation. This section will also briefly discuss the effects of postponing the recommended improvements.

The Maintaining Traffic/Mobility Summary will include a discussion of the various options reviewed to maintain traffic, during construction, and a summary of the results mobility analysis and review that was done for the preferred maintaining traffic scheme.

The Appendix content and order for the Bridge Scoping Report are shown in Section II of the Statewide Scoping Package Master Checklist – Bridge.

General Information and Background

The contents of the scoping package must be placed in ProjectWise (including Bridge ID numbers), see Chapter 10 of this manual for additional information on the setup of ProjectWise folders. If the project being scoped is to be packaged with other projects for design and/or construction, these other projects should be noted on the Statewide Scoping Package Master Checklist.

Additional CS and PR Box

Occasionally a project may have more than one set of identification controlling numbers. When this situation occurs, the major CS or PR number will be shown on the first page of the Statewide Scoping Package Master Checklist. All secondary CS and PR numbers or other information relating to the project location shall be shown (and listed) in the comment box, on page two of the checklist and will be beneficial for project estimating.

The Road and/or Bridge Scoping Report & Details Worksheet

The function of the worksheet and where it is stored



The Scoping Report & Details Worksheet (Road, Bridge, Road CPM or Bridge CPM/CSM) is a working document that is used to assemble the existing and proposed project data. This document details the information collected and provides a single place to record the information for inclusion in the scoping package. The worksheet contains areas for notes and sketches (electronic typicals can be inserted). The Scoping Report & Details Worksheet is required for each project scope and is included in the project files, as well as in ProjectWise.

Anytime a reference is made indicating left or right, this should be referenced in the direction of stationing, which does not always correspond to the direction of traffic.

Some specific sections of the Road CPM or Bridge CPM/CSM Scoping Report & Details Worksheets may not apply to the project being scoped. For these sections, the "Not Applicable?" box on the worksheet may be checked and that section can then be skipped.

Job and Scoping Package Information

Section I is a brief general overview of the project and provides the where (control sections and locations), the who (scoped and reviewed the package) and the what (executive summary and typical) for the proposed project.

Executive Summary

Section II provides a general description of the project. Items generally summarized here will range from the type of work being proposed to any special circumstances that will be considered within the project limits. For bridge projects, this section is similar to the executive summary included in the Bridge Scoping Report and information may be copied and pasted from the worksheet to the Bridge Scoping Report.

Typical Cross Sections

Section III provides space on the worksheet that will enable the estimator, scoper and/or scoping team to make sketches of the existing roadway or bridge approach typical section while out in the field. Existing typical sections may also be obtained from old plans and copied and pasted into the worksheet. The proposed typical section may be a sketch made while in the field or may be an electronic drawing and inserted into the checklist. The typical sections are to aid in estimating the proposed project, by providing a visual of the existing material and proposed materials.

Existing Conditions (revised 6-24-2019)

Section IV of the checklist provides a place to list the details about the various existing design elements (i.e. lane widths, lane usage, pavement section, geometric details, bridge railing type, deck condition, multi-modal accommodations, etc.) which should be reviewed as part of the scoping process. Existing information is an essential part of a project scope and is the foundation in which a project scope is started. Therefore, it is critical that this information be complete and accurate. The information found in the existing conditions section of the worksheet is often used throughout the life of the project, from the scoping and estimating to design and construction.

Proposed Work

Section V is where the details for the proposed design elements will be listed (i.e. lane widths, lane usage, pavement section, geometric details, proposed deck rehabilitation, superstructure rehabilitation needs, etc.). This section of the checklist will aid in the development of the scoping estimate and will prompt the scoping engineer to think about the work that is to be performed and how it relates to the existing conditions.

In Section V-A of the Road and CPM worksheet, list all work type(s) and the related fix life(s) within the project limits. In addition, list what various fix types were considered during the scoping process, even if

later in the scoping process these alternatives were eliminated to meet the Region and/or Statewide goals.

Additionally there is an area provided to indicate the proposed density criteria for the Hot Mix Asphalt (HMA) shoulder area. It is important for the density requirement for the shoulder to be determined and documented, during the scoping process. This will ensure that the shoulder design is for the right purpose (i.e. resurfacing or rebuilding for mobility). This information is not necessary for the Road CPM or Bridge CPM/CSM Scoping Report & Details Worksheet.

If the existing shoulder is being used and it was constructed to the current standard (determined by coring and measuring the HMA/ aggregate/ subbase thicknesses), then 92% density shall be required and attainable regardless of intended use. If the existing shoulder was not built to the standard (current standard at time of construction) then 90% should be required and attainable regardless of intended use.

Innovative Contracting Concepts

If Innovative Contracting Concepts are considered, additional information is to be placed within the checklist. This detailed information should be placed in the space labeled "*Other General Notes on Proposed Improvement*", under the Proposed Work (typical) section, on each checklist.

Drainage Information to Gather (Existing and Proposed)

The following information is to assist the scoper in completing the drainage portions (existing and proposed) of the Road or and Bridge Scoping Report & Details Worksheets and does not appear on the Road CPM or Bridge CPM/CSM Scoping Report & Details Worksheet:

Culverts

- Obtain as-built records.
Review type of soils, culvert existing foundation condition (material), length, size and location. Compare current conditions to existing plans.
- Review repair history and/or any previous inspection reports (see the specific TSC Maintenance Coordinators and the TSC Development Manager). Additional information from the Hydraulics Unit may be available.



If repairs have not addressed the problem, identify what the issues are. Document the problem in the Culvert Scope Inspection Form or in the storm sewer section of the Scoping Report & Details Worksheet.

Ditch Information

- Review the ditch(es) for existing erosion or slope stability issues.
Erosion and slope stability issues should be addressed with the inclusion of the appropriate soil erosion and sedimentation control items.

Issues when the culvert is part of a county drain



- Is the culvert part of a county drain (see the applicable quadrangle map, MDOT Region Drainage Coordinator or the Region Permit Coordinator)?

A county drain may require coordination with the County Drain Commissioner. For example, if any of the following exist, it may be beneficial to coordinate with the County Drain Commissioner (these issues may be the result of modifications made to the stream by natural or manual factors):

- The downstream drain does not have enough capacity for storm water
 - Debris sources upstream can be eliminated
 - Issues or problems that exist outside of MDOT Right-of-Way that affect the drain
 - Any future plans for modifications or expansion that could be coordinated
- Is there any flooding history within the segment (see the specific TSC Maintenance Coordinator)?

The following are possible issues relating to flooding:

- Has flooding ever overtopped the roadway? If the culvert is the cause, it may need to be replaced.
- Does flooding impact upstream properties? Can the source of flooding be determined?
- Is there a lack of capacity of a structure that is part of the stream? Is there an increase in development in the floodplain, or land use changes in the upstream watershed (that can be identified)? If the cause of flooding is outside of the right-of-way, MDOT may have little ability to resolve it.

Additional information concerning existing or proposed ditches may be found in the Channel Information section below.

Storm Sewers

- What is the condition of the storm sewer (video taping is a good method to find the condition of the pipe)?
 - Is there evidence of cracking, spalling or corrosion?
 - Does the storm sewer have any joints, gaps or open seams (i.e. sediment passing through holes in the storm sewer and sediment entering the storm sewer could develop voids under the pavement)?

If sediment is passing through the storm sewer, this could result in sinkholes above the sewer and possible pavement or sink holes/failure. The storm sewer should be analyzed for options, such as repair, lining or replacement.
 - Does cracking or spalling expose the steel reinforcement?

Spalling concrete should be patched.

- What is the average condition of the drainage structures (manholes, catch basins or inlets)? Issues for drainage structures are similar to those listed above for storm sewers.

Channel Information

Issues when the culvert is part of a federally regulated waterway



Issues when the culvert is part of a cold water trout stream



Is there a channel obstruction and does it limit hydraulic capacity?



Are there side stream inlets in the channel which may cause erosion issues?

Is there sheet piling which constricts the stream?

- Is the culvert part of a federally regulated waterway (see the applicable quadrangle map or the Permit Coordinator)?
These regulated waterways could include the great lakes, rivers, stream and/or wetlands that are connected to the great lakes. Modifications to these types of waterways may require state or federal permitting.
- Is the culvert part of a cold water trout stream (see the applicable quadrangle map or the Region Permit Coordinator)?
Modifications to a culvert (or a segment of the stream) that may be part of a cold water trout stream may require unique permitting, and may include construction date restrictions.
- Review Channel Geometry (creek, stream, tributary or river)
 - Are there any obstructions in the channel such as vegetation, fallen trees, encroaching fences, utility poles, etc?
Do the obstructions appear to impact hydraulic capacity? If downstream obstructions are limiting the hydraulic capacity, this may cause flooding. If there are obstructions in the MDOT Right of Way, contact the maintenance coordinator. If these obstructions are outside of the MDOT Right of Way, contact your supervisor for further assistance (coordination with a maintaining agency may be needed).
 - Are there stream side inlets?
Examples of stream side inlets are storm sewers, downspouts, under drains and ditches? If these inlets cause stream scour, an erosion control measure may be important.
 - Is there any sheet piling? If so, is it constricting the stream?
Sheet pile may be cut off at grade to prevent channel obstruction.
 - Check upstream and downstream culvert sizes compared to MDOT's culvert in question.

- Check for bank stability.
This is done by looking for overhanging trees or shrubs falling in towards the channel, exposed roots and/or undercutting erosion along the bank. The channel can be braided and meandering, yet stable and not cause structural culvert problems. Treatment options could include re-establishment or relocation of the stream, placing riprap or engineered treatment on the affected slopes and/or proposed maintenance methods.
- Does the culvert align with the stream channel?
 - If the stream and culvert do not vertically align, there may be perched culvert (which could be the result of County Drain clean outs and/or grading) and/or erosion issues.
 - Additionally, one or both ends of a culvert may be lower than the channel. Culverts may be designed with soil in the bottom so they can convey water effectively or provide wildlife benefits. This is not a problem and does not need to be corrected. Problems may occur when one end of the culvert is too low, which may reduce flow. There are two solutions to this problem, lower the channel or raise the culvert.
 - If the stream and culvert do not horizontally align, the stream frequently runs along the road embankment and may threaten the embankment stability. Solutions could include an engineered stabilized (i.e. riprap) embankment slope or installing the culvert with a skew to the roadway, that aligns with the stream.

General Drainage Information

- In this section there are various items that will need to be identified to determine any potential impacts or modifications required. These elements (i.e. underdrains, spillways, county drains, pump stations, detention/retention basins and erosion control items) may or may not be impacted by the proposed work type, but it is very important that they be identified during the scoping process for consideration in design.

Guardrail or Concrete/Cable Median Barriers (Existing and Proposed)

The existing guardrail and/or concrete or cable median barriers shall be identified, and the condition noted on the worksheet. In addition, the proposed guardrail and/or concrete or cable median barrier shall be noted for inclusion in the scoping document and estimate of the project.

Utilities (Existing and Proposed) (revised 7-18-2016)

This section is where existing public and private utilities are identified. The TSC Utility Coordinator can provide a list of potential utilities (private and public) within the proposed project limits. Preliminary Planning/Scoping Letter (Form#2483) should be sent to all the utilities requesting preliminary locations of the existing utilities. Form#2483 also serves as notice to the utilities of a potential project. Depending on the project type, these existing utilities may be impacted by the proposed work. These known, potentially impacted, utilities are identified on the worksheet and noted in the scoping documents. The utility section is not included on the Road CPM or Bridge CPM/CSM Scoping Report & Details Worksheets, since CPM type work does not typically impact utilities.

Traffic Signals (Existing and Proposed)

Identification of existing and proposed traffic signal needs and upgrades are identified in these sections of the worksheet.

Sidewalks (Existing and Proposed) (revised 6-24-2019)

Identification of existing sidewalks, curb ramps and sidewalk condition shall be noted in this section. Additionally, if there is evidence of a footpath or the need for proposed sidewalks to close gaps in existing pedestrian networks, this too shall be noted. Region In developing the proposed work for the sidewalk and ramps, it is important to consider the existing design elements and how they relate to the current standards. Proposed sidewalk, ramp upgrades or additions are noted in the proposed section of the checklist. Bus stops and on-street parking, within the project limits, should be reviewed for ADA compliance and discussed with the local communities.

General Conditions (Existing and Proposed)

This section of the checklist is a list of other miscellaneous items that should be reviewed and discussed during the scoping process for each project.

Bridge Underclearances

Bridge Underclearance



These are identified during the scoping process. Specific road, railroad and navigatable waterway underclearances are federally mandated and must be noted in the scope if there is a possibility that the underclearance may be impacted or should be improved.

Anticipated Design Exceptions

Design exceptions must be identified early. See Chapter 6 for details on the design exception approval process.



This section will identify anticipated Design Exceptions (DEs) during the scoping process. Although it is understood that information may not be available to determine the need for all design exceptions, the identification of some potential design exceptions should be apparent. The design exception portion of the Scoping Report & Details Worksheet lists the design elements which may require design exceptions, if the proposed roadway or structure feature does not meet current standards.

Permits & Agreements Required

This section identifies permits and agreements that may be necessary for a project during the scoping process. These permits and/or agreements will vary from project to project and could include permits for a variety of environmental issues, agreements for Act 51 participation, agreements for maintenance work, etc.

Environmental Information



Information/issues should be identified and reviewed during the scoping process. Potential environmental issues could include wetland impacts, floodplain impacts, threatened or endangered species, archaeology and environmental justice, historic features, tribal coordination, recreational or park lands and potential contaminated sites. Early identification of natural and cultural environmental resources can prevent project delays and helps to maintain the project budget.

Real Estate (revised 6-24-2019)



This topic is an area that is sometimes overlooked during the scoping process yet can be a relatively costly item to forget. ROW issues range from the need for proposed fee ROW to consent to grade driveway or consent to construct sidewalk. Careful review of the existing ROW and the potential need for ROW activities should be assessed and discussed with the ROW staff during the scoping process.

Stakeholder Information



Stakeholder engagement



Stakeholder Information/Engagement is required for each project. The level of Context Sensitive Solutions (CSS) or Stakeholder Engagement varies depending on the location of the project (rural, small town or urban) and the project type. The checklist specifies which level of CSS activities could be required for the project. Refer to Chapter 6 of this manual and the [Guidelines for Stakeholder Engagement](#) for additional information.

Supplemental Information

This section is where "other" items that are important and should be identified and discussed as appropriate during the scoping process. This section is not included on the Road CPM or Bridge CPM/CSM Scoping Report & Details Worksheet, these types of projects do not involve the items covered in this section.

Site Visit Notes

Here is where notes are taken during the TSC and/or Region Van Tours and other visits taken during the scoping process. This section is the place to document site specific areas of concern, specific constraints and any other notes that may be useful in preparing the scoping package and developing the estimate.

Traffic Safety and Mobility

Maintenance of Traffic

This section is where various concepts for maintaining traffic, during construction, should be considered and discussed. Attention shall also be given to maintaining pedestrian traffic, if sidewalks or non-motorized paths exist within the project limits. Consideration needs to be given, when a segment of road requires a specific number of lanes to be maintained during construction, which may require temporary or permanent widening of structures.

Safety

Various safety elements shall be reviewed during the scoping process. This section of the worksheet identifies the items that were obtained and reviewed. A sample Scoping Level Crash Analysis memo is included in Appendix D-4, as an example of the level of work needed at the scoping phase. Please note that a more detailed review of the crashes will need to occur as the projects proceeds into the design phase. The ASHTO Highway Safety Manual (HSM) analysis may be considered for use on some projects.

Mobility

Steps needed for Work Zone Safety and Mobility



This section outlines the steps necessary for the Work Zone Safety and Mobility phase of scoping. The worksheet only outlines what steps must be taken to complete the analysis, as defined in the Work Zone Safety and Mobility Manual, and is not a substitute for the analysis itself. The MDOT Work Zone Safety and Mobility Manual should be referred to for detailed information. This section of the worksheet also provides room for describing possible maintaining traffic concepts, mitigation possibilities and safety related items considered pertinent to scoping.

Delay Mitigations

This section lists options for mitigating potential delays during the construction of the project. One or more of these options may be applicable to a proposed project.

Draft Job Information (revised 6-24-2019)

(JobNet)



This is the information that will be input into JobNet during the programming stage of a project. This information is required for a project to move from the scoping phase to the programming phase. Design may begin after the obligation of the programmed PE phase. Refer to Chapter 10 of this manual for more information on obtaining a job number and creating a draft job.

Checklist for Constructability Review – Early Project

Scoping (revised 7-18-2016)

The Constructability Checklist should be used to document that issues related to the constructability of the proposed project have been reviewed and discussed. Some issues related to the constructability of the project include a review of a site investigation, construction staging and maintenance of traffic. Early identification of non-constructable or difficult to construct projects may indicate that additional items or different work types should be analyzed (i.e. scope and schedule impacts). The Checklist for Constructability Review – Early Project Scoping form ([Form#1961](#)) shall be included in the scoping package and will be included in the project folder, as well as in ProjectWise.

Culvert Scope Inspection Form (revised 7-18-2016)

Documenting the culverts which must be inspected during scoping



Culvert guidelines



The Culvert Scope Inspection form ([Form#0592](#)) should be completed for all culverts within the project limits requiring work ranging in size from 36" in diameter to less than 10' width. Culverts 10' and greater are inspected annually and those inspections reports should be reviewed as part of the scoping process. Culverts smaller than 36" should be looked at and any issues with the culverts should be noted in the scoping notes. Instructions for completing the Culvert Scope Inspection form are included with the form.

Depending on the scope of the proposed project, and a review of the records and the Culvert Scope Inspection form, corrective actions and construction costs may need to be developed. This process may involve a structural engineer, hydraulic engineer, geotechnical engineer, right-of-way specialist, permit specialist and others as needed. Culvert Scope Inspection form items with a "Yes" answer or rating "Poor" should be considered for corrective action and/or further discussion. Scope development will include itemizing pay item quantities, construction method recommendations and costs. The required Culvert Scope Inspection form shall be included in the scoping package and will be included in the project folder, as well as in ProjectWise.

The Bridge Deck Preservation Matrix

Use and limits of the Bridge Deck Preservation Matrix

The Bridge Deck Preservation Matrix, included in Appendix A-6, is a tool for Bridge Engineers to use in the selection of bridge deck repair options. The condition of the deck is usually the key indicator, leading to a structure being considered for rehabilitation or replacement. However, there are other issues affecting a bridge that may require the need for a rehabilitation project and the matrix may not address these other situations. Some of these situations include, but are not limited to, superstructure deterioration, substructure deterioration, corridor coordination, capacity issues and functional issues such as underclearance, horizontal 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. The user is cautioned when interpreting the information from the matrix, to

consider the context of each specific case and to use engineering judgment.

Cost Estimates (revised 6-24-2019)

How cost estimates are generated



Cost estimates for scoped projects are required to be included in the scoping package. These estimates will be generated from AASHTOWare Project (AP) Preconstruction. The details for estimating projects and the use of AP Preconstruction for generating these estimates is discussed more in Chapter 8. The quality, clarity and depth of these estimates are very important as these are used for budgeting and programming the projects. There are two reports that may be developed as a result of AP Preconstruction scope estimating. They are "The Itemized Estimate Report" and "The Project Concept Estimate Report". These two documents shall be included in the scoping package in ProjectWise. Refer to Chapter 8 of this manual for additional information.

Documentation of Decisions (revised 6-24-2019)

Importance of making documentation thorough and understandable to others



Documentation of items discussed, and decisions reached during the scoping process should be detailed enough for others to follow later in the design and construction phases. Decisions should be documented including items that are not included in the scoping package or work types considered and dismissed, so that the designers and others reviewing the scoping package will understand the decision process (and not go through some of the same discussions that have already occurred). This documentation, Scoping Project Record form ([Form#0591](#)) shall be included in the scoping package and will be included in ProjectWise. The Scoping Project Record form is to document the scoping history in each scoping package. In addition, see Chapter 6 for more information regarding the importance of documentation. Documentation of decisions is also important in the Change Management process, as outlined in Chapter 10.

Scoping Package QC/QA (revised 6-24-2019)

Review of scoping package



Multiple QC/QA reviews



It is recommended that each scoping package have a TSC level Quality Control (QC) review and a Region level Quality Assurance (QA) review completed by an independent person who was not directly involved in the development of the scoping package. It is also recommended that the bridge scoping package have a Region level QC and QA and Lansing Bridge Operations should provide the final QA of the proposed scopes. The checklists and worksheet discussed previously can be useful tools to communicate the project's intent to the engineer(s) during the QC/QA reviews of the scoping package. The QC/QA reviews should include a review that the scoping package is complete, checklists are complete, a check of the estimate for omissions/errors and conformity with previously agreed upon scoping direction.

Scoping Accountability & Sign-Offs

Sign-off needed on scoping package



The development of the scoping package is the first step in the process of improving Michigan's infrastructure. Each TSC must be accountable for the development of the scoping package for projects within the TSC. The TSC Manager or TSC Development Engineer must sign off on the Scoping Package Checklist ensuring that the scoping package has been reviewed and meets all necessary criteria, prior to the submittal to the Region for QA and processing. The person responsible for developing the scoping package must also sign and date the Scoping Package Master Checklist. In addition, the Region staff is responsible for sign off for the QA portion of the review.