

SP 0910-35 - TH210/CSAH61 Intersection Reconstruction

Scope of Work

1. Project Overview

1.1. Independent Contractor

1.1.1. The Contractor agrees it is acting in the role of an independent contractor. The Contractor, and its employees and subcontractors, will not be considered employees of the State for any reason. The Contractor acknowledges that it is responsible for its own financial control. The Contractor has negotiated the payment for this contract with the State, which may result in a profit or loss for the Contractor. The Contractor also acknowledges that it is responsible for the behavioral control of itself, its operations, and its staff. The Contractor is solely responsible for determining the means, methods, and sequence of performing the work covered by this contract. The State has included deliverable dates in this contract, not to provide a “sequence” of work but because the State must coordinate these deliverables with (1) the State’s financial plans, (2) other contracts managed by the State, and (3) work performed by the State’s own staff. The parties have mutually drafted and agreed upon a scope of work. The level of detail used to describe the work is intended only to establish minimum standards and ensure consistency across the hundreds of projects managed by the State; the Contractor remains responsible for determining the means and methods of performing the work to meet or exceed those requirements. The State will not directly supervise the Contractor’s work but will provide oversight and monitoring, as required by Minnesota Statutes §16C.08 and 23 Code of Federal Regulations (CFR) Part 172.5, to ensure compliance with the terms, conditions, and specifications of this contract. At the conclusion of this contract, the State will evaluate the Contractor’s performance under this contract for potential use in future evaluations and selections as required by Minnesota Statutes §16C.08 and 23 CFR Part 172.5.

1.2. General Statement of Scope of Work

1.2.1. The project includes design of a reduced conflict intersection at Trunk Highway (TH) 210 and County State Aid Highway (CSAH) 61 in Carlton County from 0.2 miles west of CSAH 61 to 0.4 miles west of CSAH 24/Halvorson Road. This includes final roadway design based on an approved State Level 1 geometric layout. The contractor’s scope includes intersection lighting revisions, signing and pavement marking layout revisions, hydraulic design, sidewalk design, and curb and gutter design. Carlton County will let the project.

1.3. Project Background

1.3.1. Carlton County plans to build a new government building, the Carlton County Justice Center. This new government building will increase traffic volumes at the intersection of TH 210 and CSAH 61. Increased traffic volumes will negatively impact safety and mobility. This intersection is considered a 3-star risk rural expressway intersection using the District Safety Plan risk criteria.

The purpose of this project is to improve safety and mobility at the intersection. The project includes:

- Construct a reduced conflict intersection.

- Intersection lighting to be incorporated at intersection and Median U-Turns.
- Replace all pavement markings between east Interstate 35 ramps and east Kwik Trip entrance.

More information on the Carlton County Justice Center can be found here:
<https://www.co.carlton.mn.us/788/Justice-Center-Project-Information>.

1.4. Web-Based Teleconferencing

- 1.4.1. The Contractor must provide the means for the project team to meet via web-based teleconferencing that allows participants to view the desktop of the meeting organizer. Participants must be able to “take control” of the virtual desktop as needed to point out things on the file being displayed. Voice communication may occur via computer or phone.

1.5. Source Type Codes and P6 Activity Codes

- 1.5.1. Every deliverable must list a source type code. The source type code will be used in the Contractor’s invoice to subtotal the deliverables together under that source type code.
- 1.5.2. Every deliverable must list a P6 activity code that matches the P6 activity in the P6 schedule. The Contractor may use this code to understand the due dates for that deliverable in the schedule and how the activity relates to other activities in the schedule.
- 1.5.3. The Contractor is not required to know how to use Primavera P6 (P6) or work within the program itself unless stated in Project Management section. The Contractor is, however, expected to understand the concept of Critical Path Method scheduling, understand hardcopy reports printed by the P6 schedule, update the hardcopy reports, and recommend changes to the schedule to reflect changes in the scope or flow of work.

1.6. Milestones and Contract Completion Timeline

- 1.6.1. The following milestone dates are anticipated for this project:

Notice to proceed expected – December 22, 2022

30% Plan completion – January 17, 2023

60% Plan completion – March 8, 2023

90% Plan completion – May 25, 2023

95% Plan completion – July 10, 2023

Proposed Letting – September 18, 2023

- 1.6.2. The late start and the late finish dates included in the project schedule are the contractual due dates for this contract.

1.7. Format of Deliverables

- 1.7.1. All deliverables must be provided in electronic file format.

1.7.2. Software

- a. Report source files must be in current versions of Microsoft Word and Microsoft Excel. Files must be delivered to the State by Projectwise.
- b. Computer Aided Drafting and Design (CADD) deliverable source files must meet the State’s Level 2 Enhanced CADD Data Delivery Specifications.

- c. All applicable spatial data and maps created in Geographic Information System software must be provided in a standard shapefile format (.shp) that is compatible with current versions of ArcMap software.
- d. All source files also must be converted to Portable Document Format (PDF), and the PDF must be searchable, with scanned pages eliminated except for signature pages.

1.7.3. Plain Language

- a. All documents or exhibits specifically designed to be used by the public must be developed in “plain language.” Executive Order 14-07 requires the Office of the Governor and all Executive Branch agencies to communicate with Minnesotans using plain language and defines plain language as a communication that an audience can understand the first time they read or hear it. Additional information is available at (<https://www.dot.state.mn.us/consult/adaplainlanguage.html>). To meet the requirements of this executive order, the Contractor will:
 - i. Use language commonly understood by the public
 - ii. Write in short and complete sentences
 - iii. Present information in a format that is easy to find and easy to understand
 - iv. Clearly state directions and deadlines to the audience
- b. Technical documents, presentations, spreadsheets, and drawings used by technical staff do not need to be in plain language.

1.7.4. Accessibility Standards

1.7.4.1. The Contractor must comply with the State of Minnesota’s Accessibility Standard (http://mn.gov/oet/images/Stnd_State_Accessibility.pdf) for all documents or exhibits specifically designed to be used by the public. The State of Minnesota’s Accessibility Standards are based on the Web Content Accessibility Guidelines (WCAG) 2.0 (Level AA) and Section 508 of the Rehabilitation Act, as amended. Additional requirements can be found at (<http://www.dot.state.mn.us/ada/accommodation.html>) and include:

- a. Providing interpreters, translators, or other special accommodations.
- b. Providing documents in an alternative format.
- c. Following the PDF accessibility guidance.

1.7.4.2. The State of Minnesota’s Accessibility Standard also includes:

- a. All videos must include closed captions, audio descriptions, and a link to a complete transcript.
- b. All documents, presentations, spreadsheets, drawings, and other material must be provided in an accessible format. Native files must be provided in an editable format. Acceptable formats include InDesign, Word, and Excel.
- c. All materials intended for downloading and printing must be labeled as such, and the content must be provided in an accessible format.

1.7.4.3. Technical documents, presentations, spreadsheets, and drawings used by technical staff do not need to comply with the State of Minnesota’s Accessibility Standard.

1.7.4.4. All outward-facing Microsoft Word documents to be used during the project must be designed with Americans with Disabilities Act (ADA)-accessible features, including alt text and screen-reader compatibility.

1.8. Standards and Guidance

- 1.8.1. All field data must be provided in Global Information System/Global Positioning Systems (GIS/GPS) NAD83 (2011) Carlton County Datum and NAVD 88 vertical datum, MicroStation version 8i, and Microsoft Excel/Word formats.
- 1.8.2. All design work must be done in conformance with current State MicroStation Version 8i and GEOPAK standards, following Level 2 Enhanced CADD Data Delivery Specifications.
- 1.8.3. All design must be conducted by or under the direct supervision of a Professional Engineer licensed in Minnesota.
- 1.8.4. All survey work must be conducted by or under the direct supervision of a Professional Land Surveyor.
- 1.8.5. All deliverables must be prepared in accordance with The Transportation Project Development Process (TPDP): <https://www.dot.state.mn.us/project-development/index.html>.
- 1.8.6. The State uses the Primavera P6 scheduling tool. Scheduling deliverables must be compatible with P6 format and work package dictionary: <https://www.dot.state.mn.us/pm/p6.html>.
- 1.8.7. Failure of this scope of work to list a specific standard under a specific deliverable does not absolve the Contractor's obligation to comply with all laws, regulations, and standards that apply to highway projects within the State of Minnesota. The Contractor must comply with all state, federal, and local standards, laws, and regulations related to the scope of work and project area. Work must comply with the latest edition or revision of that standard in effect on the proposal due date, including any amendments in effect on that date, unless otherwise specified in the contract or otherwise directed by the State.
- 1.8.8. Websites have been supplied to the Contractor for some of the standards and guidance documents listed for convenience only in an effort to help the Contractor locate the required standard or guidance. The websites are not guaranteed to be correct. It is ultimately the Contractor's responsibility to locate the required standard and to determine if the standard has been modified pursuant to this Contract.
- 1.8.9. Additional requirements for standards may be provided within the scope tasks that follow.

1.9. Items Provided by the State

- 1.9.1. The State will provide the following items. Some items must be provided at notice to proceed. Other items are developed as the project progresses. The Contractor is responsible for requesting the needed information when it is available during the project development.
 - a. Base mapping: topography, tin, Digital Terrain Model (DTM), right-of-way, property lines
 - b. MicroStation files of base mapping, cross-sections, and layout
 - c. Existing alignment/survey
 - d. Project limits
 - e. Final construction limits map for right-of-way acquisition
 - f. Right-of-way information
 - g. Pavement recommendations and material design recommendations

- h. Wetland delineations
- i. Environmental Management Plan (EMP)
- j. Environmental document
- k. Sample plan
- l. District 1 Stormwater Pollution Prevention Plan (SWPPP) template
- m. Project scoping document
- n. Staff approved layout with design memo
- o. Special provisions template and guidance information
- p. Required agreements
- q. District-modified standard detail sheets
- r. State survey request form

2. Project Management (Source Type 1010)

2.1. Project Coordination and Administration (P6 Activity Code OPM1000)

- 2.1.1. Project management includes work necessary for communicating and completing the project tasks on time and within budget. The Contractor must not reassign the project manager or their primary duties without the written consent of the State's project manager. The Contractor's staff must have the training and expertise necessary for the work tasks to which they are assigned.
- 2.1.2. Meeting summaries must be submitted no later than 3 business days after each meeting and a final meeting summary must be submitted no later than 5 business days after receiving comments on summary notes.
- 2.1.3. The Contractor will:
 - a. Prepare invoices accompanied by:
 - i. A cover letter explaining the general status of the project, including at a minimum the work completed to date, the anticipated remaining efforts, and required schedule changes
 - ii. Progress report form
 - iii. Supporting data for direct expenses
 - iv. An updated project status report reflecting P6 activities identified by the State's project manager
 - b. Manage, coordinate, direct, and monitor subcontractor services, including reviewing progress reports, deliverables, schedule, and invoices.
 - c. Update the State's project manager on the status of the project schedule, budget, and general status/progress on a monthly basis.
 - d. Store all deliverables in an organized electronic document management system and make deliverables available to the State's project manager as needed whether the file is incomplete, in draft form, or the final deliverable by ProjectWise. The State will provide restricted access to a ProjectWise document center for use as the project file transfer vehicle and repository.
 - e. Create a method to list and track issues that develop during the project that either need resolution or implementation. The tracking spreadsheet must prioritize issues for due dates and amount of risk to schedule and construction budget. For example, the State's project manager may send an email to the Contractor stating that an issue needs to be resolved or completed. The Contractor must log that issue and track it

until it is marked completed. The Contractor will review the list with the State's project manager at the monthly progress meetings.

2.1.4. Deliverables:

- a. Monthly invoices and progress reports
- b. Subcontractor status reports included with monthly invoices and progress reports
- c. Update calls with the State's project manager
- d. Document management system
- e. Issue resolution tracking spreadsheet

2.2. Project Meetings (P6 Activity Code OPM1000)

2.2.1. Kickoff Meeting

2.2.1.1. The Contractor will schedule and facilitate a project kickoff meeting to confirm the basic project objectives, solidify a work plan, and obtain consensus on the project requirements. This meeting must occur no later than 10 business days after notice to proceed. The meeting will be held virtually and will include up to 2 Contractor staff.

2.2.2. Project Management Team (PMT) Meetings

2.2.2.1. The Contractor will facilitate weekly PMT meetings with the State's project manager and other personnel as identified by the State's project manager. The intent of the PMT is to review overall project progress as measured by the P6 schedule and to discuss issues that are not resolved at the design level. The PMT meetings are intended to provide a management-level view of project development.

2.2.3. Pre-Letting Meetings

2.2.3.1. The purpose of these meetings is to discuss plan details and coordination with the Pre-Letting Unit to ensure plan quality and timeliness. The meetings will occur at approximately 60 percent and 95 percent plan completion.

2.2.3.2. The Contractor will facilitate one pre-letting meeting with the State's project manager and State Central Office Pre-Letting Unit.

2.2.4. Stakeholder Coordination Meetings

2.2.4.1. These are supplemental meetings beyond those explicitly called for elsewhere in this scope. This is not meant to be the public engagement plan, and it's not meant to be specific design coordination meetings. These meetings are meant to have a focus on general scope of the project and general project management coordination between stakeholders.

2.2.4.2. The Contractor will:

- a. Attend three stakeholder coordination meetings with the State's project manager, other State staff, and stakeholders.

2.2.5. Deliverables:

- a. Meeting invite, materials, agenda, and draft and final meeting summaries for Kickoff, PMT, and Pre-Letting meetings
- b. Draft and final meeting summaries for Stakeholder Coordination meetings

2.3. Work Plan and Schedule (P6 Activity Code OPM1000)

2.3.1. Schedule Management

2.3.1.1. The Contractor will manage the schedule by:

- a. Providing monthly schedule updates to the State's project manager either by marking up a PDF copy of the schedule or by providing a report describing the schedule updates needed.
- b. Determining if any activities owned by the Contractor need to have their percent complete and remaining duration updated
- c. Determining if any activities owned by the State need to have their percent complete and remaining duration updated
- d. Contacting persons responsible for each activity to determine the actual percent complete. State staff will update their own activities and provide updates to the Contractor
- e. Examining the schedule and determine what activities need to start work, need to show progress in work, or need to be completed within a month.
- f. Determining if committed resources, either the Contractor's or the State's, are still dedicated to the project and schedule and report resource discrepancies if they occur
- g. Communicating schedule update information with activity owners as needed and determine if additional activities need to be added to the schedule
- h. Sending recommended updates to the State's project manager for review

2.3.1.2. The schedule must not extend beyond the contractual completion dates or contain negative float. If any activities do have negative float, the Contractor must provide a recovery schedule recommendation within 3 business days to explain how the negative float will be eliminated.

2.3.1.3. Deliverables:

- a. Monthly schedule updates to the State's project manager
- b. P6 schedule, updated monthly
- c. Recovery schedule recommendation

2.4. Provide Plan Bidding and Construction Assistance

2.4.1. The Contractor will:

- a. Be available for plan interpretation/questions during bidding and construction (up to 80 hours)

2.4.2. Deliverables:

- a. Responses to bidding and construction questions

3. National Pollutant Discharge Elimination System (NPDES) Construction Stormwater (CSW) General Permit

3.1. Standards and Guidance

3.1.1. All deliverables must be prepared in accordance with:

- a. Minnesota general permit: MN R100001 for stormwater associated with construction activity
- b. Minnesota Pollution Control Agency (MPCA) Stormwater Compliance assistance Tool Kit for Small Construction Operators: www.pca.state.mn.us/publications/wq-strm2-09.pdf

- c. MPCA Industrial Stormwater Best Management Practices Guidebook:
www.pca.state.mn.us/water/stormwater/stormwater-manual.html
- d. MPCA Protecting Water Quality in Urban Areas:
www.pca.state.mn.us/water/pubs/sw-bmpmanual.html

3.2. Prepare NPDES Permit Application (P6 Activity Code NPP1040)

3.2.1. The Contractor will:

- a. Determine if the project disturbs one or more acres of soil and/or adds one or more acres of net new impervious.
- b. If yes, prepare and provide the NPDES Construction General Permit application form to the State.

3.2.2. The State will submit the permit application electronically.

3.2.3. Deliverables:

- a. NPDES permit application complete for submittal

4. Environmental Documentation (Source Type 1071)

4.1. Data Collection and Analysis

4.1.1. The Contractor will review ENM responses received and follow up on any missing data requests.

4.1.2. All data furnished to the Contractor by the State will remain the property of the State and will be returned to the State upon request.

4.2. Analysis and Evaluation of Data by the Contractor

4.2.1. The Contractor will make an analysis of all data and information furnished by the State. If any data or information is found to be incorrect or incomplete by the Contractor, this fact should be brought to the attention of the State's Project Manager before proceeding further with the part of the project affected.

4.3. Data to be Furnished by the Contractor

4.3.1. Other than the items listed in this section as being furnished by the State, all other data required for the preparation of the ENM Summary Table must be obtained by the Contractor through coordination with other agencies and stakeholders.

4.4. Project Documentation

Project Documentation will include all tasks necessary to prepare the appropriate environmental document. It is anticipated that this project will qualify for an ENM Summary Table. However, the contractor will be responsible for using the [Environmental Document Decision Tree](#) to determine the appropriate level of environmental document.

4.5. State Deliverables:

- a. Review and comment on the draft ENM Summary Table
- b. Meeting attendance

4.6. Contractor Deliverables:

- a. Review ENM responses
- b. Draft ENM Summary Table sent to State's Project Manager and others as appropriate

- c. Final ENM Summary Table sent to State's Project Manager and other as appropriate
- d. Meeting attendance

5. Roadway Design Plans and Division S Special Provisions (Source Type 1250)

5.1. File Format

- 5.1.1. All plans must be in the State plan format and correct coordinates, and will contain all necessary design information including: Quantity Tabulation (to be included within road design projects), Signature Block, Abbreviations, Symbols, Details (standard & special), Removals, Signal/Lighting Plan Layout(s) and Wiring Diagram(s), and "For Information Only" Plan Sheet(s). All special needs (bridge design needs, footing needs for rock or poor soils, District-specific requirements, etc.) must be incorporated into the design, as needed.

5.2. Standards and Guidance

- 5.2.1. The final plans must be prepared in accordance with current State standards and practices and follow the format of the State's Sample Plan available at <http://www.dot.state.mn.us/metro/finaldesign/sampleplan.html>.
- 5.2.2. The plan set must comply with the form, sequence, and content of the State's current:
 - a. Design concepts and practices (<http://www.dot.state.mn.us/design/tools/index.html>)
 - b. Design scene (<http://www.dot.state.mn.us/pre-letting/scene/index.html>)
 - c. State's special provisions (<http://www.dot.state.mn.us/pre-letting/prov/index.html>)
 - d. State Project Item List (Trns*port) from the current State Standard Specifications for Construction (<http://transport.dot.state.mn.us/Reference/refItem.aspx>)
- 5.2.3. The proposed roadway improvement construction plans must be consistent with horizontal and vertical alignments, typical sections, and construction limits identified in the approved Design Memorandum/Final Geometric Layout.
- 5.2.4. A quality management process must be conducted consistent with the State's guidance (<http://www.dot.state.mn.us/design/qmp/index.html>), including completion of relevant forms and checklists during project development.
- 5.2.5. Plan sheets may be combined with the prior consent of the State's project manager. MicroStation plan sheets must include all sheets in the State's review checklists, as noted below.
- 5.2.6. To maintain formatting and document structure, The Contractor must use the Special provision templates that are available on the special provisions website: (<http://www.dot.state.mn.us/pre-letting/prov/index.html>).
- 5.2.7. Contractor must follow guidance for formatting of the Special provisions located at the beginning of the Special provision boilerplate available on the special provisions website: (<http://www.dot.state.mn.us/pre-letting/prov/index.html>).

5.3. Milestones and P6 Activities

- 5.3.1. This scope combines tasks for P6 activity codes PLN and PRO, to be completed in sequence as identified by the P6 schedule. This scope also includes tasks that are not presently assigned in the P6 schedule. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule.

5.4. Items Provided by the State

5.4.1. Division S boilerplate documents (<http://www.dot.state.mn.us/pre-letting/prov/index.html>)

5.5. Prepare 30 Percent Plans (P6 Activity Code PLN3000)

5.5.1. The Contractor will:

- a. Prepare and deliver a 30 percent design package, which must include all items in the State's 30 percent review checklist (<http://www.dot.state.mn.us/metro/finaldesign/pdf/30percentchecklist.pdf>)
- b. Prepare a funding map that identifies project components with different funding configurations. The funding map will follow the guidelines shown in this document [SEQ Guidance \(PDF\) \(state.mn.us\)](#)
- c. Discuss any potential unique special provision items not identified in the boilerplate with the State. Provide a summary list of expected items identifying key points for each item with 30 percent submittal

5.5.2. Deliverables:

- a. 30 percent design package
- b. Funding map
- c. Summary list of likely non-boilerplate special provisions

5.6. Prepare 60 Percent Plans (P6 Activity Code PLN6000)

5.6.1. The Contractor will:

- a. Prepare and submit the 60 percent design package, which must incorporate the 30 percent plan comments and all sheets delivered as part of the 30 percent design package, plus additional sheets as noted in the State's 60 percent review checklist (<http://www.dot.state.mn.us/metro/finaldesign/pdf/60percentchecklist.pdf>)
- b. Prepare and submit a draft special provisions write-up for items not covered in the boilerplate. This includes:
 - i. Develop special provisions that modify or supplement the Standard Specifications for Construction to communicate project specific needs during construction operations
 - ii. Replace, modify, or supplement existing sections in State Standard Specifications for Construction based on project need

5.6.2. Deliverables:

- a. 60 percent design package
- b. Draft non-boilerplate special provisions write-up

5.7. Prepare 90 Percent Plans (P6 Activity Code PLN9000)

5.7.1. The Contractor will prepare and deliver the 90 percent design package, which must incorporate comments from the 60 percent plans and include:

- a. Add any new plan sheets not submitted with 30 or 60 percent plans
- b. Final construction cost estimate
- c. Non-boilerplate Division S special provisions
- d. Updated special provisions document including additional provisions reflecting advanced design information

- e. Documentation of quality control (QC) reviews completed throughout design development process

5.7.2. Deliverables:

- a. 90 percent design package
- b. Final construction cost estimate with the cost participation breakdown
- c. Non-boilerplate Division S Special provisions
- d. Updated Special Provisions document
- e. QC certification forms and documentation

5.8. Prepare 95 Percent Plans (P6 Activity Code PLN9500)

5.8.1. The Contractor will prepare and deliver the 95 percent design package, which must incorporate the 90 percent comments and include:

- a. Add any new plan sheets not submitted with 90 percent plans
- b. Full construction plan set with Central Office review comments incorporated
- c. Final construction cost estimate
- d. Non-boilerplate special provisions
- e. Updated special provisions document including additional provisions reflecting advanced design information
- f. Documentation of QC reviews completed throughout design development process

5.8.2. Deliverables:

- a. 95 percent design package
- b. Final construction cost estimate with the cost participation breakdown
- c. Updated Special Provisions document for all unique items
- d. QC certification forms and documentation

5.9. Prepare Special Provisions (P6 Activity Code PRO1000)

5.9.1. The Contractor will:

- a. Compile a final special provisions document based on project need and District input from Draft Special Provision review and coordination. This will include all special provision divisions prepared as part of the project.

5.9.2. Deliverables:

- a. Final special provisions at project turn-in.

5.10. Incorporate Central Office Changes (P6 Activity Code PRS1000)

5.10.1. The Contractor will incorporate changes received from the Central Office on the 95 percent plans.

5.10.2. Deliverables:

- a. Any updated items from the 95 percent design package submittal

6. EMP

The Contractor will create an EMP for the project using the [Green Sheet Template](#) and following the [Green Sheet Instructions](#) and the [Green Sheet Process](#) documents included on the [TPDP Environmental Commitments website](#).

6.1.1. The Contractor will:

- a. Coordinate with all relevant subject matter experts to ensure that commitments are added to the draft EMP
- b. Ensure that commitments are updated when new information becomes available from field reviews or permit requirements
- c. Include the draft EMP in the environmental document as the summary of commitments
- d. Provide draft EMPs for inclusion in the plans at each plan review stage (30%, 60%, and 90%)
- e. Include a copy of the EMP that shows only construction commitments in the plan set for 100% plan submittal. Also provide the full spreadsheet version of the EMP as a separate Excel document upon 100% plan submittal

6.1.2. Deliverables:

- a. Draft EMP prepared for 30%, 60%, and 90% plan reviews
- b. Final EMP containing construction commitments

7. Transportation Management Plan (TMP)

This project requires a Level 3 TMP. Project to be constructed under traffic using lane closures and lane shifts. TH 210 and CSAH 61 will be kept open to traffic in both directions during construction.

7.1. Standards and Guidance

7.1.1. The TMP will be completed in accordance with:

- a. TMP resources located:
https://www.dot.state.mn.us/metro/trafficeng/work_zones.html

7.2. Final TMP (P6 Activity Code TMP1000)

7.2.1. The Contractor will develop the final TMP including:

- a. Complete the TMP Submittal Form.
- b. Prepare and submit the draft TMP package with the 60% submittal that includes the TMP Submittal Form and draft TMP report. Include the TMP Worksheet, 60% temporary traffic control as appendices.
- c. Incorporate State comments and update the TMP package to reflect any changes in the staging and temporary traffic control and submit an updated TMP package with the 90% submittal.
- d. Incorporate State comments and submit the final TMP package.

7.2.2. Deliverables:

- a. Draft TMP package
- b. Updated TMP package
- c. Final TMP package

8. Hydraulic Design (Source Type 1141)

8.1. Standards and Guidance

8.1.1. All deliverables must be prepared in accordance with:

- a. State Drainage Manual
- b. Current version of the NPDES Construction Stormwater Permit
- c. MPCA Minnesota Stormwater Manual
- d. Minnesota Department of Natural Resources (DNR) Best Practices for Meeting DNR General Public Waters Work Permit
- e. Federal Highway Administration (FHWA) Hydraulic Design Series No. 4, Introduction to Highway Hydraulics
- f. FHWA Hydraulic Design Series No. 5, Hydraulic Design of Highway Culverts
- g. FHWA Hydraulic Engineering Circular Number 14 (HEC-14), Hydraulic Design of Energy Dissipators for Culverts and Channels
- h. FHWA Hydraulic Engineering Circular Number 15 (HEC-15), Design of Roadside Channels with Flexible Linings
- i. FHWA Hydraulic Engineering Circular Number 21 (HEC-21), Design of Bridge Deck Drainage Systems
- j. FHWA Hydraulic Engineering Circular Number 22 (HEC-22), Urban Drainage Design Manual
- k. FHWA Hydraulic Engineering Circular Number 23 (HEC-23), Bridge Scour and Stream Instability Countermeasures: Experience, Selection and Design Guidance, Volumes 1 and 2
- l. United States Geological Survey (USGS), Generalized Skew Coefficients for Flood-Frequency Analysis in Minnesota
- m. Minnesota Local Road Research Board and Minnesota Department of Transportation, Minnesota Guide for Stream Connectivity and Aquatic Organism Passage through Culverts

8.1.2. All deliverables must be prepared using an approved drainage design software.

Software	Possible Vendor	Functions
GEOPAK Drainage	Bentley	Rational method hydrology Inlet design and spread analysis Storm drainpipe design and hydraulic grade line analysis
HydroCAD	HydroCAD Software Solutions LLC	Generate NRCS (SCS) hydrograph Develop stage-storage and stage-discharge for ponds Combine/route hydrographs through ponds and channels
Hydraulic Toolbox	FHWA	Channel lining analysis Inlet design and spread analysis Channel/pipe critical and normal depth, capacity
HY-8	FHWA	Analyze headwater and hydraulics for single culvert, multiple barrels, broken back culverts, and/or road overtopping Design pipe size based on maximum headwater Energy dissipater design

8.2. Items Provided by the State

- a. Preliminary hydraulic recommendations that include the location of the in-place culverts and storm sewer within the project limits, and a general description of what types of repairs/replacements are anticipated.
- b. Any available Special Provisions for recommended drainage items.
- c. State District 1 water resources repair guidelines.
- d. Example State District 1 drainage plan sheets.
- e. Example State District 1 calculations summary chart.

8.3. Preliminary Hydraulics Design (P6 Activity Code HYD1000)

8.3.1. The Contractor will prepare a 30 percent hydraulic design by:

- a. Consultant will verify the condition of the existing drainage features and use, to the extent possible, what is already in place.
- b. Preparing existing and proposed conditions hydrologic/hydraulic models of the project area and perform modeling to evaluate conformance to project design standards and permitting requirements. Analyses will be completed for the design storm events identified in the water resources design criteria summary document.
- c. Preparing hydraulic design plans and corresponding hydraulic design report. The design and report must include documentation of:
 - i. Total disturbed soil area, existing and proposed impervious area, reconstructed impervious area, and resulting regulatory requirements for volume control and water quality treatment.
 - ii. Sizes and locations of culverts, storm sewer trunk lines, and outfalls.
 - iii. The location, size, type, slope, and computed headwater for the existing (where applicable) and proposed conditions discharges and invert elevations of each culvert and outfall.
 - iv. Location, surface area, and treatment volume depth of stormwater treatment systems including grading plans sufficient to confirm construction limits and right-of-way needs.
 - v. Limits of required right-of-way for all drainage and stormwater treatment systems.
 - vi. Drainage tile system impacts and required connections and rerouting.
 - vii. How the preliminary drainage system design will preserve existing drainage patterns wherever possible unless approved by the District Water Resources Engineer.
 - viii. Coordination with the State Bridge and Utilities Office and District Water Resources Engineer.
 - ix. Modeling results of existing and proposed conditions stormwater systems as required for project permitting and/or as directed by the District Water Resources Engineer.

8.3.2. Deliverables:

- a. 30 percent hydraulic design report
- b. 30 percent hydraulic design plans (coordinated with roadway 30 percent design package deliverables)

8.4. Final Hydraulics Design (P6 Activity Code HYD1010)

- 8.4.1. The Contractor will prepare hydraulic system plans to be incorporated into the roadway design plans and report at the design submittal stages noted for each item. TAMS Hydrinfra IDs for existing drainage pipes and structures must be shown on removal plans and drainage plans.
- a. Drainage plans with 60, 90, 95, and 100 percent submittals.
 - b. Drainage profiles at 60, 90, 95, and 100 percent submittals.
 - c. Existing and proposed drainage tabulations at 60, 90, 95, and 100 percent submittals.
 - d. Temporary sediment control plans at 60, 90, 95, and 100 percent submittals.
 - e. Permanent erosion and sediment control plans at 60, 90, 95, and 100 percent submittal.
 - f. Turf establishment plans at 60, 90, 95, and 100 percent submittals.
- 8.4.2. Deliverables:
- a. Hydraulic design report with the 60, 90, and 95 percent submittals
 - b. Final hydraulic design report signed by a Minnesota licensed Professional Engineer with 100 percent plan
 - c. Existing and proposed conditions hydrologic/hydraulic models with the 60, 90, and 95 percent submittals
 - d. Hydraulic design system plans and with the specified plan submittals

8.5. Prepare SWPPP and Review Erosion Control Plans (P6 Activity Code HYD1030)

- 8.5.1. The Contractor will review the erosion control plans prepared under the road plan scope and incorporate necessary measures into the SWPPP to address project concerns.
- 8.5.2. The Contractor will prepare an SWPPP meeting the requirements of the NPDES Construction Stormwater (CSW) Permit and incorporating the applicable requirements of the watershed agencies and local governmental units having jurisdiction within the project area.
- 8.5.3. Deliverables:
- a. SWPPP

9. Traffic Control (Source Type 1254)

9.1. Standards and Guidance

- a. There are a variety of design resources available at the following State website:
<http://www.dot.state.mn.us/trafficeng/workzone/index.html>.
- b. The 60, 90, 95, and 100 percent plan submittals must follow the guidelines for the respective plans found at:
<http://www.dot.state.mn.us/metro/finaldesign/resources.html>.
- c. The State's traffic website provides appropriate reference materials (checklists and CADD detail sheets).
- d. Sample plans for traffic control plans are available on the work zones website:
<http://www.dot.state.mn.us/trafficeng/workzone/ttcdetools.html>.
- e. Special provision templates are available on the special provisions website:
<https://www.dot.state.mn.us/pre-letting/prov/>.
- f. This project must adhere to the following standards:
 - i. Minnesota Temporary Traffic Control Field Manual

ii. State Temporary Barrier Guidance

9.2. Items Provided by the State

- a. Time and Traffic Provisions of Division S Special Provisions

9.3. Milestone and P6 Activity Codes

- 9.3.1. There are multiple tasks that need to be completed as part of TCP1000 and 1010 listed in this scope of work with different completion dates. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule.

9.4. Prepare 60 Percent Traffic Control Plan (P6 Activity Code TCP1000)

- 9.4.1. The Contractor must develop a traffic control plan that adheres to current design standards. The plans must consider all modes of travel including pedestrians and bicyclists, freight access, work zone speed limits and advisory speeds, crashworthiness of devices, longitudinal drop-off requirements, barrier placement and buffer requirements, and temporary pavement markings.

- a. The plan sheets will contain tabulations showing the description and estimated quantity of traffic control pay items by stage.
- b. The Contractor will prepare traffic control typical details and include in the traffic control plans in lieu of plan sheets where feasible and if approved by the State. For longer sections where, for example, only drums are shown, the Contractor should use break lines to reduce the number of plan sheets.

- 9.4.2. Traffic Control and Staging Plans developed will be based on the TMP completed for this project. The Traffic Control and Staging Plans will be provided to the State for inclusion in the final TMP.

- 9.4.3. The Contractor will:

- a. Prepare detailed plans, notes, and tabulations showing the location of signs, barriers, temporary pavement markings, and any other traffic control devices necessary to accommodate the construction within the project area. Prepare and submit a list of anticipated unique special provisions that will require revisions beyond routine modifications allowed by following the directions in the impacted special provision boilerplate documents.
- b. Prepare and submit 60 percent traffic control plan for review.
- c. Prepare and submit a preliminary traffic control cost estimate

- 9.4.4. Deliverables:

- a. List of anticipated unique special provisions
- b. 60 percent traffic control plans
- c. Preliminary traffic control cost estimate

9.5. Prepare 90 Percent Traffic Control Plan Submittal (P6 Activity Code TCP1000)

- 9.5.1. This submittal must be a 100 percent complete plan, minus signatures. All pertinent information about the project or in the plan must be reviewed by the State prior to the 90 percent complete plan submittal. All project coordination must be complete and action items resolved prior to this submittal.

- 9.5.2. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 90 percent complete plan submittal.
- c. Prepare 90 percent traffic control plans for review.
- d. Prepare and submit a traffic control cost estimate with cost participation detail as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between State and Local Units of Government available here: <http://www.dot.state.mn.us/policy/financial/fm011.html>
- e. Prepare and submit working copies of electronic design and plan files at 90 percent submittal. All traffic control work must be combined into one file.

9.5.3. Deliverables:

- a. 90 percent traffic control plan submittal including a revised traffic control cost estimate
- b. Working copies of electronic design and plan files

9.6. 95 Percent Traffic Control Plan (P6 Activity Code TCP1000)

9.6.1. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 95 percent complete plan submittal.
- c. Prepare 95 percent traffic control plans for review.
- d. Prepare and submit traffic control cost estimate with cost participation detail as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between State and Local Units of Government available here: <http://www.dot.state.mn.us/policy/financial/fm011.html>
- e. Prepare and submit working copies of electronic design and plan files at the 95 percent submittal. All traffic control work must be combined into one file.

9.6.2. Deliverables:

- a. 95 percent traffic control plan submittal, including a revised traffic control cost estimate
- b. Working copies of electronic design and plan files

9.7. Prepare 100 Percent Plan Submittal (P6 Activity Code TCP1000)

9.7.1. The Contractor will:

- a. Submit final signed traffic control plans, along with one complete set of design computations and quantity calculations for review and comment.
- b. Submit final traffic control cost estimate with cost participation detail.
- c. Incorporate any necessary changes and submit revised original plan sheets after the State's review of the plans.
- d. Incorporate the State's Central Office review comments and address all comments and submit revised plan sheets and a revised completed plan.
- e. Prepare and submit quality check documentation completed throughout the development of the plan set at completion of this task.

- f. Prepare working copies of electronic design and plan files at the 100 percent submittal; all traffic control plan design work must be combined into one file. Final electronic files must be approved by the district.

9.7.2. Deliverables:

- a. 100 percent traffic control plan submittal and final traffic control plan cost estimate
- b. Design computations and quantity calculations
- c. Quality assurance/quality control (QA/QC) documentation (working files) of detail checking of plans
- d. Electronic design and plan files

10. Pavement Marking Plan (Source Type 1255)

10.1. File Format

- 10.1.1. All pavement marking design work must be combined into one file. Final electronic files must be approved by the district before completion of the contract.

10.2. Standards and Guidance

- 10.2.1. All deliverables must be prepared in accordance with:

- a. Guidance and Pavement Marking Typical Detail Sheets:
<http://www.dot.state.mn.us/trafficeng/pavement/index.html>.
- b. Current edition of the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) and Chapter 7 of the State Traffic Engineering Manual.
- c. district-specific practices.
- d. State Technical Memorandum 19-05-T-02.
- e. A quality management process must be conducted consistent with the State's guidance (<http://www.dot.state.mn.us/design/qmp/index.html>), including completion of relevant forms and checklists during project development.

10.3. Milestones and P6 Activity Codes

- 10.3.1. There are multiple tasks that need to be completed as part of TPM1000 listed in this scope of work with different completion dates. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule.

10.4. Prepare Pavement Marking Plan (Activity Code TPM1000)

- 10.4.1. This plan must include the applicable current State Pavement Marking Typical Detail plan sheets showing permanent pavement markings on the roadway alignment. Plans and tabulations must include all pavement marking removal quantities where required.
- 10.4.2. Pavement marking plans may be combined with signing plans if approved by the State.
- 10.4.3. It is anticipated that typical details may be used for some segments in lieu of roadway layout sheets.
- 10.4.4. The Contractor will:
 - a. Develop and provide the pavement marking material recommendation in accordance with Technical Memorandum No. 19-05-T-02 to the State for review, input, and approval. The State reserves the right to deviate from the Contractor-provided recommendations.

10.4.5. Deliverables:

- a. Pavement marking material recommendation

10.5. Prepare 60 Percent Pavement Marking Plan (P6 Activity Code TPM 1000)

10.5.1. The Contractor will:

- a. Prepare and submit plans that show the permanent pavement markings. The plans must show the proposed markings on the proposed roadway and the types of marking and materials need to be identified. This submittal must show the design clearly but not every marking needs to be annotated, and quantity tabulations and details are not required.

10.5.2. Deliverables:

- a. 60 percent plan

10.6. Prepare 90 Percent Pavement Marking Plan (P6 Activity Code TPM 1000)

10.6.1. The Contractor will:

- a. Prepare detailed plans, notes, and tabulations showing the permanent pavement markings and submit permanent pavement marking plans at 90 percent completion with construction plans.
- b. Prepare cost estimate for 90 percent submittal.
- c. Prepare pavement marking related Division S special provisions.
- d. Prepare and submit working copies of electronic design and plan files at the 90 percent submittal. All pavement marking design work must be combined into one file.

10.6.2. Deliverables:

- a. 90 percent plan submittal including draft unique special provisions and cost estimate

10.7. Prepare 95 Percent Pavement Marking Plan (P6 Activity Code TPM 1000)

10.7.1. The Contractor will:

- a. Prepare detailed plans, notes, and tabulations showing the permanent pavement markings and submit permanent pavement marking plans at 95 percent completion with construction plans.
- b. Prepare 95 percent pavement marking cost estimate.
- c. Prepare pavement marking related unique special provisions.
- d. Prepare and submit working copies of electronic design and plan files at the 95 percent submittal. All pavement marking design work must be combined into one file.

10.7.2. Deliverables:

- a. 95 percent plan submittal including draft unique special provisions and a revised cost estimate

10.8. Prepare 100 Percent Plan (P6 Activity Code TPM 1000)

10.8.1. The Contractor will:

- a. Prepare detailed plans, notes, and tabulations showing the permanent pavement markings and submit permanent pavement marking plans at 100 percent completion with construction plans.
- b. Prepare final pavement marking cost estimate.
- c. Prepare final unique special provisions associated with permanent pavement markings.
- d. Prepare and collect working copies of electronic design and plan files. All pavement marking design work must be combined into one file.

10.8.2. Deliverables:

- a. Final pavement marking plan submittal, including final cost estimate and final unique special provisions
- b. Design computations and quantity calculations
- c. Electronic design and plan files

11. Signing Plan (Source Type 1255)

Consultant will design new sign layout to meet requirements for an RCI. Consultant will analyze existing signs to determine which signs will be replaced, removed, or relocated to meet current signing standards. This includes the following signs:

- a. Mainline TH 210 within 0.5 mile of either side of the project limits
 - i. All signs
- b. Local Cross Street (CSAH 61)
 - i. All stop and yield signs on local legs at the cross-street intersections
 - ii. All regulatory signing near ramp/cross street intersection, which are typically Keep Right and Do Not Enter signs
 - iii. Any signing in these areas installed by others (to be reviewed to determine if signing should be retained or removed)
 - iv. All green background junction and directional signs. Independent route markers that are outside of the bullet list above will not be included in the plan

11.2. File Format

11.2.1. Electronic files for sign panel layouts must be submitted in current version of SignCAD.

11.3. Standards and Guidance

11.3.1. The Contractor must be prequalified for Signing Plan Design & Special Provisions for Level 1.

11.3.2. The 60, 90, 95, AND 100 PERCENT plan submittals must follow the guidelines for the respective plans found at: <http://www.dot.state.mn.us/metro/finaldesign/resources.html>

11.3.3. There are a variety of design resources available at the following State website: <http://www.dot.state.mn.us/trafficeng/signing/index.html>

11.3.4. Sample plans for signing plans are available on the signing website: <http://www.dot.state.mn.us/trafficeng/signing/plans.html>

11.3.5. Special provision templates are available on the signing website: <http://www.dot.state.mn.us/trafficeng/signing/plans.html>

11.3.6. This project must adhere to the following standards:

- a. State CADD Data Standards (Sign Cell Library)
- b. State Standard Signs and Markings Manual
- c. State Standard Signs and Markings Summary
- d. State Freeway Signing Plan Design Course Manual
- e. State Sign Plan Design for At-Grade Intersections Course Manual
- f. State Traffic Guide Sign Design Manual
- g. State LRFD Bridge Design Manual

11.4. Milestones and P6 Activity Codes

11.4.1. There are multiple tasks that need to be completed as part of SGN1000, 1010, and 1020 listed in this scope of work with different completion dates. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule.

11.5. Data Collection and Field Verification (P6 Activity Code SGN1000)

11.5.1. The Contractor will:

- a. Gather pertinent information from the State's project manager, including:
 - i. Current MicroStation geometric base files with available existing roadways
 - ii. Current MicroStation files for public utilities located near drainage structures, culverts, and pavement removal areas based upon results of the project manager's survey request
- b. Field verify existing signing

11.5.2. Deliverables:

- a. Updated project files for existing sign conditions

11.6. Prepare 60 Percent Signing Plan (Activity Code SGN1010)

11.6.1. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Prepare and submit a 60 percent complete signing plan that includes complete and accurate placement of existing signs and locations and sign panel layouts of new signs with notes indicating what is to be done at each sign location. Sign panel design layouts also are to be included.

11.6.2. Deliverables:

- a. 60 percent signing plan

11.7. Prepare 90 Percent Complete Signing Plan (Activity Code SGN1020)

11.7.1. This submittal must be a 100 percent complete plan, minus signatures. All pertinent information about the project or in the plan must be reviewed by the State prior to the 90 percent complete plan submittal. All project coordination must be complete and action items resolved prior to this submittal.

11.7.2. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 90 percent complete plan submittal.
- c. Prepare and submit 90 percent signing plans for review.
- d. Submit a draft copy of the special provisions; information in the special provisions that may require special attention or generate discussion must be reviewed by the State prior to this submittal to allow review time.
- e. Prepare and submit a signing plan cost estimate that includes each pay item detailing funding splits as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between State and Local Units of Government available here:
<http://www.dot.state.mn.us/policy/financial/fm011.html>
- f. Prepare and submit working copies of electronic design and plan files at 90 percent submittal. All signing design work must be combined into one file.

11.7.3. Deliverables:

- a. 90 percent signing plan submittal including draft special provisions and signing plan cost estimate
- b. Working copies of electronic design and plan files

11.8. Prepare 95 Percent Signing Plan (Activity Code SGN1020)

11.8.1. This submittal must be a 100 percent complete plan, minus signatures. All pertinent information about the project or in the plan must be reviewed by the State prior to the 95 percent complete plan submittal. All project coordination must be complete and action items resolved prior to this submittal.

11.8.2. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 95 percent complete plan submittal.
- c. Prepare and submit 95 percent signing plans for review.
- d. Submit a draft copy of the signing special provisions (see Special Provisions section below); information in the special provisions that may require special attention or generate discussion must be reviewed by the State prior to this submittal to allow review time.
- e. Prepare and submit a signing plan cost estimate that includes each pay item detailing funding splits as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between State and Local Units of Government available here:
<http://www.dot.state.mn.us/policy/financial/fm011.html>
- f. Prepare and submit working copies of electronic design and plan files at 95 percent submittal. All signing design work must be combined into one file.

11.8.3. Deliverables:

- a. 95 percent signing plan submittal including draft special provisions and signing plan cost estimate

- b. Working copies of electronic design and plan files

11.9. Prepare 100 Percent Signing Plan and Special Provisions (Activity Code SGN1030)

11.9.1. The Contractor will:

- a. Submit final signed signing plans with a complete set of design computations and quantity calculations for review and comment.
- b. Prepare and submit signed Division ST special provisions as they pertain to the tasks described by this scope
- c. Submit final signing plan cost estimate that includes each pay item detailing funding splits.
- d. Prepare and submit Engineering Justification Memo for any location where the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) standards were not met. This document must include project name and number, date, author, and for each location MN MUTCD standards are not satisfied; a description of the issue and statement describing the engineering judgement used to justify deviating from the MN MUTCD.
- e. Incorporate the State's Central Office review comments and address all comments and submit revised plan sheets and a revised complete plan.
- f. Prepare working copies of electronic design and plan files at 100 percent submittal; all signing design work must be combined into one file.

11.9.2. Deliverables:

- a. 100 percent signing plans, including Division ST Special Provisions submitted with 90 percent, 95 percent, and 100 percent submittals
- b. 100 percent signing plan cost estimate
- c. Design computations and quantity calculations
- d. Electronic design and plan files; final electronic files must be approved by the district

12. Lighting Plan (Source Type 1252)

12.1. File Format

- 12.1.1. Lighting files must be in AGI32 or Visual files (in native and PDF format).

12.2. Standards and Guidance

- 12.2.1. The design must provide the level and uniformity of light suggested in the current version of the State Roadway Lighting Design Manual and American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide.
- 12.2.2. There are a variety of design resources available at the following State website:
<http://www.dot.state.mn.us/trafficeng/lighting/index.html>.
- 12.2.3. The 60, 90, 95, and 100 percent plan submittals must follow the guidelines for the respective plans found at : <http://www.dot.state.mn.us/metro/finaldesign/resources.html>.
- 12.2.4. The State's traffic website provides appropriate reference materials (checklists and Computer Aided Design and Drafting [CADD] detail sheets).
- 12.2.5. Sample plans for lighting plans are available on the lighting website:
<http://www.dot.state.mn.us/trafficeng/lighting/plansheets.html>.

- 12.2.6. Special provision templates are available on the lighting website:
<http://www.dot.state.mn.us/trafficeng/lighting/lightingspec.html>.

12.3. Items Provided by the State

- a. Existing lighting system information, upon request.

12.4. Milestones and P6 Activity Codes

- 12.4.1. There are multiple tasks that must be completed as part of TLT1000 listed in this scope of work with different completion dates. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule. See attached P6 schedule.

12.5. Conduct Lighting Design Data Collection (P6 Activity Code TLT1000)

- 12.5.1. The Contractor will:

- a. Schedule and facilitate one field walk with State staff and all required stakeholders during lighting design to review field conditions prior to completion of 60 percent plan submittal.
- b. Complete the Facility Assessment Checklist included in the State Roadway Lighting Design Manual.
- c. Coordinate design details/standards with State functional areas such as bridge, signing, final design, and Traffic Management Center (TMC).
- d. Perform a field review to gather power source information and meet with the power company to determine permanent and/or temporary source of power for the lighting plan.
- e. Complete the Source of Power Checklist included in the State Roadway Lighting Design Manual for each source of power.
- f. Obtain a quote for the cost of the electric service, obtain an address from the city or county for each location with a new source of power identified (as required), and document power company and construction contractor responsibilities to provide/obtain power.

- 12.5.2. Deliverables:

- a. Document construction contractor responsibilities and power company responsibilities, cost quote from power company, and addresses for each source of power
- b. Complete State checklists (Facility Assessment and Source of Power)

12.6. Prepare 60 Percent Lighting Plan (P6 Activity Code TLT1000)

- 12.6.1. The Contractor will:

- a. Prepare and submit 60 percent lighting plans that include all required plan sheets and content except that field wiring diagrams are not required.
- b. Prepare and submit a preliminary lighting plan cost estimate.
- c. Prepare and submit a list of anticipated unique lighting special provisions that will require revisions beyond routine modifications allowed by following the directions in the impacted special provision boilerplate documents.

- 12.6.2. Deliverables:

- a. 60 percent lighting plan
- b. Preliminary lighting plan cost estimate

- c. Draft special provisions including non-boilerplate lighting special provisions

12.7. Prepare 90 Percent Lighting Plan (P6 Activity Code TLT1000)

12.7.1. This submittal must be a 100 percent complete plan, minus signatures. All pertinent information about the project or in the plan must be reviewed by the State prior to the 90 percent complete plan submittal. All project coordination must be complete and action items resolved prior to this submittal.

12.7.2. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 90 percent complete plan submittal.
- c. Prepare and submit 90 percent lighting plans for review.
- d. Submit a draft copy of the lighting special provisions (see Special Provisions section below); information in the special provisions that may require special attention or generate discussion must be reviewed by the State prior to this submittal to allow review time.
- e. Submit a revised lighting plan cost estimate with cost participation detail as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between State and Local Units of Government available here: <http://www.dot.state.mn.us/policy/financial/fm011.html>.
- f. Prepare and submit working copies of electronic design and plan files at the 90 percent submittal. All lighting design work must be combined into one file.

12.7.3. Deliverables:

- a. 90 percent lighting plan submittal including draft special provisions and a revised lighting plan cost estimate
- b. Working copies of electronic design and plan files

12.8. Prepare 95 Percent Lighting Plan (P6 Activity Code TLT1000)

12.8.1. This submittal must be a 100 percent complete plan, minus signatures. All pertinent information about the project or in the plan must be reviewed by the State prior to the 95 percent complete plan submittal. All project coordination must be complete and action items resolved prior to this submittal.

12.8.2. The Contractor will:

- a. Incorporate any necessary changes and submit revised original plan sheets along with a revised complete plan set.
- b. Complete and incorporate final detail checking of plans prior to the 95 percent complete plan submittal.
- c. Prepare and submit 95 percent lighting plans for review.
- d. Submit a draft copy of the lighting special provisions (see Special Provisions section below); information in the special provisions that may require special attention or generate discussion must be reviewed by the State prior to this submittal to allow review time.
- e. Submit a revised lighting plan cost estimate with cost participation detail as shown in State's Cost Participation for Cooperative Construction Projects and Maintenance

Responsibilities between State and Local Units of Government available here:
<http://www.dot.state.mn.us/policy/financial/fm011.html>.

- f. Prepare and submit working copies of electronic design and plan files at the 95 percent submittal. All lighting design work must be combined into one file.

12.8.3. Deliverables:

- a. 95 percent lighting plan submittal including draft Division SL special provisions and a revised lighting plan cost estimate
- b. Working copies of electronic design and plan files

12.9. Prepare 100 Percent Lighting Plan (P6 Activity Code TLT1000)

12.9.1. The Contractor will:

- a. Submit final signed lighting plans, along with one complete set of design computations, and quantity calculations for review and comment.
- b. Prepare and submit the signed lighting special provisions.
- c. Submit final lighting plan cost estimate with cost participation detail.
- d. Incorporate the State's Central Office review comments and address all comments and submit revised plan sheets and a revised complete plan.
- e. Prepare and submit quality check documentation completed throughout the development of the plan set at completion of this task.
- f. Prepare working copies of electronic design and plan files at the 100 percent submittal; all lighting design work must be combined into one file.

12.9.2. Deliverables:

- a. 100 percent lighting plan submittal, including signed Division SL special provisions, and a final lighting plan cost estimate
- b. Design computations and quantity calculations
- c. QA/QC documentation (working files) of detailed checking of plans
- d. Electronic design and plan files; final electronic files must be approved by the district.

12.10. Prepare Lighting Plan Special Provisions and Cost Estimate (P6 Activity Code TLT1010)

12.10.1. The Contractor will:

- a. Prepare all Division SL lighting plan special provisions. Division SL special provisions must be written to the appropriate operating agency standards. The special provisions must include state/county/city-furnished materials.
- b. Prepare a lighting plan cost estimate that includes:
 - i. Each pay item detailing funding splits
 - ii. Separate tabulation of non-contract items (state/county/city-furnished materials and labor) with funding splits
 - iii. Separate detailed listing of costs for each lighting system

12.10.2. Deliverables:

- a. Division SL Special provisions submitted 60 percent, 90 percent, 95 percent, and 100 percent submittals
- b. Cost estimates at 60 percent, 90 percent, 95 percent, and 100 percent submittals including "back sheet estimate" for source of power and State provided materials

13. Project Turn-In (Source Type 1250)

13.1. File Format

13.1.1. All electronic files must contain searchable text and must be submitted in the following format:

- a. Digitally signed Construction Plan in electronic format (PDF)
- b. Digitally signed Title Sheet in electronic format (PDF)
- c. Roadway (Division S) Special Provisions (Microsoft Word)
- d. Division SL and Division ST Special Provisions (PDF)
- e. Final Construction Cost Estimate (Excel)
- f. Utility Certification Letter (Microsoft Word)
- g. Signed Quality Management Plan (QMP) form (PDF)
- h. Cooperative Agreements Exhibits (Colored PDF)

13.2. Standards and Guidance

13.2.1. The final roadway construction cost estimate must be based on the Statement of Estimated Quantities (SEQ) developed based on guidance from the Design Scene ([SEQ Guidance \(PDF\) \(state.mn.us\)](#)).

13.3. Conduct QMP Check (P6 Activity Code TUR1020)

13.3.1. The Contractor will perform quality checking on all components included in final project turn-in to the State.

13.3.2. The Contractor will:

- a. Perform quality checking per the Contractor's project-specific QMP.
- b. Complete and submit the Quality Control Check Process for Consultant-Produced Plans (<http://www.dot.state.mn.us/design/qmp/documents/quality-control-consultant-produced.docx>).

13.3.3. Deliverables:

- a. Quality control checklist

13.4. Prepare Final Construction Cost Estimate (P6 Activity Code TUR1030)

13.4.1. The Contractor will:

- a. Prepare and submit a construction cost estimate reflecting the final project roadway design as submitted for project turn-in. The cost estimate must include: all roadway pay-items broken out by funding categories and State Project(s); the latest cost data available; and calculations for justification of all Lump Sum quantities and costs developed including quantity breakdowns and assumptions.
- b. Determine and submit a project contingency value representing those costs that are expected to exist on the project but are not captured in the quantity-based estimate (i.e., construction overruns).
- c. Determine and submit remaining project risk directly related to project components such as the project site, stakeholder coordination, utility impacts, or other potential project unknowns.

13.4.2. Deliverables:

- a. Final construction cost estimate

13.5. Submit Plans and Specs (P6 Activity Code TUR1040)

13.5.1. The Contractor will:

- a. Provide all specific documents as references to required sections of the submittal memo including Utility Certification Letter and Cooperative Agreements Exhibits.
- b. Provide a certified complete and final plan set in electronic format, representing all aspects of the project to the State for final proposal assembly and advertisement. The final plan set must include:
 - i. All resolved and incorporated project comments and commitments.
 - ii. One digitally signed title sheet certified by the certifying engineer in electronic format.
 - iii. One complete conformed plan in electronic format digitally signed by the certifying engineer.
- c. Provide a final set of project-specific special provisions for incorporation into the project proposal documents. The final special provisions must include:
 - i. Non-boilerplate Division S special provisions for general roadway and overall contract items to be finalized by the State's Central Office.
 - ii. Final project non-boilerplate special provisions with digital signature of the certifying engineer required under this contract for Division SL and Division ST.
 - iii. Digital or scanned signatures on the cover page for Division SL and Division ST.

13.5.2. Deliverables:

- a. Utility certification letter
- b. Cooperative agreement exhibits
- c. Digitally certified title sheet in electronic format
- d. Digitally certified and conformed plan set in electronic format
- e. Final non-boilerplate special provisions (all sections) for project in electronic format
- f. Final design construction estimate

14. Utility Coordination (Source Type 1195)

This task is for utility coordination only and does not include subsurface utility engineering.

This scope of work references and follows the State Utility Accommodation and Coordination Manual and assumes the contractor understands these steps.

14.1. Standards and Guidance

14.1.1. Specific utility coordination activities must be handled in compliance with:

- a. Statute 216D requires utility locations according to Construction Institute/American Society of Civil Engineers (CI/ASCE) 38-02 Standard Guideline for the Collection and Designation of Existing Subsurface Utility Data.
- b. Utility coordination will be performed according to the State Utility Accommodation and Coordination Manual, which is available online at: www.dot.state.mn.us/utility/.
- c. If subsurface utility engineering (SUE) is not performed on this project, Quality Level (QL) D accuracy will be required, except as surveyed for above-ground features.

14.2. Items Provided by the State

- 14.2.1. The State provided data should be considered draft and in need of verification by the Contractor as part of this scope for the defined project study area.

- a. Gopher State One Call (GSOC) ticket responses
- b. Available utility information
- c. Survey information for above-ground and overhead utilities near drainage structures, culverts, and pavement removal areas

14.3. Milestones and P6 Activity Codes

14.3.1. There are multiple tasks that need to be completed as part of UT11070 listed in this scope of work with different completion dates. The Contractor will work with the State to determine when each deliverable will be completed within the P6 schedule.

14.4. Conduct Utility Design Meeting – Step 4 (P6 Activity Code UT11010)

14.4.1. The purpose of this meeting is to review the project design with utility owners and discuss potential conflicts. Project plans that depict the resulting utility information will facilitate decision making at the meeting.

14.4.2. The Contractor will meet with the State, prior to the meeting with utility owners, to review the identified conflicts and propose potential design solutions.

14.4.3. The Contractor will:

- a. Plan and conduct the Utility Design Meeting, which often takes place between the 60 percent and 75 percent plan completion.
- b. Invite the State's PM, designers, and utility owners to this meeting.
- c. Prepare a draft utility conflict resolution matrix in advance of the meeting based on utility owner input. The conflict matrix will be used to develop the draft utility tabulation sheet.
- d. Facilitate the meeting such that solutions to utility conflicts are addressed to form an efficient design. Design modifications that minimize utility conflicts must be considered and documented.

14.4.4. The Contractor will create the roadway plan utility tabulation sheet for review with the State and utility owners. The utility tabulation sheet must consider excavation areas (including muck and clay areas), and conflicts with proposed drainage, ditch grading, bridge piers, footings, signal foundations, and other structures. The tabulation sheet also must consider areas potentially affected by the project's traffic control and construction phases.

14.4.5. Deliverables:

- a. Meeting agendas, materials, and summaries
- b. Draft utility conflict resolution matrix
- c. Draft roadway plan utility tabulation sheets

14.5. Obtain and Review Utility Relocation Plans, Schedules, Estimate and Permit Applications by Utility Company - Step 3 (P6 Activity Code UT11020)

14.5.1. The Contractor will:

- a. Perform review of marked-up plans and information provided by the utility owners.
- b. Identify potential utility conflicts
- c. Request utility owners that need to relocate facilities to develop utility relocation plans. The utility owner submittals must include detailed plans, schedules, and estimates.

14.5.2. Deliverables:

- a. Updated map of utility locations that includes the size, type, and ownership of facilities
- b. Utility Relocation Plans received from utility owners

14.6. Prepare and send GSOC Utility Verifications Letters (P6 Activity Code UTI1030)

14.6.1. The Contractor will perform the GSOC and send verification letters to utility owners. Utility verification information only letters must be sent to utility owners with facilities in the project limits that are not affected. Utility Verification Letters must be sent to affected utility owners.

14.6.2. Deliverables:

- a. GSOC ticket
- b. Utility verification letters
- c. Utility verification information only letters

14.7. Verification Letter Responses (P6 Activity Code UTI1040)

14.7.1. The Contractor will perform review of utility plans, schedules, and permit submissions and update the conflict resolution matrix, relocation plans, and utility tabulation sheets accordingly. The revised utility conflict resolution matrix must be used to revise the utility tabulation sheets.

14.7.2. Deliverables:

- a. Revised utility relocation plans
- b. Revised utility conflict resolution matrix
- c. Revised utility tabulation sheets
- d. Revised permit reviews

14.8. Draft Utility Notice & Orders Support – Step 11 (P6 Activity Code UTI1070)

14.8.1. State staff will prepare and send the draft Utility Notice and Orders. The Contractor will provide supporting information to the State for the writing of draft Notice and Orders, including:

- a. Utility relocation dates
- b. Construction dates
- c. Utility facility information
- d. Utility owner information

14.8.2. Deliverables:

- a. Supporting information for the draft Notice and Orders

14.9. Utility Information in Contract Documents - Step 12 (P6 Activity Code UTI1070)

14.9.1. The Contractor will submit complete utility plans and specifications based on the proper and most up-to-date information from the final plans.

14.9.2. Deliverables:

- a. Final utility plans and specifications