January 20, 2022

Project Management Development/Design Task Manual

(Preconstruction Process Documentation Manual)

MICHIGAN DEPARTMENT OF TRANSPORTATION

Bureau of Development

Design . Environmental . Development

Interim Updates: New Task 2165, Tasks 3130, 3140, 3360, 3390, 3510, 3555

Table of Contents

NOTE: All items in the Table of Contents are links, and clicking them will take you to the relevant item of the manual.

I. OVERVIEW OF THE MANUAL

A. INTRODUCTION
B. MANUAL ORGANIZATION

II. TASK NETWORKS

A. INTRODUCTION
B. LEVEL 1- SUMMARY NETWORK
C. LEVEL 2- GLOBAL NETWORK
Figure II-1 Summary Block Network

III. TASK DESCRIPTIONS

A. INTRODUCTION
B. TASK DESCRIPTIONS
Figure III-1, MDOT Preconstruction Task List
1. Planning Studies
1.1 Traffic/Safety Related (1100 Series)
1115 Traffic Data Collection for Studies
1120 Prepare Traffic Analysis Report for Studies
1125 Traffic Capacity Analysis for Studies
1155 Request/Perform Safety Analysis for Studies
1.2 Planning Studies (1110, 1300 - 1700)
1110 Obtain Study Consultant
1300 Traffic Impact Study
1350 Determine Need for Interstate Access Change Request
1400 Feasibility Study
1500 Corridor Study
1555 Interstate Access Change Request
155M Approval for IACR Issued by FHWA
1600 Access Management Study/Plan
1700 Other Miscellaneous Studies
2. Early Preliminary Engineering
2.1 EPE Scoping Analysis (2100 Series)
2100 Scope Verification and Initiation of EPE Activities
210M Program Project Review Board Concurrence
2110 Obtain Early Preliminary Engineering Consultant
2115 Traffic Data Collection for Studies
2120 Prepare Traffic Analysis Report for EPE/Design
2125 Traffic Capacity Analysis for EPE/Design
2130 Prepare Purpose of and Need for Project
213M Concurrence by Regulatory Agencies With Purpose and Need
2140 Develop and Review Illustrative Alternatives
2165 Request/Perform Road Safety Audit (RSA) for EPE/Design
2155 Request/Perform Safety Analysis for EPE/Design
2160 Prepare and Review EIS Scoping Documentation
216M Public Information Meeting
2.2 EPE Draft Analysis (2300 Series)
2310 Conduct Technical SEE Studies
2311 Cultural Resources Survey
2312 Recreational - Section 4(f)/6(f)

Table of Contents (cont'd)
[All items are links]

2313 Endangered Species Survey
2314 Wetland Assessment
2315 Wetland Mitigation
2316 Other Technical Report(s)
2321 Prepare for Aerial Photography
233M Aerial Photogrammetry Flight
2322 Finish/Print Aerial Photography
2330 Collect EPE Geotechnical Data
2340 Develop and Review Practical Alternatives
234M Concurrence by Regulatory Agencies With Practical Alternatives Considered
2360 Prepare and Review Environmental Assessment (EA)
236M Approval of Environmental Assessment by FHWA
2361 Obtain Photogrammetry Consultant
2370 Prepare and Review DEIS
237M Approval of DEIS by FHWA
2380 Distribute Environmental Assessment (EA)
238M Public Hearing For Environmental Assessment
2390 Distribute DEIS
239M Public Hearing for DEIS
2.3 EPE Final Draft Analysis (2500 Series)
2510 Determine and Review Recommended Alternative
250M Concurrence by Regulatory Agencies With Recommended Alternative
251M Department Approval of Recommended Alternative
2525 Prepare and Review Engineering Report
2530 Prepare and Review Request for FONSI
253M FONSI issued by FHWA
2540 Prepare and Review FEIS
254M Approval of FEIS by FHWA
2550 Obtain Record of Decision (ROD)
255M ROD Issued by FHWA
2560 Obtain Preliminary Engineering Authorization
2.4 Contamination Investigation (2800 Series)
2810 Project Area Contamination Survey (PACS)/Initial Site Assessment (ISA)
2820 Conduct Preliminary Site Investigation (PSI) for Contamination
3. Preliminary Engineering
3.1 Design Scope Verification (3100 Series)
3130 Verify Design Scope of Work and Cost
312M Department Concurrence of Design Scope Milestone
411M Obtain ROW Obligation
3140 Obtain Design Consultant
3150 Environmental Classification of Categorical Exclusions
3155 Categorical Exclusion Environmental Certification
3160 Obtain Design Survey Consultant
3.2 Base Plan Preparation (3300 Series)
3310 Prepare Aerial Topographic Mapping
3320 Conduct Photogrammetric Control Survey
3321 Set Aerial Photography Targets
3325 Geotechnical Site Characterization -- Structures
3330 Conduct Design Survey
3340 Conduct Structure Survey
3350 Conduct Hydraulic Survey
3360 Prepare Base Plans
3370 Prepare Structure Study
337M Submittal of Structure Study to FHWA for Approval
3375 Conduct Value Engineering Study
3380 Review Base Plans (Pre-GI)
3385 Preliminary Load Rating Evaluation
3390 Develop the Maintaining Traffic Concepts
3395 Project Manager Base Plan Review and Meeting
332M Base Plan Review Milestone
3.3 Preliminary Plan Preparation (3500 Series)
3500 Develop Transportation Management Plan

Table of Contents (cont'd)
[All items are links]

3505 Preliminary Pavement Design and Selection
3510 Perform Roadway Geotechnical Investigation
3520 Hydraulic Analysis for Bridges and Culverts, and Scour Analysis
3522 Drainage Study, Storm Sewer Design and Stormwater Post-Construction Best Management Practices (PC-BMP's)
3530 Geotechnical Foundation Engineering Report
3535 Conduct Structure Review of Architectural & Aesthetic Improvements
3540 Develop Maintaining Traffic Plan
3551 Prepare/Review Preliminary Traffic Signal Design Plan
3552 Develop Preliminary Permanent Pavement Marking Plan
3553 Develop Preliminary Non-Freeway Signing Plan
3554 Develop Preliminary Freeway Signing Plan
3555 Prepare Preliminary Traffic Signal Operations
3560 Conduct Preliminary Geometrics and Roadside Safety Reviews
3565 Preliminary Constructability Review
3570 Prepare Preliminary Structure Plans
357M FHWA Concurrence of Structure Study
3580 Develop Preliminary Plans
3590 Review THE Plans (Hold THE Plan Review Meeting)
3.4 Utilities/Railroad (3600 Series)
3600 Project Manager Plan Review
352M THE Plan Review Milestone
3610 Compile Utility Information
311M Utility Notification Milestone
3630 Prepare and Process Special Participation/Special Operational Agreements
3650 Coordinate Railroad Involvement for Grade Separations
3655 Coordinate Railroad Involvement for At-Grade Crossings
3660 Resolve Utility Issues
360M Utility Conflict Resolution Plan Distribution
361M Utility Meeting Milestone
3670 Develop Municipal Utility Plans
3672 Develop Special Drainage Structure Plans
3675 Develop Electrical Plans
3.5 Mitigation/Permits (3700 Series)
3710 Develop Required Mitigation
3720 Assemble Environmental Permit Application Information
3730 Obtain Environmental Permit
3.6 Final Plan Preparation (3800 Series)
3800 Safety and Mobility Peer Team Review
3810 Conduct Final Geometrics and Roadside Safety Reviews
3815 Geotechnical Design Review -- Structures
3821 Prepare/Review Final Traffic Signal Design Plan
3822 Complete Permanent Pavement Marking Plan
3823 Complete Non-Freeway Signing Plan
3824 Complete Freeway Signing Plan
3825 Prepare/Review Final Traffic Signal Operations
3830 Complete the Maintaining Traffic Plan
3840 Develop Final Plans and Specification
3850 Develop Structure Final Plans and Specifications
3860 Final Constructability Review
3865 Region Project Plan Quality Assurance Review
3870 Final Project Coordination Review
3875 Final Load Rating Evaluation
3880 CPM or Pavement Markings Quality Assurance Review
3885 Finalize Plans
388M Final Project Coordination Meeting Milestone
380M Plan Completion Milestone
Indicates completion of Final Plans and Proposal Package in preparation for the Omission/Errors Check Review and Certification Acceptance. This milestone ends Task 3885.
3.7 Letting (3900 Series)
3900 Omission and Errors Check (OEC) Review
391M Certification Acceptance Milestone

Table of Contents (cont'd)
[All items are links]

389M Plan Turn-In
3910 Prepare Final Project Package and Obtain Authorization
3920 Advertise and Let Job
392M Project Let Milestone
3930 Award Job Construction Contract
393M Project Awarded Milestone

4. Right of Way (4000 Series)
4.1 Early ROW Work (4100)
4100 Real Estate Pre-Technical Work
4.2 ROW Technical Work (4150)
4150 Real Estate Technical Work
4.3 ROW Appraisal Work (4350)
4350 Real Estate Appraisal Work
4.4 ROW Acquisition/Relocation (4450)
4450 Real Estate Acquisition Work
4.5 ROW Surveys (4500 Series)
4510 Conduct Right of Way Survey & Staking

5. Intelligent Transportation Systems
6.1. Special Tasks for Intelligent Transportation Systems
2570 ITS Concept of Operations
3365 Pre-Conceptual ITS Design and Meeting
3585 Final ITS Concept Design and Meeting
3595 Conduct ITS Structure Foundation Investigation
3615 Compile ITS Utility Information
3680 Preliminary ITS Communication Analysis
3690 Power Design (Power Drop in Field)
3890 Final ITS Communications Analysis

6. Design-Build Tasks
6.1. Special Tasks for Design-Build Jobs
6000 Initial Discussion/Scope
6050 General Engineering Consultant Development Contract
6080 Establish Dates for ENV and ROW Clearance
6100 Develop Request for Qualifications
6140 Advertise Request for Qualifications
6200 Shortlist for CRT Approval
6300 Develop Request for Proposals
6150 Design-Build Environmental Classification
6155 Design-Build Environmental Certification
6650 Design-Build Coordination of RR Involvement for Grade Separations
6655 Design-Build Coordination of RR Involvement for At-Grade Xings
6110 Design-Build Real Estate Pre-Technical Work
6160 Design-Build Real Estate Technical Work
6350 Design-Build Real Estate Appraisal Work
6450 Design-Build Real Estate Acquisition Work
6510 Design-Build Conduct ROW Survey and Staking
6520 Design-Build Certified Surveys for Acquisitions

IV. APPENDICES

APPENDIX A- INDEX TO TASKS BY RESPONSIBLE UNIT
APPENDIX B- INDEX TO TASKS BY ORGANIZATIONAL UNIT
APPENDIX C - ACRONYMS, ABBREVIATIONS & GLOSSARY
APPENDIX D- TASK ADDITION/CHANGE/REVIEW PROCESS

Chapter 1

I. Overview of the Manual

A. Introduction

The purpose of this manual is to document the Michigan Department of Transportation (MDOT) preconstruction process as it pertains to project development. The preconstruction process includes a wide variety of work steps beginning with the early study for Improve/Expand projects, and after the "Call for Projects" for Preserve Projects, and ending with the construction contract award. This manual is designed to be used in conjunction with the Road and Bridge Design Manuals. It is an supplement, and does not supersede either of those manuals.

MDOT has recognized that the preconstruction process is very complex and that managing the process can best be accomplished by using a uniform and structured scheduling and reporting system. A scheduling and reporting system makes use of standard tasks which can be linked together to form a network of tasks within each project schedule. This manual documents the standard network tasks and provides descriptions for tasks included in the schedule.

The network and tasks were initially developed in cooperation with over 100 MDOT staff and managers. Input from each management unit involved in the preconstruction process was incorporated into the network and task descriptions. The network and task descriptions continue to be updated so that they closely represent the current preconstruction process and the current Department program that houses the scheduling data.

B. Manual Organization

This manual is organized to allow the reader to quickly reference task descriptive information. There are two primary methods by which a task can be identified and referenced.
Option 1: Users with an understanding of design processes can use the network to identify the task of interest and then use the task number to locate the descriptive data. The tasks in the Global Network have task numbers and titles which correspond to the task descriptions in Chapter III. The descriptions are organized by task number in ascending order. Special tasks used in instances such as Intelligent Transportation Systems projects have been set apart.

Option 2: Utilize the index in Appendix A to locate the desired task of interest. This index lists the detail tasks' titles and numbers by reporting management units in alphabetical order. The task information and location in the development process can then be identified in the description listing and network by means of the task number.

The following are descriptions of the manual's chapters which should help you become familiar with the overall manual organization:

- Chapter I - Overview of the Manual - Describes the content and purpose of the manual.

- Chapter II - Task Networks - Introduces the two levels of networks used in project management software: The Summary Block Network and The Global Network. The Chapter includes a diagram for The Summary Block Network, and a reference to The Global Network file online. The Global Network is now found on-line as an pdf document for best viewing and ease of printing.

- Chapter III - Task Descriptions - Describes each task and associated work. The descriptions also detail the start and finish of a task as well as the management unit that is responsible for entering these dates into the project management software.

    - Except where specifically noted, the same task descriptions and work steps will apply to both MDOT and Consultant performed tasks.

    - Some forms are mentioned or listed within the task descriptions. See also MDOT's Forms repository here, and refer to other governing documents in that task's organizational area for form verification.

- Appendix A contains a list of management units responsible for reporting actual start and finish dates and associated tasks.

- Appendix B contains a list of organizational units and tasks which they will be reporting time to.

- Appendix C contains a list of network milestones and descriptions.

- Appendix D contains a list of commonly used acronyms in this manual.

- Appendix E is a glossary of project management terminology.

- Appendix F describes the step-by-step process involved to add and/or review a task. New items or steps not previously involved are highlighted in bold.

Chapter 2

II. Task Networks

A. Introduction

Each design project is unique compared to other design projects. Projects differ in many ways, such as treatment of special requirements (wetlands, hazardous waste, historic structures, etc.), the magnitude of effort required, and who will accomplish the work (in-house, consultant, municipality). Even with this uniqueness, the overall approach is fairly standardized from one project to another. The tasks and networks are based on the standardized approach to highway project development.

The networks are broken into two levels. Level 1 is made up of the summary blocks. Level 2 is made up of the detail tasks. Level 2 consists of approximately 80 to 100 tasks and milestones. The scheduling and reporting of work is done at the detail task level. The detail task information is rolled up to the summary blocks. There are approximately 16 summary blocks. Upper-level management will typically want information for projects at the summary level, except when there are schedule exceptions where the detail tasks might provide insight into the situation. The managers responsible for the project and carrying out the actual work will focus on the detail tasks. This will allow for better coordination and communication between the various groups.

B. Level 1- Summary Network

The Summary Block Network is made up of approximately 16 blocks, each representing a functionally related group of detail tasks. The actual number of blocks appearing in a project's summary block network depends on the overall scope of the project. For example, the project management software will drop the right-of-way-related blocks from the summary block network for projects which do not require additional right of way. In this manner, a network is created which reflects the uniqueness of the specific project requirements. The Project Manager is given the opportunity to refine the network to make it unique to the specific project.

All dates and other task information are rolled up from the detail tasks linked to the summary block. For example, the start of a summary block corresponds to the earliest start of all the detail tasks linked to that summary block. Likewise, the finish of

the summary block will correspond to the latest finish of all the detail tasks linked to that summary block. In this manner, managers can get a broader view of a project and still have the option of getting more detail information if it is required. Other task information which gets rolled up includes resource requirements and estimated costs.

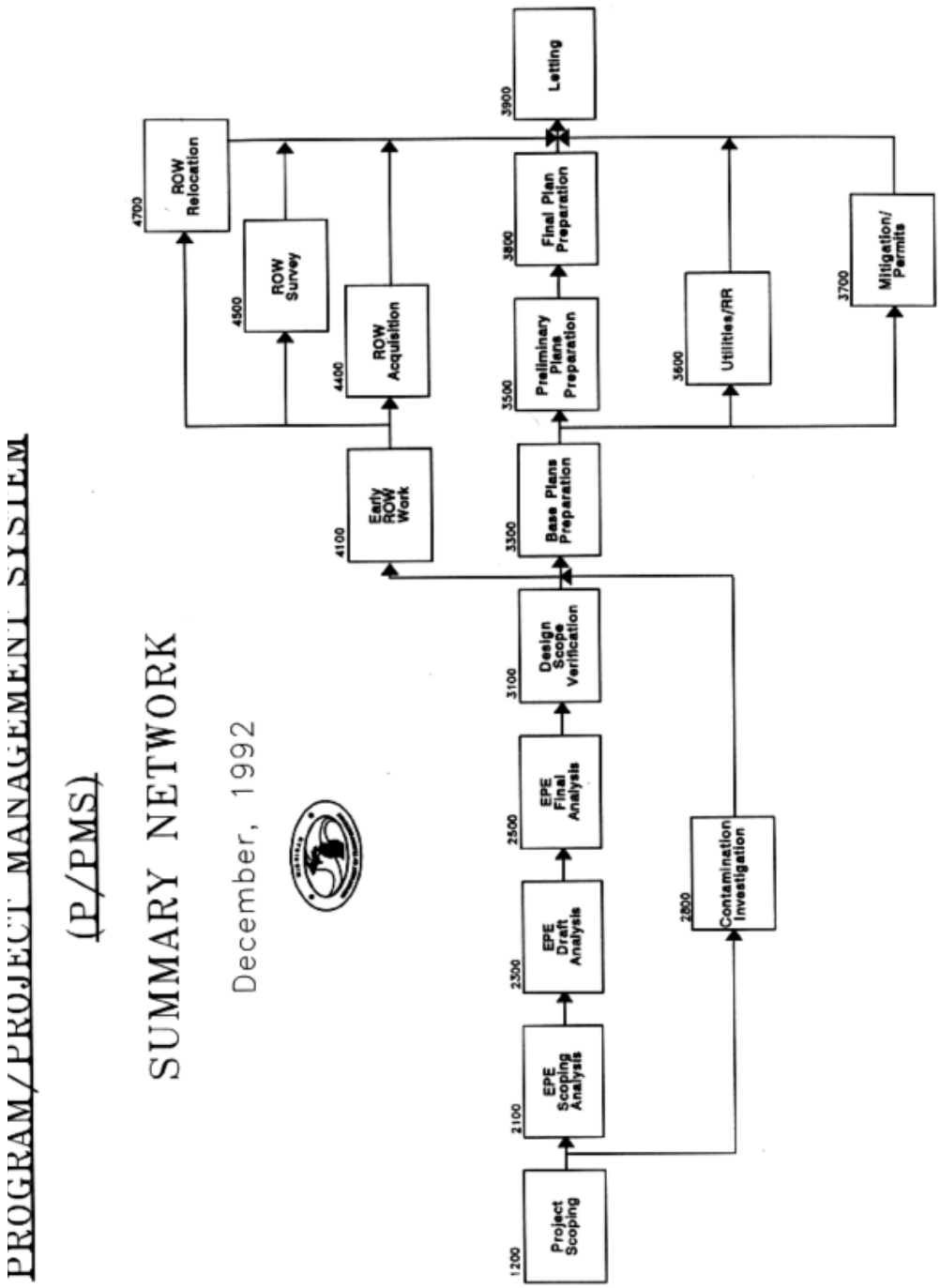
The network in Figure II-1 is the Summary Block Network. Each box represents a summary block. The network is a precedence network where the lines are used to describe the relationship or constraints between tasks. The four-digit number along the top edge of the box refers to the global task network (see Section II.3). Each detail task with the same leading two digits will have its dates, costs and resource requirements summarized as part of the corresponding summary block

C. Level 2- Global Network

The Global Network consists of approximately 130 tasks and 30 milestones. Generally, each task represents roughly 5% of the total labor requirement and/or duration for a project. Several additional detail tasks were included because they have a special role within the project development process but do not fit this rule. Like the Summary block network, the Global Network is modified to reflect the characteristics of each project. For example, the tasks needed to secure a permit will be dropped if permits are not required. This "switching off" of tasks occurs for several other sets of tasks (Environmental, Right-of-Way, Utilities, etc.).

The detail tasks are used to report labor-hours through the payroll system, to report task progress (start, finish and estimated completion date) through Project Manager Input, and to schedule work for the various management units. Project Managers tend to focus on the Global Network since it allows the various groups to communicate the status of their current work effort. All groups can track the work steps within the detail tasks to ensure that work is accomplished on time and within the budget.

Figure II-1 Summary Block Network



The network configuration of the Global Network may be found on-line on our web page on the Interchange here.

Each box represents a detail task. Ovals represent milestones which occur at strategic times in the project development process. The network is a precedence network where the lines are used to describe the relationships or constraints between tasks. In the Global Network, three types of constraints are shown — finish to start, finish to finish, and start to start. Each task has a unique number along the top of the box. This number corresponds to the task description in Chapter III and task codes used in the MDOT payroll system. The first two numbers of the task identify the summary task. The detail task information will be rolled up into the summary task.

Project management tasks serve as the discrete units for which time and resources are planned, scheduled and reported. A standardized set of tasks is to be used in project management software. As new tasks are identified, they will be defined and incorporated into the network. The tasks should reflect the work of the Department so that projects can be easily incorporated into project management software. Standardizing the tasks between projects allows managers and other transportation employees to understand the work proposed for a project. Still, every project is unique, and some portion of the work will have trouble fitting into the standard set of tasks in the allowed timeframe for a specific project. If this becomes a persistent problem, then the Project Managers should discuss this with the project management office staff so that additional tasks can be included, or durations may need to be adjusted.

Chapter 3

III. Task Descriptions

A. Introduction

The Global Network consists of nearly 130 tasks and over 30 milestones. The scheduling and reporting of work is done at the detail task level. This chapter, Task Descriptions, describes each of the tasks that make up the Global Network. The following data is provided for each of the detail tasks:

- Task Number — serves to identify the task; it also can be used to report time in the payroll system when available in SIGMA.
- Date — the date the description was last updated.
- Task Title — descriptive phrase describing the work.
- Reporting Management Unit — the management unit(s) that is responsible for entering the actual start and complete dates for the task (Project Managers).
- Task Start — the anticipated start date of the task which all groups can recognize.
- Task Finish — the anticipated finish date of the task which all groups can recognize.
- Task Description — general discussion of the work associated with the task.
- Work Steps — work steps which are typically associated with the task. The list is general in nature.

Appendix B is an index of the task descriptions by the reporting management unit.

B. Task Descriptions

The purpose of the task descriptions is to increase understanding of the general flow of work during project development. The descriptions are general in nature. They are intended to convey the general scope of work — they are not a "cookbook" on how to develop a highway project. This document does not address every aspect of project development. A great deal more detail would be required to cover all circumstances. Please also note that consultant work within these task descriptions will be superseded by the scope of the consultant contract as applicable.

The MDOT Preconstruction Tasks List (Figure III-1) on the following pages lists in numerical order the current tasks included in the Global Network. Following the task listing are the individual Task Description sheets, also in numerical order. ***Newer tasks are identified in bold and italics.*** Except where specifically noted, the same Task Descriptions and Work Steps will apply to both MDOT and Consultant performed tasks. Where applicable, electronic plans and documentation should be referenced throughout the design processes.

Figure III-1, MDOT Preconstruction Task List

Early Study/Traf

Traffic and Safety Related (1100 Series)

1115	Traffic Data Collection for Studies
1120	Prepare Traffic Analysis Report for Studies
1125	Traffic Capacity Analysis for Studies
1155	Request/Perform Safety Analysis for Studies

Planning Studies (1110, 1300 – 1700)

1110	Obtain Study Consultant
1300	Traffic Impact Study
1350	Determine Need for Interstate Access Change Request
1400	Feasibility Study
1500	Corridor Study
1555	Interstate Access Change Request
1600	Access Management Study/Plan
1700	Other Miscellaneous Studies

Early Prelim. Eng

EPE Scoping Analysis (2100 Series)

2100	Scope Verification and Initiation of EPE Activities
2110	Obtain Early Preliminary Engineering Consultant
2115	Traffic Data Collection for EPE/Design
2120	Prepare Traffic Analysis Report for EPE/Design
2125	Traffic Capacity Analysis for EPE/Design
2130	Prepare Purpose of and Need for Project

2140	Develop and Review Illustrative Alternatives
2150	Request/Perform Road Safety Audit for EPE/Design
2155	Request/Perform Safety Analysis for EPE/Design
2160	Prepare and Review EIS Scoping Document

EPE Draft Analysis (2300 Series)

2310	Conduct Technical SEE Studies
2311	Cultural Resources Survey
2312	Recreational Survey – Section 4(f)/6(f)
2313	Endangered Species Survey
2314	Wetland Assessment
2315	Wetland Mitigation
2316	Other Technical Reports
2321	Prepare for Aerial Photography
2322	Finish/Print Aerial Photography
2330	Collect EPE Geotechnical Data
2340	Develop and Review Practical Alternatives
2360	Prepare and Review EA
2361	Obtain Photogrammetry Consultant
2370	Prepare and Review DEIS
2380	Distribute EA
2390	Distribute DEIS

EPE Final Analysis (2500 Series)

2510	Determine and Review Recommended Alternative
2525	Prepare and Review Engineering Report
2530	Prepare and Review Request for FONSI
2540	Prepare and Review Request for FEIS
2550	Obtain ROD
2560	Obtain Preliminary Engineering Authorization

Contamination Investigation (2800 Series)

2810	Project Area Contamination Survey (PACS)/Initial Site Assessment (ISA)
2820	Conduct Preliminary Site Investigation (PSI) for

Prelim. Eng.

Design Scope Verification (3100 Series)

3130	Verify Design Scope of Work and Cost
3140	Obtain Design Consultant
3150	Categorical Exclusion Environmental Classification
3155	Categorical Exclusion Environmental Certification
3160	Obtain Design Survey Consultant

Base Plan Preparation (3300 Series)

3310	Prepare Aerial Topographic Mapping
3320	Conduct Photogrammetric Control Survey
3321	Set Aerial Photo Targets
3325	Geotechnical Site Characterization - Structures
3330	Conduct Design Survey
3340	Conduct Structure Survey
3350	Conduct Hydraulics Survey
3360	Prepare Base Plans
3361	Review and Submit Preliminary ROW Plans
3370	Prepare Structure Study
3375	Conduct Value Engineering Study
3380	Review Base Plans
3385	Preliminary Load Rating Evaluation
3390	Develop the Maintaining Traffic Concepts
3395	Project Manager Base Plan Review

Preliminary Plans Preparation

3500	Develop Transportation Management Plan
3505	Preliminary Pavement Design and Selection
3510	Perform Roadway Geotechnical Investigation
3520	Conduct Hydraulic/Hydrologic and Scour Analysis
3522	Conduct Drainage Study, Storm Sewer Design and
3530	Geotechnical Foundation Engineering Report
3535	Conduct Structure Review for Architectural and Aesthetic
3540	Develop the Maintaining Traffic Plan
3551	Prepare/Review Preliminary Traffic Signal Design Plan
3552	Develop Preliminary Permanent Pavement Marking Plan
3553	Develop Preliminary Non-Freeway Signing Plan
3554	Develop Preliminary Freeway Signing Plan
3555	Prepare/Review Preliminary Traffic Signal Operations
3560	Conduct Preliminary Geometrics and Roadside Safety
3565	Preliminary Constructability Review
3570	Prepare Preliminary Structure Plans
3580	Develop Preliminary Plans
3581	Review and Submit Final ROW Plans
3590	Review Preliminary Plans (Hold THE Plan Review Meeting)
3600	Project Manager Preliminary Plan Review

Utilities/Railroad (3600 Series)

3610	Compile Utility Information
3630	Prepare and Process Participation/Special Operational

3650	Coordinate Railroad Involvement for Grade Separations
3655	Coordinate Railroad Involvement for At-Grade Crossings
3660	Resolve Utility Issues
3670	Develop Municipal Utility Plans
3672	Develop Special Drainage Structures Plans
3675	Develop Electrical Plans

Mitigation/Permits (3700 Series)

3710	Develop Required Mitigation
3720	Submit Environmental Permit Application
3730	Obtain Environmental Permit

Final Plan Preparation (3800 Series)

3800	Safety and Mobility Peer Team Review
3810	Conduct Final Geometrics and Roadside Safety Reviews
3815	Geotechnical Design Review - Structures
3821	Prepare/Review Final Traffic Signal Design Plan
3822	Complete Permanent Pavement Marking Plan
3823	Complete Non-Freeway Signing Plan
3824	Complete Freeway Signing Plan
3825	Prepare/Review Final Traffic Signal Operations
3830	Complete the Maintaining Traffic Plan
3840	Develop Final Plans and Specifications
3850	Develop Structure Final Plans and Specifications
3860	Final Constructability Review
3865	Region Project Plan Quality Assurance Review
3870	Final Project Coordination (FPC) Review
3875	Final Load Rating
3880	CPM Quality Assurance Review
3885	Finalize Plans

Letting (3900 Series)

3900	Omission and Errors Check (OEC) Review
3910	Prepare Final Project Package and Obtain Authorization
3920	Advertise and Let Project
3930	Award Project Construction Contract

Right Of Way

4100	Real Estate Pre-Technical Work
4150	Real Estate Technical Work
4350	Real Estate Appraisal Work
4450	Real Estate Acquisition Work
4510	Conduct Right Of Way Survey & Staking

ITS	Intelligent Transportation Systems
2570	ITS Concept of Operations
3365	Pre-Conceptual ITS Design and Meeting
3585	Final ITS Concept Design and Meeting
3595	Conduct ITS Structure Foundation Investigation
3615	Compile ITS Utility Information
3680	Preliminary ITS Communication Analysis
3690	Power Design (Power Drop in Field)
3890	Final ITS Communication Analysis

1. Planning Studies

1.1 Traffic/Safety Related (1100 Series)

1115 Traffic Data Collection for Studies

Reporting Management Unit:	BTP – Data Inventory – Data Collection – Field Ops
Task Start:	Receive request for traffic counts
Task Finish:	Distribution of traffic counts
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Travel Information Unit collects traffic data for a wide variety of Department uses. Upon request (via Form 1776 – Traffic Survey Request), they will collect specific data at identified locations. This task supports data collected for studies or regular maintenance activities.

WORK STEPS:

1. Receive request for traffic data via Form 1776.

2. Input actual start date into project management software.

3. Traffic Data Collection may include, but are not limited to, the following:

   a. Directional 24-hour volumes classified by vehicle types
   b. Turning movement volumes
   c. Weave-merge movements within traffic flow
   d. Speed studies
   e. Peak-hour volumes
   f. Delay Studies
   g. Pedestrian Counts

4. Input actual finish date into project management software.

5. Transmit traffic data to the Requestor.

1120 Prepare Traffic Analysis Report for Studies

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Receipt of request for traffic analysis
Task Finish:	Distribution of traffic analysis report.
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Traffic Analysis Unit prepares comprehensive traffic reports for all Preserve, Improve, and Expand projects studied by the Department. The Traffic Analysis Report (TAR) provides detailed traffic information for base year and future year alternatives to assist in determining design requirements and noise and air quality impacts of projects. The Traffic Analysis Report should be submitted via Form 1730. Information provided in the TAR is used in the design of roadway cross sections; pavement design, intersections, and signalization requirements; and for establishing the level of service (LOS), noise mitigation needs, and air quality compliance for each of the alternatives. Traffic is forecasted 20 years for impact analysis and design as required by the Federal Highway Administration and/or Act 51.

Evaluations performed to prepare the TAR include:

- socio-economic data (population trends, present land use, planned new developments);
- base year traffic info such as average annual daily traffic (ADT), design hour volumes (DHV), AM and PM peak hour turning movements, percent commercial, weave movements and kip axle equivalents, and pedestrian non-motorized volumes;
- forecast of future traffic volumes (ADT's, DHV's, peak hours, commercial, weave movements, and kip axle equivalents);
- assumptions used to determine growth factors in the analysis.
- forecasts of traffic diversion rates for Mobility and Safety Program analysis.

Special studies are done when the data for an alternative is incomplete or old. The types of studies include:

- Volume Classification Study,
- Single Station Origin - Destination Study, and
- External Origin - Destination Study.

Detailed information on these special study types, as well as extra information for Consultants, is provided in the *Supplemental Information* following the Work Steps.

WORK STEPS:

1. Assess data needs and availability. Review existing traffic data and previous traffic studies in the project area. Request additional studies if required (Form 1776), such as external origin - destination studies or single station studies. This decision is based on data availability and the timeliness of the data (age).

2. Input actual start date into project management software.

3. Request additional traffic data from the Data Collection Unit as required, including traffic counts, turning movements, commercial classification counts, origin and destination studies, and truck weight information.

4. Collect socio-economic data

   a. Population data
   b. Land use information
   c. Planned new developments

5. Utilize traffic demand models maintained by the Demand Estimation and Travel Impact Analysis Unit and/or the Metropolitan Planning Organizations (MPO). See *Supplemental Information* for more details.

6. Perform special/technical studies, if appropriate, which can include external origin - destination or single station studies.

7. Prepare written report of traffic conditions and assumptions used to determine forecasted traffic. Include traffic schematics of intersections, interchanges, and weave movements for base and future years.

8. Input actual finish date into project management software.

9. Transmit final report to the group requesting the report and to various other divisions as required within the Department.

SUPPLEMENTAL INFORMATION

1. Types of Special/Technical Studies

a. Volume Classification Study
   i. Request from the Data Management Section
   ii. Traffic volume data may include:
      1) Include directional 24-hour volumes classified by vehicle types
      2) Turning movement volumes
      3) Weave-merge movements within traffic flow
      4) Speed studies
      5) Peak-hour volumes
   iii. This data is used to analyze the current traffic volume, the percent of the volume during peak hour and/or the development of the design hour volume, the percentage distribution of automobiles, small and large trucks and the exchange of vehicles at intersections and/or interchanges.
   iv. This base data is then used to develop traffic projections for the Traffic Analysis Report using a history of traffic volumes along the route and/or local land use development projections.

b. Single Station Origin-Destination Study
   i. Request to the Data Management Section
      1) Conduct a survey of motorists at one location along a highway.
      2) Involves stopping a sample of motorists to obtain travel information including:
         a) origin
         b) destination
         c) purpose
         d) number of passengers
         e) frequency of occurrence
   ii. Information indicates purpose of trip and the probability that relocation in highway location would impact or change their trip-distribution patterns.

c. External Origin-Destination Study
   i. Similar to single station study
   ii. Utilized around urban areas that may be served with multiple state trunk line facilities
   iii. Sampling and questionnaire process similar to Single Station Origin-Destination Study
      1) Questions regarding stops and location within the urban area
      2) Urban area subdivided into Traffic Analysis Zones containing homogeneous types of land use which are bordered by local street networks or topography.

iv. This information is used to examine travel through and into the community and could, with proper synthesis of local data, be used to develop a local traffic model process.
v. This data can be used to analyze the impact of highway relocation within or bypassing the community.

2. Forecasting Software

a. Utilize appropriate traffic analysis, modeling, and forecasting software including but not limited to:
   i. TRANSCAD
   ii. Highway Capacity Software
   iii. CORSIM
   iv. Synchro

b. Both capacity and level of service are to be reported. Queue analysis shall be performed where needed.

3. Display of Traffic Analyses

a. Graphically Utilize appropriate traffic analysis, modeling, and forecasting software including but not limited to:
   i. TRANSCAD
   ii. Highway Capacity Software
   iii. CORSIM
   iv. Synchro

b. Use separate layers for traffic forecasting process.

c. The traffic analyses must allow the reader to 'reconstruct' the analyst's steps and arrive at the same conclusions.

1125 Traffic Capacity Analysis for Studies

Reporting Management Unit:	Development Bureau – Quality & Innovative Design – Geometric Design Unit
Task Start:	Receipt of traffic analysis and projections
Task Finish:	Completion of Traffic Capacity analysis
Date Last Modified:	January 2012

TASK DESCRIPTION:

The Geometrics Design Unit reviews proposed roadway geometry to ensure compliance with design standards. The Traffic Analysis Report (TAR) is used, along with existing and proposed roadway alignments and design details, to evaluate the operational characteristics of current and future year operations - both with and without the proposed improvements. The operational analysis is typically conducted using HCM and/or SYNCHRO procedures, or other software available to MDOT.

This task's duration and labor hours are greatly dependent on the number of alternatives explored, as well as the number of interchanges/intersections within them. Because those details are not known until after the project has begun, it will be up to the Project Manager to make their best guess initially, and make further modifications later.

WORK STEPS:

1. Receive Traffic Analysis Report and request for Capacity Analysis.

2. Input actual start date into project management software.

3. Assess data needs and availability. Request additional studies if required, based on data availability and the timeliness of the data (age).

4. Conduct operational analysis of the existing and proposed geometrics.

5. Review existing and proposed geometrics for compliance with design standards.

6. Resolve design/geometric issues or concerns.

7. Approve recommended designs/geometrics to meet operational requirements.

8. Input actual finish date into project management software.

9. Transmit recommendation to the Project Manager and/or Requestor.

1155 Request/Perform Safety Analysis for Studies

Reporting Management Unit:	Region/TSC Traffic and Safety
Task Start:	Receive request for project safety analysis from Systems/Project Manager
Task Finish:	Submit analysis document to Systems/Project Manager and others
Date Last Modified:	January 2012

TASK DESCRIPTION:

The following description outlines and charts the process details for accomplishing the task To Request/Perform Project Scope Safety Analyses and to Determine Safety Elements of Total Project Scope. Federally-Funded 3R/4R projects require a crash history/safety analyses and appropriate response (fix or design exception) in the project scope of project certification. If it is not feasible for MDOT staff to perform this task, retaining the services of a qualified consultant to perform this task is an option.

This task applies to both Road and Bridge program jobs. The primary purpose of this task is to scope-a-fix for traffic safety issues and elements in accordance with MDOT 3R/4R and CPM project guideline requirements. Secondarily, this task may support design exceptions to project requirements, or become a factor in revising the intended project type (i.e.; from 3R to 4R).

The Systems/Project Manager initiates this Task by submitting a request to the appropriate Region or TSC Traffic and Safety Engineer. With the request, the Systems/Project Manager will supply:

- Job number for scoping
- C.S. and/or P.R.#s with respective milepoints limits
- Project Description
- Intended Project Type (3R, 4R, CPM, etc.)
- Bridge numbers, milepoints, etc.
- Detailed maps and/or diagrams where needed for exact locating
- Preliminary safety concerns
- Potential design exception needs
- Date needed.

WORK STEPS:

1. Receive request for Safety Analysis.

2. Input actual start date into project management software.

3. The Region/TSC Traffic & Safety Engineer will verify submitted information, and then utilize C.S. /P.R. Mile Points to obtain safety-related data and information, such as:

    a. Crash Data (3 years minimum)
    b. History Profile (Analyses, Recommendations, Traffic Control Devices)
    c. Current road/roadside features (Photolog, As-Built Plans, or On-Site)

4. The Region/TSC T&S Engineer will analyze safety-related data and information to formulate conclusions and recommendations. Analysis should include:

    a. Identification of crash concentrations
    b. Identification of crash type patterns
    c. Identification of crash cause patterns
    d. Identification of Geometric deficiencies
    e. Determination of crash reduction alternatives, including "No safety enhancements to project scope required."

5. The Region/TSC T&S Engineer should review the safety improvement alternatives, determine costs, and select optimum strategies for implementation in coordination with the Project Development and/or Systems Manager. The final decision as to whether a safety improvement will be project-funded or Safety Programs-funded requires consult and coordination among the Region Systems Manager, Safety Programs System Manager, and the TSC Manager.

6. The Region/TSC T&S Engineer will prepare a memo to document the findings, conclusions, and safety improvement recommendation(s) resulting from the analysis.

7. The Region/TSC T&S Engineer will distribute the documenting memo as follows:

    a. Original to the Project Manager for project requirements.
    b. CC's as appropriate to implement operational (non-construction) improvements.
    c. CC to Geometric Design and Traffic Control Devices Units in Lansing for reference during future plan reviews.

8. Input actual finish date into project management software.

1.2 Planning Studies (1110, 1300 - 1700)

1110 Obtain Study Consultant

Reporting Management Unit:	Project Manager
Task Start:	Department approval of project's scope, schedule and cost
Task Finish:	Date of an executed contract agreement signed by all parties
Date Last Modified:	January 2012

TASK DESCRIPTION:

Management's approval of the project's scope, schedule and cost initiates the engineering and/or environmental process. Based on the size and complexity of the project and/or availability of the in-house resources, it may be necessary to contract with consultants for a portion of, or the entire, Early Preliminary Engineering/Project Development effort.

This task deals with all the tasks necessary to obtain consultant services for early preliminary engineering which may include project location, environmental technical studies and environmental document preparation. There are two methods to retain a consultant for this effort:

- Indefinite Agreement
- Individual Contract

The Indefinite Agreement is an open-ended contract which is used to retain consultants on an as-needed basis. The contract has time and total dollar limits.

The Individual Contract is specific to the project. The contract describes the scope, cost and schedule as agreed to by both the consultant and the Department.

This task is considered complete when there is an actual executed agreement signed by all parties.

WORK STEPS:

1. Utilize a list of pre-qualified consultants or use existing list.
2. Input actual start date into project management software.
3. Prepare Request for Proposals (RFP).
4. Request Letter of Interest from consultant for upcoming contract.
5. Review & score letters of interest to determine short list of consultants (top 3).
6. Distribute RFP to the short list of interested consultants.
7. Hold Pre-bid meeting, if appropriate.
8. Receive and review proposals.
9. Determine a Short list of consultants and interview.
10. Recommend a consultant as top candidate.
11. Negotiate recommended selection proposal with top candidate.
12. Submit proposal for review and acceptance by Commission Audit.
13. Coordinate with Program Administration to assure adequate funding is in place.
14. Prepare final contract document.
15. Circulate document for signatures.
16. Award project.
17. Input actual finish date into project management software.
18. Hold briefing meeting and give notice to proceed.

1300 Traffic Impact Study

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Preparing and/or Reviewing Traffic Impact Study
Task Finish:	Approval of Traffic Impact Study
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Asset Management Division of the Michigan Department of Transportation is responsible for preparing or reviewing Traffic Impact Studies. A Traffic Impact Study (TIS) is a specialized study which evaluates the affects that a particular proposed development's traffic will have on the surrounding transportation network, and from MDOT's perspective, on adjacent State Trunkline routes. For proposed developments over a certain threshold size, a TIS is an essential part of the review process to assist developers and public agencies in making land-use and transportation improvement decisions where a proposed development may have a significant negative impact on traffic and transportation operations.

WORK STEPS:

1. Review or perform a data collection of traffic volumes and other metrics for the associated road transportation network of the existing development and impact area. Gather any other relevant data (such as development size and square footage, locations of driveways, other transportation facilities, etc.).

2. Input actual start date into project management software.

3. Perform or review an analysis of existing traffic operations of the study area network, with a focus on peak-hour operations. This includes performing a capacity analysis and level-of-service (LOS) analysis using Highway Capacity Manual (HCM) and Synchro 7.0 methodologies.

4. Develop or review the trips estimated to be generated by the proposed development. Determine the appropriate trip generation of the development, using a most recent version of the ITE Trip Generation Manual. Evaluate and account for Pass-by and Internal trips.

5. Determine or review the Trip Distribution of development generated trips, and the assignment of those trips on the adjacent road network, including the turning-movements at key intersections and boulevard crossovers.

6. Perform or review an analysis of the impact of the new development generated trips on traffic operations of adjacent roads and intersections in the study area, using the same methods as noted in #3 above. This would be for the design year – the year of opening of the proposed development, and any future build-out year for development phasing.

7. Review or perform an analysis of future forecast volumes on the study area road network using appropriate statewide or urban travel model and project-level model forecast tools and methods. This includes traffic from the development site, and non-site background traffic forecasts.

8. Input actual finish date into project management software.

9. Coordinate with other appropriate MDOT organizational units (Region/TSC's, Traffic & Safety Geometrics, Signals, etc.) regarding recommended improvements for addressing any operational deficiencies caused by the traffic impacts of the new development.

1350 Determine Need for Interstate Access Change Request

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Preparing Interstate Access Change Request (IACR)
Task Finish:	Determination of need for IACR by FHWA
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Asset Management Division of the Michigan Department of Transportation and FHWA can together determine if a future Interstate Access Change Request (IACR) may be required. This may also be performed in the course of preparing the environmental document, when any of the preferred alternatives will require the preparation of an IACR. If the decision has been reached to prepare the report, the Interchange Access Change Request process will begin. For further information, please refer to the current FHWA policy entitled *Interchange System Access Informational Guide*.

WORK STEPS:

1. Early coordination between MDOT and FHWA to make a reasonable determination if an IACR report is needed.

2. Input Actual Start Date into project management software.

3. Provide data to FHWA, if requested.

4. Input Actual Finish Date into project management software.

5. Determination of the need for an Interchange Access Change Request.

1400 Feasibility Study

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Request to Prepare/Review a Feasibility Study
Task Finish:	Approval Feasibility Study
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Asset Management Division of the Michigan Department of Transportation is responsible for preparing or reviewing Feasibility Studies. Feasibility Studies are preliminary reviews of proposed new roads or capacity improvements to determine the necessity, and the type(s) of improvements that would adequately address the transportation issue in the proposed project area that gave rise to the request for the study. Feasibility Studies are generally requested when all available funds are currently committed to other projects and there is insufficient data to allow the proposed project to be prioritized against other unfunded project proposals in the event that additional funding becomes available.

The Feasibility Study summarizes:

- proposed project description, justification & history;
- some reasonable alternatives to the proposed action including the no action alternative;
- a description of the affected environment;
- a preliminary examination of the social, economic and environmental impacts of the proposed project and alternatives,
- the transportation impacts;
- potential mitigating measures which may be taken; and
- identification of coordination with other agencies and public involvement tasks.

A preliminary draft of the Feasibility Study is submitted for internal review. A check is made to ensure that the document is complete. If the document is incomplete it is returned to the group preparing the document. If the document is complete, copies are made and distributed to the appropriate groups.

The review includes different groups from throughout the Department and will depend on the issues associated with the project. On most reviews the following groups are given an opportunity to review the document:

- Project Development – Engineer,
- Project Development – Planning and Environmental
- Development Services (Real Estate),
- Design,

- Other members of the Study Team, and other participating agencies, including local governments.

Recommendations are then made and the document is revised to address the identified concerns.

As part of this task, an identification of potential 4F/6F impacts is made.

WORK STEPS:

1. Determine study area, goals and objectives.
2. Input actual start date into project management software.
3. Establish a study team and/or Steering Committee and prepare the scope of work.
4. Determine if the study will be prepared by MDOT staff or a Consultant.
5. Conduct initial study public kick-off meeting.
6. Obtain and analyze required data such as crashes, traffic, land use, access mgt. environmental, socio-economic and physical roadway conditions.
7. Conduct additional public meetings – if necessary (depending on magnitude of the proposed project).
8. Prepare a draft report with recommendations.
9. Develop preliminary cost estimates for recommendations.
10. Present a draft report to staff/study team for review.
11. Finalize the draft report.
12. Hold public meeting to present study conclusions and/or recommendations.
13. Input actual finish date into project management software.
14. Final Report submitted to PPRB and MDOT Management for prioritization in future plans.

1500 Corridor Study

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Prepare and/or Review Corridor Studies
Task Finish:	Approval of Corridor Study
Date Last Modified:	March 2016

TASK DESCRIPTION:

Prepare or Review a Corridor Study - A corridor study is an inventory and analyses of existing and future Land Use, Transportation and Socio-economic factors used to define issues and deficiencies and formulate future improvement strategies. The Asset Management Division, along with the Region Planner is responsible for preparing or reviewing Corridor Studies.

WORK STEPS:

1. Determine study area, goals and objectives.

2. Input actual start date into project management software.

3. Establish a study team and/or Steering Committee and prepare the scope of work.

4. Determine if the study will be prepared by MDOT staff or a

5. Conduct study kick-off meeting.

6. Obtain and analyze required data such as crashes, traffic, land use, access mgt. environmental, socio-economic and physical roadway conditions.

7. Prepare a draft report with recommendations.

8. Present a draft report to staff for review.

9. Finalize the draft report and prepare any ordinance amendments as required.

10. Input actual finish date into project management software.

11. Hold public meeting to present study recommendations.

1555 Interstate Access Change Request

Reporting Management Unit	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Preparing Interstate Access Change Request (IACR)
Task Finish:	Approval of IACR by FHWA
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Asset Management Division of the Michigan Department of Transportation is responsible for preparing Interstate Access Change Requests (IACR) in cooperation with the Federal Highway Administration (FHWA). FHWA policy specifies eight topic areas that must be addressed with any request for new access or modified access to interstate highways. Refer to the current FHWA policy entitled *Interchange System Access Informational Guide*.

WORK STEPS:

1. Early coordination between MDOT and FHWA to refine the scope of the analysis.

2. Input Actual Start Date into project management software.

3. Assess data needs and availability. Review existing traffic data and previous traffic studies in the project area. Request additional studies if required. This decision is based on data availability for the alternative and any previous analyses completed on the project.

4. Request additional traffic data from the Data Collection Section as required.

5. Collect socio-economic data to develop forecasted traffic:
    a. Population data
    b. Land Use Information
    c. Planned new developments

6. Utilize traffic demand models maintained by the Demand Estimation and Travel Impact Analysis Section and/or the Metropolitan Planning Organizations (MPO).

7. Perform capacity analyses using Highway Capacity or FHWA approved methodology.

8. Prepare written report addressing the eight topic areas required by FHWA.

9. Submit report to FHWA for approval of interstate access change request.

10. Input Actual Finish Date into project management software.

11. Receive FHWA approval for interchange access change request.

155M Approval for IACR Issued by FHWA

Reporting Unit: BTP – STP – Statewide/Urban Travel – Statewide Model Unit

Interchange Access Change Request Process is completed.

1600 Access Management Study/Plan

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Prepare and/or Review Access Management Studies/Plans
Task Finish:	Approval of Access Management Study/Plan
Date Last Modified:	March 2016

TASK DESCRIPTION:

Prepare or Review an Access Management Plan and Ordinance. An Access Management Plan is an assessment of geometrics, traffic, crashes, land use and socio-economic factors with recommended changes in driveway location, design and spacing for non limited access highways, arterials, collectors and local roads. The access management ordinance is the implementation component of the plan. The Asset Management Division, along with the Region Planner is responsible for preparing or reviewing Corridor Studies.

WORK STEPS:

1. Using selection criteria, determine locations where an access mgt. plan is needed.

2. Input actual start date into project management software.

3. Determine if the study will be prepared by MDOT staff or a consultant.

4. Establish a study team and/or Steering Committee and prepare the scope of work.

5. Conduct study kick-off meeting and training seminar.

6. Obtain and analyze required data such as crashes, traffic. Land use and existing roadway conditions and prepare report graphics.

7. Prepare a draft report and amendment to local zoning ordinance.

8. Present a draft report and model ordinance at a public meeting.

9. Finalize the draft report and ordinance and present both to local planning commission for approval and adoption.

10. Input actual finish date into project management software.

11. The ordinance adoption effort may require additional meetings with the local planning commission(s).

1700 Other Miscellaneous Studies

Reporting Management Unit:	BTP – Asset Mgt. – Data Collection and Analysis
Task Start:	Prepare and/or Review other types of Studies
Task Finish:	Approval of Study
Date Last Modified:	January 2012

TASK DESCRIPTION:

The Asset Management Division is responsible for preparing or reviewing other miscellaneous studies, such as project justification/needs study, economic study, etc.

WORK STEPS: (*The following work steps are generic and will need to be modified for each miscellaneous study*)

1. Identify the proposed study that is being analyzed.

2. Input actual start date into project management software.

3. Establish a Concept Statement for the study with a concept (job) number.

4. Establish a study team (if appropriate) to identify issues, scope of work, etc.

5. Determine the groups to be responsible for the various work responsibilities including whether the job will be done in-house or by consultant.

6. Study and analyze issues, alternatives, etc.

7. Finalize the study.

8. Input actual finish date into project management software.

9. Present findings/study to Management and/or P/PRB (if approval is needed from P/PRB).

2. Early Preliminary Engineering

2.1 EPE Scoping Analysis (2100 Series)

2100 Scope Verification and Initiation of EPE Activities

Reporting Management Unit:	Concept Author/Project Manager
Task Start:	Approval to develop a Preliminary Project Statement (Concept)
Task Finish:	Approval of the project's scope, cost and schedule by Program/Project Review Board.
Date Last Modified:	February 2013

TASK DESCRIPTION:

This task applies to jobs concerning new roads and/or capacity improvement. See also the Program/Project Review Board procedures in the decision making process for further information.

At this stage of the Design process, a Preliminary Project Statement (PPS) is created as warranted by the Bureau of Transportation Planning. It should also be in the form of a draft job initially created within Jobnet. This draft job should have a default job number automatically. See the JobNet User Guide for more information on creating and submitting draft projects.

The draft project author/creator is often the 'default' project manager, and often a Program/System Manager or Project Cost & Scheduling Engineer. Transportation Planners should work in consort with the draft job Author to further establish the PPS by assembling an interdisciplinary Study Team that includes all facets of the design process, along with relevant representation from local municipalities in the area of the job. This team fleshes out the PPS to cover, among other possibilities:

- job purpose and need
- traffic, safety, and condition issues
- potential social, environmental, and economic impacts (including Environmental Study Form 1775-LAP)
- project history and support (including Public Involvement Plan)
- alternative analysis
- preliminary determination of whether the environmental document phase can be done in-house or consulted out; and
- funding template, funding strategy, and job and phase cost estimates.

Many of these are explored in further detail in the Early Preliminary Engineering (EPE) phase. As the preliminary scope of the job is discovered, those items relating to the Job Characteristics may be filled in on the Concept Statement. Once the Job Characteristics portion is complete, automatic generation of the generic Critical Path Network and schedule may occur in the project management software. In this fashion, the job's scope, cost, and schedule are prepared for approval.

Once it is completed, the assigned Project Manager (Concept Author), Region Planner, and the Study Team present the PPS to the Program/Project Review Board (P/PRB) for approval of the job scope, cost, schedule, and phase funding. If approved, the Statewide Transportation Planning Division will add the job to the Five Year Transportation Program, Local Long Range Plans, and the Transportation Improvement Plan, as appropriate.

After being approved by the Program Project Review Board, the early preliminary engineering will begin in accordance with the direction of the P/PRB.

WORK STEPS:

1. Preliminary Project Statement (PPS) is warranted by Statewide Transportation Planning.

2. Input actual start date into project management software.

3. Preliminary Project Statement (Concept) created, with concept (job) number.

4. Concept Author, with assistance from the Project Manager, establishes and organizes the Project Study Team.

5. Project Study Team meets to identify issues, scope, alternatives, etc.

6. Project Study Team studies and analyzes issues, scope, alternatives, etc.

7. Develop a draft project task network and schedule.

8. Determine the groups to be responsible for the various work responsibilities, including whether the job will be done in-house or by consultant.

9. Present the PPS to Program/Project Review Board (P/PRB).

10. P/PRB approves PPS and phase funding.

11. Input actual finish date into project management software.

12. Program or System Manager assigns the Project Manager.

13. Work on job is initiated in accordance with the direction of the P/PRB

210M Program Project Review Board Concurrence

Reporting Unit: Concept Author/Project Manager

This event occurs as part of the process of obtaining Early Preliminary Engineering Authorization in Task 2100.

2110 Obtain Early Preliminary Engineering Consultant

Reporting Management Unit:	Project Manager
Task Start:	Department approval of project's scope, schedule and cost
Task Finish:	Date of an executed contract agreement signed by all parties
Date Last Modified:	January 2012

TASK DESCRIPTION:

Management's approval of the project's scope, schedule and cost initiates the engineering and/or environmental process. Based on the size and complexity of the project and/or availability of the in-house resources, it may be necessary to contract with consultants for a portion of, or the entire, Early Preliminary Engineering/Project Development effort.

This task deals with all the tasks necessary to obtain consultant services for early preliminary engineering which may include project location, environmental technical studies and environmental document preparation. There are two methods to retain a consultant for this effort:

- Indefinite Agreement
- Individual Contract

The Indefinite Agreement is an open-ended contract which is used to retain consultants on an as-needed basis. The contract has time and total dollar limits.

The Individual Contract is specific to the project. The contract describes the scope, cost and schedule as agreed to by both the consultant and the Department.

This task is considered complete when there is an actual executed agreement signed by all parties.

WORK STEPS:

1. Utilize a list of pre-qualified consultants or use existing list.
2. Input actual start date into project management software.
3. Prepare Request for Proposals (RFP).
4. Request Letter of Interest from consultant for upcoming contract.
5. Review & score letters of interest to determine short list of consultants (top 3).
6. Distribute RFP to the short list of interested consultants.
7. Hold Pre-bid meeting, if appropriate.
8. Receive and review proposals.
9. Determine a Short list of consultants and interview.
10. Recommend a consultant as top candidate.
11. Negotiate recommended selection proposal with top candidate.
12. Submit proposal for review and acceptance by Commission Audit.
13. Coordinate with Program Administration to assure adequate funding is in place.
14. Prepare final contract document.
15. Circulate document for signatures.
16. Award project.
17. Input actual finish date into project management software.
18. Hold briefing meeting and give notice to proceed.

2115 Traffic Data Collection for Studies

Reporting Management Unit:	BTP – Data Inventory – Data Collection – Field Ops
Task Start:	Receive request for traffic counts
Task Finish:	Distribution of traffic counts
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Travel Information Unit collects traffic data for a wide variety of Department uses. Upon request (via Form 1776 – Traffic Survey Request), they will collect specific data at identified locations. This task supports data collected for studies or regular maintenance activities.

WORK STEPS:

1. Receive request for traffic data via Form 1776.

2. Input actual start date into project management software.

3. Traffic Data Collection may include, but are not limited to, the following:

    a. Directional 24-hour volumes classified by vehicle types
    b. Turning movement volumes
    c. Weave-merge movements within traffic flow
    d. Speed studies
    e. Peak-hour volumes
    f. Delay Studies
    g. Pedestrian Counts

4. Input actual finish date into project management software.

5. Transmit traffic data to the Requestor.

2120 Prepare Traffic Analysis Report for EPE/Design

Reporting Management Unit:	BTP – STP – Stwd/Urban Travel – Stwd Model Unit
Task Start:	Receipt of request for traffic analysis
Task Finish:	Distribution of traffic analysis report.
Date Last Modified:	March 2016

TASK DESCRIPTION:

The Traffic Analysis Unit prepares comprehensive traffic reports for all Preserve, Improve, and Expand projects studied by the Department. The Traffic Analysis Report (TAR) provides detailed traffic information for base year and future year alternatives to assist in determining design requirements and noise and air quality impacts of projects. The Traffic Analysis Report should be submitted via Form 1730. Information provided in the TAR is used in the design of roadway cross sections; pavement design, intersections, and signalization requirements; and for establishing the level of service (LOS), noise mitigation needs, and air quality compliance for each of the alternatives. Traffic is forecasted 20 years for impact analysis and design as required by the Federal Highway Administration and/or Act 51.

Evaluations performed to prepare the TAR include:

- socio-economic data (population trends, present land use, planned new developments);
- base year traffic info such as average annual daily traffic (ADT), design hour volumes (DHV), AM and PM peak hour turning movements, percent commercial, weave movements and kip axle equivalents, and pedestrian non-motorized volumes;
- forecast of future traffic volumes (ADT's, DHV's, peak hours, commercial, weave movements, and kip axle equivalents);
- assumptions used to determine growth factors in the analysis.
- forecasts of traffic diversion rates for Mobility and Safety Program analysis.

Special studies are done when the data for an alternative is incomplete or old. The types of studies include:

- Volume Classification Study,
- Single Station Origin - Destination Study, and
- External Origin - Destination Study.

Detailed information on these special study types, as well as extra information for Consultants, is provided in the *Supplemental Information* following the Work Steps.

WORK STEPS:

1. Assess data needs and availability. Review existing traffic data and previous traffic studies in the project area. Request additional studies if required (Form 1776), such as external origin - destination studies or single station studies. This decision is based on data availability and the timeliness of the data (age).

2. Input actual start date into project management software.

3. Request additional traffic data from the Data Collection Unit as required, including traffic counts, turning movements, commercial classification counts, origin and destination studies, and truck weight information.

4. Collect socio-economic data

   a. Population data
   b. Land use information
   c. Planned new developments

5. Utilize traffic demand models maintained by the Demand Estimation and Travel Impact Analysis Unit and/or the Metropolitan Planning Organizations (MPO). See *Supplemental Information* for more details.

6. Perform special/technical studies, if appropriate, which can include external origin - destination or single station studies.

7. Prepare written report of traffic conditions and assumptions used to determine forecasted traffic. Include traffic schematics of intersections, interchanges, and weave movements for base and future years.

8. Input actual finish date into project management software.

9. Transmit final report to the group requesting the report and to various other divisions as required within the Department.

SUPPLEMENTAL INFORMATION

1. Types of Special/Technical Studies

a. Volume Classification Study
   i. Request from the Data Management Section
   ii. Traffic volume data may include:
      1) Include directional 24-hour volumes classified by vehicle types
      2) Turning movement volumes
      3) Weave-merge movements within traffic flow
      4) Speed studies
      5) Peak-hour volumes
   iii. This data is used to analyze the current traffic volume, the percent of the volume during peak hour and/or the development of the design hour volume, the percentage distribution of automobiles, small and large trucks and the exchange of vehicles at intersections and/or interchanges.
   iv. This base data is then used to develop traffic projections for the Traffic Analysis Report using a history of traffic volumes along the route and/or local land use development projections.

b. Single Station Origin-Destination Study
   i. Request to the Data Management Section
      1) Conduct a survey of motorists at one location along a highway.
      2) Involves stopping a sample of motorists to obtain travel information including:
         a) origin
         b) destination
         c) purpose
         d) number of passengers
         e) frequency of occurrence
   ii. Information indicates purpose of trip and the probability that relocation in highway location would impact or change their trip-distribution patterns.

c. External Origin-Destination Study
   i. Similar to single station study
   ii. Utilized around urban areas that may be served with multiple state trunk line facilities
   iii. Sampling and questionnaire process similar to Single Station Origin-Destination Study
      1) Questions regarding stops and location within the urban area
      2) Urban area subdivided into Traffic Analysis Zones containing homogeneous types of land use which are bordered by local street networks or topography.

iv. This information is used to examine travel through and into the community and could, with proper synthesis of local data, be used to develop a local traffic model process.
v. This data can be used to analyze the impact of highway relocation within or bypassing the community.

2. Forecasting Software

a. Utilize appropriate traffic analysis, modeling, and forecasting software including but not limited to:
   i. TRANSCAD
   ii. Highway Capacity Software
   iii. CORSIM
   iv. Synchro

b. Both capacity and level of service are to be reported. Queue analysis shall be performed where needed.

3. Display of Traffic Analyses

a. Graphically Utilize appropriate traffic analysis, modeling, and forecasting software including but not limited to:
   i. TRANSCAD
   ii. Highway Capacity Software
   iii. CORSIM
   iv. Synchro

b. Use separate layers for traffic forecasting process.

c. The traffic analyses must allow the reader to 'reconstruct' the analyst's steps and arrive at the same conclusions.

2125 Traffic Capacity Analysis for EPE/Design

Reporting Management Unit:	Bureau of Development – Quality & Innovative Design – Geometric Design Unit
Task Start:	Receipt of traffic analysis and projections
Task Finish:	Completion of Traffic Capacity analysis
Date Last Modified:	January 2012

TASK DESCRIPTION:

The Geometrics Design Unit reviews proposed roadway geometry to ensure compliance with design standards. The Traffic Analysis Report (TAR) is used, along with existing and proposed roadway alignments and design details, to evaluate the operational characteristics of current and future year operations - both with and without the proposed improvements. The operational analysis is typically conducted using HCM and/or SYNCHRO procedures, or other software available to MDOT personnel.

This task's duration and labor hours are greatly dependent on the number of alternatives explored, as well as the number of interchanges/intersections within them. Because those details are not known until after the project has begun, it will be up to the Project Manager to make their best guess initially, and make further modifications later.

WORK STEPS:

1. Receive Traffic Analysis Report and request for Capacity Analysis.
2. Input actual start date into project management software.
3. Assess data needs and availability. Request additional studies if required, based on data availability and the timeliness of the data (age).
4. Conduct operational analysis of the existing and proposed geometrics.
5. Review existing and proposed geometrics for compliance with design standards.
6. Resolve design/geometric issues or concerns.
7. Approve recommended designs/geometrics to meet operational requirements.

8. Input actual finish date into project management software.
9. Transmit recommendation to the Project Manager and/or Requestor.

2130 Prepare Purpose of and Need for Project

Reporting Management Unit:	Draft Job Author/Project Manager
Task Start:	Develop Purpose of and Need for Project
Task Finish:	Written description of the purpose of and need for the proposed project has been completed and is included in the EA or DEIS.
Date Last Modified:	January 2012

TASK DESCRIPTION:

The JobNet Draft Job Author/Project Manager prepares a written description of the transportation problem(s) or other deficiencies which the proposed project is intended to address. The description should clearly demonstrate that a "need," or several “needs” exist, and should define the "need" in terms understandable by the general public. The discussion should then clearly describe how the proposed project will address those “need(s)” which the proposed project is to correct (the purpose of the project). This will form the basis for the "no action" discussion in the "alternatives" section of the Environmental Assessment (EA) or Draft Environmental Impact Statement (DEIS), and assist with the identification of reasonable alternatives and the selection of the recommended alternative.

The length of a purpose and need statement will vary with the scope of the proposed project. The items that could be included in the explanation of the need for the proposed project are listed after the Work Steps in the *Supplemental Information*. This list is not all-inclusive or applicable in every situation.

A condensed version of this report is usually needed for inclusion in the Scoping Document for a Class I Action. For an EA or a DEIS, the complete description of the purpose of and need for the proposed project is submitted to members of the Project Study Team and FHWA for their review and comment before it is transmitted to the Environmental Document Coordinator for inclusion in the EA or DEIS.

WORK STEPS:

1. Collect and organize data required for the Project Purpose and Need.
2. Input actual start date into project management software.
3. Prepare Project Purpose and Need.
4. Coordinate among Study Team members, including FHWA, to address specific aspects of the Project Purpose and Need
5. Transmit the Project Purpose and Need to the Project Study Team and FHWA for their approval.
6. Input actual finish date into project management software.
7. The approved Purpose and Need Statement is transmitted to the Environmental Document Coordinator for inclusion into the EA or DEIS.

213M Concurrence by Regulatory Agencies With Purpose and Need

Reporting Unit: Bureau Of Development – Env. Compliance and Mitigation

When it is anticipated that the wetlands impacts of a proposed project will be great enough that a Clean Water Act Section 404 permit will be needed, the Concurrent NEPA/404 Process requires that the Michigan Department of Environmental Quality, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service must concur with the purpose of and need for the proposed project. This occurs as part of Task 2130 (Prepare Written Description of the Purpose of and Need for the Proposed Project).

SUPPLEMENTAL INFORMATION:

The following is a list of items which may assist in the explanation of the need for the proposed action. It is by no means all-inclusive or applicable in every situation and is intended only as a guide.

1. Project Status
    a. Briefly describe the project history including actions taken to date
    b. Other agencies and governmental units involved, tasks pending, schedules, etc.

2. System Linkage
    a. Is the proposed project a "connecting link?"
    b. How does it fit in the transportation system?
    c. Determine freight network compatibility
        i. Intrastate, Interstate, and International freight
        ii. Show system linkages
        iii. Discuss economic issues within the context of the freight network.
        iv. Compare modes, including air, rail, and water to land

3. Capacity
    a. Is the capacity of the present facility inadequate for the present traffic?
    b. Projected traffic
    c. What capacity is needed?
    d. What is the level(s) of service for existing and proposed facilities?

4. Transportation Demand
    a. Relationship to any statewide plan or adopted urban transportation plan together
    b. Explanation of the project's traffic forecasts that are substantially different from those estimates from the 23 U.S.C. 134 (Section 134) planning process.

5. Legislation - Is there a Federal, State, or local governmental mandate for the action?

6. Social Demands or Economic Development - What projected economic development/land use changes indicate the need to improve or add to the highway capacity?
    a. New employment,
    b. Schools,
    c. Land use plans,
    d. Recreation, etc.

7. Modal Interrelationships - How will the proposed facility interface with and serve to complement
    a. Airports
    b. Rail
    c. Port facilities
    d. Mass transit services
    e. Others

8. Safety
    a. Is the proposed project necessary to correct an existing or potential safety hazard?
    b. Is the existing accident rate excessively high? Why?
    c. How will the proposed project improve safety?

9. Roadway Deficiencies - Is the proposed project necessary to correct roadway deficiencies?
    a. Substandard geometrics
    b. Load limits on structures
    c. Inadequate cross-section
    d. High maintenance costs?
    e. How will the proposed project the deficiencies?

2140 Develop and Review Illustrative Alternatives

Reporting Management Unit:	Project Manager
Task Start:	Receipt of Notification to Proceed with EPE or approval of Cost, Scope and Schedule.
Task Finish:	Date of Public Information Meeting
Date Last Modified:	January 2012

TASK DESCRIPTION:

The development of the illustrative alternatives is initiated by the Project Manager and is carried out in conjunction with Transportation Planning, Development Services (Real Estate), Design and the Region Project Development Engineer. Initially this effort begins with collection of project- related information. The types of information include, but are not limited to:

- existing maps;
- aerial photography;
- existing traffic information and analyses;
- operational and safety statistics;
- project need or purpose statement;
- land use;
- property information (plat & tax maps);
- base maps;
- preliminary indication of social, economic and environmental issues; and
- Community master plans.

Coordination with other government agencies will be initiated. Meetings are held with cities, townships, counties or other state agencies to discuss the possible alternatives for the project.

Possible alignments are drawn and documented. Further investigation is done to better understand the issues associated with the project.

Based on the information gathered, illustrative alternatives are formally prepared. The full range of alternatives is considered and documented, including the "do nothing" alternative. The illustrative alternatives are documented and drawn on aerial maps. The type of information provided for each of the illustrative alternatives can include:

- approximate construction limits
- possible traffic staging during construction
- residential and commercial displacements

- general cross sections
- cost of alternatives
- right-of-way commitments
- brief listing of advantages and disadvantages for each alternative
- environmental considerations
- utilities involvement
- waterway crossings
- existing field conditions

The documentation also includes the minutes from meetings held or correspondence received concerning the project.

The illustrative alternatives are reviewed by the Study Team to ensure that all alternatives have been identified and documented. The level of detail will depend on the project, but should be sufficient to serve as a basis for discussion at the Public Information Meeting or agency meetings. Exhibits and documents should also be suitable for presentation at the meetings. Based on the comments received, changes are made to address the review recommendations by members of the Study Team.

A request is prepared for a public information meeting. The necessary documents and exhibits are then prepared. The meeting is then held to make the public aware of the alternatives being considered.

WORK STEPS:

1. Identify potential alternatives, including a no-action and low-capital alternatives.

2. Input actual start date into project management software.

3. If alternatives are eliminated:
    a. Describe why they have been eliminated.
    b. Include a proposed action for each alternative along with a no-action alternative and combination alternative, if possible.

4. Gather or request data for alternatives.

5. Meet with governmental agencies, cities, townships, counties and other interested parties. Documentations should include the minutes from meetings held or correspondence received concerning the project.

6. Prepare Illustrative Alternatives document, including aerial maps.

7. Participate in the development of EIS scoping documentation.

8. Submit Illustrative Alternatives document for review.
    a. The illustrative alternatives are reviewed by the Study Team.
    b. Prepare sufficient level of detail and suitable exhibits and documents to serve as a basis for discussion at the Public Information Meeting or agency meetings.

9. Based on the comments received, changes are made to address the review recommendations by members of the Study Team. The review steps are followed below:
    a. Review Illustrative Alternatives Report
    b. If appropriate, hold meeting to discuss alternatives
    c. Organize and document review recommendations
    d. Distribute review recommendations
    e. Review revisions to the report
    f. Approve illustrative alternatives

10. Incorporate approved recommendations into the document

11. Distribute revised Illustrative Alternatives document to appropriate Groups.

12. Prepare for Public Information Meeting and/or develop materials to inform parties of the project and status.

13. Input actual finish date into project management software.

14. Conduct Public Information Meeting(s).

2165 Request/Perform Road Safety Audit (RSA) for EPE/Design

Reporting Management Unit:	Region/TSC Traffic and Safety
Task Start:	Receive request for project Road Safety Audit from Systems/Project Manager
Task Finish:	Submit recommendations document to Systems/Project Manager and others
Date Last Modified:	January 2020

TASK DESCRIPTION:

The following description outlines and charts the process details for accomplishing the task To Request/Perform Project Road Safety Audit (RSA). A RSA is a formal safety performance examination of an existing or future road or bridge project by an independent, multi-disciplinary RSA team. RSAs can be conducted at any stage of a project but are highly recommended prior to the Scope Verification meeting and include consideration for all users of the roadway to help achieve strategic safety goals. RSAs contribute to road safety by providing a fresh, unbiased assessment of the area or intersection in an effort to identify potential safety issues and solutions. RSAs are divided into two categories: in-service and design-service. Candidates for in-service RSAs include high-crash locations, and high-profile sites and locations with changed traffic characteristics. This task is for Design-service RSAs which are those projects meeting the Warranting Conditions in MDOT's Procedures Document 10241. The Project Manager initiates this Task by submitting the Road Safety Audit Request form (3767) to the RSA Coordinator three months prior to the RSA with location, proposed dates, Job Number and Job Description.

WORK STEPS:

1. The RSA Coordinator contacts consultant on availability to facilitate the RSA.

2. Upon confirmation of consultant availability, the RSA coordinator sends consultant modified scope and a signed 5102 form for completion and a price proposal

3. RSA coordinator works with contracting area for processing and notice to proceed.

4. RSA coordinator identifies 3 trained staff members, not from the region where the RSA is planned, to be on RSA team.

5. RSA coordinator contacts PM and consultant to start communication on project details.

6. Two-day RSA field review (starting with a kickoff meeting and concluding with a findings meeting). The Project Manager is responsible for providing and reserving facilities for the team for the duration of the RSA, inviting stakeholders (not public) to the kickoff and findings meetings, supplying a vehicle for the team to use in the field, presentation setup, pre-RSA documents (coordinating with the facilitator) etc.

7. Consultant drafts RSA report (two weeks)

8. Project Manager reviews draft RSA report and submits comments to consultant (two weeks)

9. Formal response from MDOT provided four to six weeks after submittal of final report.

The requirement of an RSA may be exempted if a risk-based analysis indicates there are no safety concerns. The 'RSA Exemption' portion of the Road Safety Audit Request form (Form #3767) will need to be completed and approved by the Region Engineer and Engineer of Design. Clear documentation of the need for the exemption will be required on the bottom of the Road Safety Audit Request form.

2155 Request/Perform Safety Analysis for EPE/Design

Reporting Management Unit:	Region/TSC Traffic and Safety
Task Start:	Receive request for project safety analysis from Systems/Project Manager
Task Finish:	Submit analysis document to Systems/Project Manager and others
Date Last Modified:	July 2021

TASK DESCRIPTION:

The following description outlines and charts the process details for accomplishing the task To Request/Perform Project Scope Safety Analyses and to Determine Safety Elements of Total Project Scope. Safety or crash analyses are separated into four distinct tiers based upon project descriptions included in the MDOT *Scoping Manual*. Each tier increases in complexity consistent with the associated project type, providing a balance between the potential project impact and the time required to complete the evaluation. The level of complexity increases from maintenance type work to 3R/4R and new construction. The noted projects require a crash history/safety analyses and appropriate response (improvement or design exception) in the project scope of project certification. If it is not feasible for MDOT staff to perform this task, retaining the services of a qualified consultant to perform this task is an option.

The primary purpose of this task is to scope an improvement for traffic safety issues and elements in accordance with MDOT Data Driven Safety Analysis Guidance. Secondarily, this task may support design exceptions to project requirements, or become a factor in revising the intended project type (i.e.; from 3R to 4R). The overall analysis is done at both the system-wide and site-specific levels. The type of analysis required and steps to follow are noted in the DDSA Guidance.

The Systems/Project Manager initiates this Task by submitting a request to the appropriate Region or TSC Traffic and Safety Engineer. With the request, the Systems/Project Manager will supply:

- Job number for scoping
- C.S. and/or P.R.#s with respective milepoints limits
- Project Description and Goal
- Intended Project Type (3R, 4R, CPM, etc.)
- Bridge numbers, milepoints, etc.
- Detailed maps and/or diagrams where needed for exact location
- Preliminary safety concerns
- Potential design exception needs
- Date needed.

WORK STEPS:

1. Receive request for Safety Analysis.

2. Input actual start date into project management software.

3. The Region/TSC Traffic & Safety Engineer will verify submitted information, and then utilize C.S. /P.R. /Mi. Pt. to obtain safety-related data and information, such as:

    a. Crash Data (5 years minimum)
    b. History Profile (Analyses, Recommendations, Traffic Control Devices)
    c. Current road/roadside features (Photos, As-Built Plans, or On-Site)

4. The Region/TSC T&S Engineer will analyze safety-related data and information to formulate conclusions and recommendations. Analysis should include:

    a. Identification of crash concentrations
    b. Identification of crash type patterns
    c. Identification of crash cause patterns
    d. Identification of geometric deficiencies
    e. Determination of safety treatments (including systematic treatments) and/or design alternatives, if recommended.

5. The Region/TSC T&S Engineer should review the safety improvement alternatives, determine costs, and select optimum strategies for implementation in coordination with the Project Development and/or Systems Manager. The final decision as to whether a safety improvement will be project-funded or Safety Programs-funded requires consult and coordination among the Region Systems Manager, Safety Programs System Manager, and the TSC Manager.

6. The Region/TSC T&S Engineer will prepare a memo to document the findings, conclusions, and safety improvement recommendation(s) resulting from the analysis.

7. The Region/TSC T&S Engineer will distribute the documenting memo as follows:

    a. Original to the Project Manager for project requirements.
    b. CC's as appropriate to implement operational (non-construction) improvements.
    c. CC to Geometric Design and Safety Programs Units in Lansing for reference during future plan reviews.

8. Input actual finish date into project management software.

2160 Prepare and Review EIS Scoping Documentation

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Approval of Project Scope, Cost and Schedule, or Notice to proceed when a consultant is used
Task Finish:	Distribution of the EIS scoping documentation
Date Last Modified:	May 2013

TASK DESCRIPTION:

The purpose of the Environmental Impact Statement (EIS) scoping documentation is to provide preliminary assessments regarding specific areas of impact and to identify issues of potential concern. This report briefly describes alternatives under consideration and identifies the social, economic and environmental issues that are expected to be factors in evaluating highway improvements. Issues identified as "significant" will be dealt with, in detail, in the Environmental Impact Statements (EIS). Issues labeled as "less significant" will also be addressed in the EIS, but in less detail, since it is not expected that these issues will be important factors in the selection of a project alternative.

Environmental Administration will assign the work to the appropriate personnel. Initially, meetings are held to establish early coordination and liaison for the development of the document. The purpose of these meetings is to clarify work responsibilities and deadlines, and to clarify administrative procedures to be used on the project. The appropriate Study Team members will be invited to the meeting so that area-wide issues, data needs and data availability can be reviewed and clarified.

The Study Team will then assist in preparing the EIS scoping documentation. A public information program may be developed as part of this task. The program could have been included as part of the consultant proposal. This program typically includes a public information meeting which is held to inform the general public of the proposed project. Project specific newsletters may also be required to keep interested individuals, businesses, organizations and the public informed about the project's status.

The Project Manager receives/provides a draft copy of the EIS scoping documentation. The appropriate office checks that the draft is complete. Copies are then distributed for review. The groups reviewing the draft document will depend on the issues associated with the project. The groups can include:

- Region and/or TSC Project Development Engineer
- Development Services (Real Estate)
- Design
- FHWA

- Transportation Planning
- Environmental Services Section
- Region and/or TSC Construction and Technology
- Region and/or TSC Traffic and Safety
- Other members of the Study Team

A meeting may be held to discuss the draft document. If appropriate a field visit may be held at the proposed project location to discuss and evaluate the proposed project environmental scope.

The EIS scoping documentation also includes responses from agencies who received an early coordination letter during the development of the illustrative alternatives.

This document is distributed to agencies having project review or permit authority in order to achieve a consensus among agencies as to those issues which should be emphasized in the Draft Environmental Impact Statement (DEIS).

The review comments and recommendations are documented and distributed. After the needed changes have been made, the final version of the document is checked to ensure that the recommendations have been incorporated into the document. Approval is then given for document distribution by the Contract Administrator or the Project Manager.

WORK STEPS:

1. Meet with Study Team.

2. Input actual start date into project management software.

3. Gather project-related data.
    a. Identify and eliminate from detailed study those issues that are not significant, or issues that have been analyzed in previous environmental reviews.
    b. Indicate other environmental studies that are related to the EIS under consideration.

4. Identify possible issues associated with the project.

5. Prepare draft EIS scoping documentation.

6. Submit the draft EIS scoping documentation for review. Review Steps:
    a. Receive/provide the draft copy of the EIS scoping documentation
    b. Check document for completeness
    c. Make copies of document and distribute to appropriate groups for review
    d. Review document

   e. Hold team meeting to discuss project issues and alternatives included in the draft document, if appropriate

7. Participate in the public information meeting and/or assist in the development of materials to inform parties of the project and status.

8. Make field visit to proposed project location, if appropriate.

9. Collect input from public or other agencies concerning project-related issues.
   a. Identify other agencies that have a role in the study and make assignments where necessary
   b. Determine any other environmental reviews or requirements that may be necessary, and integrate this information into the EIS scoping document

10. Document review comments and recommendations.

11. Conduct formal agency scoping meetings, as needed
    a. Include the participation of local, state and federal agencies, as well as proponents and opponents of the proposed project

12. Incorporate comments into the final EIS scoping documentation, or check final version to ensure that recommendations have been incorporated into the document.

13. Input actual finish date into project management software.

14. Approve document for distribution, and distribute final document.

216M Public Information Meeting

Reporting Unit: Planning – Bureau of Devel. – Env. Services – Env. Analysis

A public information meeting is held to inform the general public of the proposed project at the time the EIS scoping documentation is prepared in Task 2160.

2.2 EPE Draft Analysis (2300 Series)

2310 Conduct Technical SEE Studies

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Project scope, cost and schedule approval; Notice to proceed; or distribution of EIS scoping documentation
Task Finish:	Transmittal of Technical SEE Studies to the Project Planning Division for inclusion in the EA or DEIS
Date Last Modified:	May 2013

TASK DESCRIPTION:

The Environmental Services Section or a consultant(s) conducts comprehensive studies of the potential social, economic and environmental (SEE) impacts of the proposed project and alternatives. The specialist responsible for each concern listed in the FHWA Technical Advisory T 6640.8A identifies and assesses the potential beneficial and adverse impacts of the proposed project and alternatives on the area of concern. The "no-action" alternative and impacts during construction are included. The specialist also prepares a description of the affected environment, impacts and, if necessary, a description of possible measures needed to mitigate impacts.

The number of SEE concerns and the amount of analysis needed will vary with the scope of a project and alternatives, but may include the following:

- recreational/parkland impacts,
- land use impacts,
- the need for permits,
- farmland impacts,
- social impacts,
- acquisition and relocation impacts,
- economic impacts,
- joint development,
- considerations relating to pedestrians and bicyclists,
- air quality impacts,
- contaminated/hazardous waste sites,
- visual impacts,
- energy,
- indirect and cumulative impacts,
- water body modification and wildlife impacts,
- floodplain impacts,
- impacts on wild and scenic rivers,
- coastal zone impacts,
- impacts on threatened and endangered species,
- historic and archaeological preservation (including land use history identifying sensitive areas),
- noise impacts,
- environmental justice,
- water quality impacts, and
- wetland impacts.

The following information about each applicable SEE factor needs to be included in the EA or DEIS for each alternative, including the no-action alternative:

- A summary of studies undertaken, any major assumptions made and supporting information on the validity of the methodology (where the methodology is not generally accepted as state-of-the-art).

- Sufficient supporting information or results of analyses to establish the reasonableness of the conclusions about impacts.

- A discussion, evaluation and resolution of important SEE issues for each alternative.

****If it is determined that a more detailed SEE study is needed, refer to the appropriate task number(s) that follow this task description.***

The Environmental Analysis Unit has a coordination role during this task which will include:

- project meetings;

- schedules and status reports; and

- contact and coordination among the FHWA and other members of the project Study Team, the public, other agencies and departments, local government officials, and environmental and other special interest groups.

WORK STEPS:

1. Input actual start date into project management software.

2. Determine all SEE concerns and the amount of analysis needed for each concern through technical study (ies).
    a. This means that the significance action must be analyzed in several contexts:
        i. Society as a whole
        ii. the affected region
        iii. the affected interests
        iv. the locality.
    b. Both short-term and long-term effects are relevant and thus must be considered. Depending on the scope of a project and its alternatives, the number and types of concerns will vary.

3. A feasibility analysis must be completed for each alternative, including all applicable SEE factors. The no-action alternative and its impacts must also be included.

4. Determine impacts.

5. Recommend mitigation alternatives.

6. Input actual finish date into project management software.

7. Transmit Tech reports

2311 Cultural Resources Survey

Reporting Management Unit:	Bureau of Devel. – Env. Services – Project Coord.
Task Start:	Notification to conduct the Cultural Resources Survey
Task Finish:	Distribution of SHPO/OSA-approved final version of the Cultural Resources Survey
Date Last Modified:	January 2012

TASK DESCRIPTION:

Overview:

The identification of cultural resources is required for compliance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (Section 106), and Section 4(f) of the 1966 Department of Transportation Act (Section 4(f)).

The identification of cultural resources information serves two primary purposes:

1. Analysis of alternatives through the identification of potential impacts to cultural resources.

2. Development of strategies to avoid, minimize, or mitigate impacts to cultural resources.

Before any research and field work is begun, the Area of Potential Effect (APE) will be identified by the Project Manager in coordination with the State Historic Preservation Office (SHPO) and/or the Office of the State Archaeologist (OSA). After the APE is established, research is conducted to identify known or potential cultural resources. Extensive field research may be required.

The identification process can be subdivided into two major categories by the type of cultural resource:

1. Known or potential archaeological sites and/or traditional cultural properties (TCPs). This task is required for all jobs with earthwork/disturbance outside of existing shoulders and may be required for jobs with subgrade work.

2. Known or potential historic above-ground resources. This task is required for all bridge projects and jobs with work outside of existing shoulders and includes radii improvements, sidewalk work, curb and gutter, and tree removals.

Two separate reports may be generated for (1) archaeological resources and (2) above-ground cultural resources. These reports may be combined into a single report in some situations.

Description:

(A) Archaeological Resources

The survey work shall be conducted by a person meeting the professional qualifications set forth in 36 CFR 61 - Appendix A for Archaeologist. The Project Manager and Cultural Resource Specialist will write the scope of services for the hiring of a consultant for in-house documents. For Environmental Assessments (EA's) or Environmental Impact Statements (EIS's) written by a consultant, the Project Manager and Cultural Resource Specialist will coordinate with the consultant to generate a scope of services for a cultural resources sub-consultant.

The survey will follow the "Michigan Department of Transportation Work Specifications for Archaeological Cultural Resources Investigations," which is a combination of reconnaissance-level survey and more intensive-level testing as defined by the U.S. Department of the Interior, National Park Service. Phase I Archaeological Site Location Surveys are undertaken in an effort to locate and document all archaeological sites and TCPs within the APE. The survey report will make National Register of Historic Places eligibility determinations for all archaeological sites identified within the APE. If additional data is needed to determine National Register eligibility for an identified site, a more intensive Phase II Archaeological Site Evaluation may be recommended.

Both Phase I and/or Phase II survey and testing reports will assess the impacts of the proposed construction project on all National Register-eligible sites and

TCPs, offer mitigation recommendations for the impacts, and recommend the need for any additional study.

A draft copy of the Phase I and/or Phase II report will be submitted to MDOT, who will, in turn, submit the report to the SHPO for comment and review. The final Phase I/II report will incorporate all comments, and will be submitted to MDOT.

(B) Above-ground Cultural Resources

The survey work shall be conducted by a person meeting the professional qualifications set forth in 36 CFR 61 - Appendix A for Historian or Architectural Historian. The Project Manager and Cultural Resource Specialist will write the scope of services for the hiring of a consultant for in-house documents. For Environmental Assessments (EA's) or Environmental Impact Statements (EIS's) written by a consultant, the Project Manager and Cultural Resource Specialist will coordinate with the consultant to generate a scope of services for a cultural resources sub-consultant.

The survey will follow the "Michigan Department of Transportation Work Specifications for Survey of Above-Ground Cultural Resources," which is a combination of reconnaissance-level and intensive-level surveys as defined by the U.S. Department of the Interior, National Park Service. The survey will identify and document all properties within the APE. The survey will make National Register eligibility determinations for all properties within the APE.

A draft copy of the survey will be submitted to MDOT, who will in turn submit the survey to the SHPO, for comment and review. The conclusion of the report will assess the impacts of the proposed construction project on all National Register-eligible properties, offer mitigation recommendations for the impacts, and recommend the need for any additional study. The final survey will incorporate all comments, and will be submitted to MDOT.

In some instances additional intensive-level surveys may be required for certain properties based on SHPO or MDOT comments. The scope of services for the additional intensive-level surveys will be generated by the Project Manager for in-house documents, or in coordination with the Project Manager for consultant-written documents. The intensive-level survey submittals will follow the same procedure as outlined in the paragraph above.

WORK STEPS:

(A) Archaeological Resources

1. Input actual start date into project management software.

2. The Cultural Resource Specialist will consult with the Office of the State Archaeologist (OSA) on the Area of Potential Effect (APE).

    a. At the beginning of a project (after a job number has been assigned) the Cultural Resource Specialist will perform a general database check to determine if previously identified sites exist within or near the APE. This may include review of existing literature. Field reviews may be required by the Project Manager.

3. The Cultural Resource Specialist will prepare a scope of services or will coordinate with a prime consultant (for consultant-written EA's and EIS's) to generate a scope of services for a qualified sub-consultant.

4. The consultant will conduct pre-field research of SHPO (State Historic Preservation Office)/OSA/local records to identify known archaeological and TCP resources within the APE and develop maps indicating the location of these resources.

5. The consultant will develop a land use history(ies) of the APE.

6. The consultant will identify potential areas of TCPs and areas of sensitivity for archaeological resources within the APE.

7. The consultant will support MDOT/FHWA in TCP meetings/consultation necessary, including developing formal and informal presentations, as required.

8. The consultant will perform Phase I/II archaeological field research, including deep-testing if required, and conduct all necessary analysis and reporting.

9. The consultant will conduct National Register eligibility evaluations, including map locations, of all archaeological and TCP resources identified and justify in writing all eligibility determinations.

10. The consultant will prepare a condensed version of the land use histories and archaeological reports for public consumption and distribution to local libraries and historical societies.

11. The consultant will develop a draft report and submit it to MDOT. MDOT will in turn submit the draft report to the SHPO for review and comment.

    a. The conclusion of the report will assess the proposed construction project's potential impacts on archaeological sites and TCPs, offer mitigation recommendations, and recommend the need for additional study.

12. The consultant will complete the final report upon receipt of comments from MDOT and the SHPO.
    a. All comments must be satisfactorily addressed by the consultant in the final survey report.

13. Input actual finish date into project management software.

14. The Cultural Resource Specialist will submit the final report(s) to the SHPO.

(B) Above-Ground Cultural Resources

1. Input actual start date into project management software.

2. The Cultural Resource Specialist will consult with the SHPO on the APE.

    a. At the beginning of a project (after a job number has been assigned) the Cultural Resource Specialist will perform a general database check to determine if previously identified historic bridges/structures, buildings, districts, or sites exist within or near the project. Documentation may

include review of existing literature. Site investigations may be required by the Project Manager.

3. The Cultural Resource Specialist will prepare a scope of services or will coordinate with a prime consultant (for consultant-written EA's and EIS's) to generate a scope of services for a qualified sub-consultant.

4. The consultant will collect historic information on all properties with the APE.

5. The consultant will perform field research and documentation including:

    a. Photography
    b. Delineation of all potential historic districts. If historic district boundaries extend beyond the APE, all properties within the district boundaries must be documented and photographed.
    c. Maps

6. The consultant will conduct post-field work research and national Register eligibility evaluations. All National Register eligibility determinations must be justified in writing.

7. The consultant will support MDOT and FHWA in meetings and consultations as necessary, including developing formal and informal presentations, as required.

8. The consultant will organize the collected field data and post-field research to include:

    a. Building/structure inventory cards
    b. Historic district inventory cards as necessary
    c. Maps
    d. Photographs
    e. Negatives

9. Develop a draft report and submit it to MDOT. MDOT will in turn submit the draft report to the SHPO for review and comment.

    a. The conclusion of the report will assess the proposed construction project's potential impacts on surveyed resources, offer mitigation recommendations, and recommend the need for additional study.

10. Complete the final report upon receipt of comments from MDOT and the SHPO.

    a. All comments must be satisfactorily addressed by the consultant in the final survey report.

11. If necessary, the consultant will provide addition intensive-level surveys based on SHPO and MDOT comments.

    a. The Project manager will prepare a scope of services or will coordinate with a prime consultant (for consultant-written EA's and EIS's) to generate a scope of services for a qualified sub-consultant.

    b. The consultant will collect historic information on the specific properties as directed by the Project Manager/Cultural Resource Specialist.

    c. The consultant will perform field research and documentation.

    d. The consultant will conduct post-field work research and National Register eligibility evaluations.

    e. The consultant will organize the collected field data and post-field research.

    f. The consultant will develop a draft report and submit the drafat report to MDOT.

    g. The consultant will complete the final report upon receipt of comments from MDOT and the SHPO.

12. Input actual finish date into project management software.

13. The Cultural Resource Specialist will submit the final report(s) to the SHPO.

2312 Recreational - Section 4(f)/6(f)

Reporting Management Unit:	Bureau of Devel. – Env. Services – Project Coord.
Task Start:	Notification to conduct the Recreational – Section 4(f)/6(f) Analysis
Task Finish:	Recreational - Section 4(f)/6(f) Documentation approved by staff Specialist for inclusion in the EA or EIS
Date Last Modified:	January 2012

TASK DESCRIPTION:

The identification of Recreational - Section 4(f)/6(f) resources is required for compliance with Section 4(f) of the Department of Transportation Act (1966) and Section 6(f) of the Land and Water Conservation Fund Act (1965).

The identification of Section 4(f)/6(f) resources serves two primary purposes:

1. Analysis of alternatives through the identification of potential impacts to Section 4(f)/6(f) resources.

2. Development of strategies to avoid, minimize, or mitigate impacts to Section 4(f)/6(f) resources.

Before any research or fieldwork begins, the Area of Potential Effect (APE) and scope of work is identified by the project manager. After these are established, research is conducted to identify known and proposed Section 4(f)/6(f) resources. Extensive field research may be required.

The identification process can be subdivided into two major categories by the type of resource, Section 4(f) recreational resource and Section 6(f) resource.

1. A Section 4(f) recreational resource is any publicly owned park, recreational area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction over the property.

2. A Section 6(f) resource is any Section 4(f) property that has been acquired or developed with Land and Water Conservation Fund (L&WCF) monies.

Please note: If the MDOT environmental document is prepared in-house, the work steps listed will be preformed by the Section 4(f)/6(f) Specialist. If the environmental document is produced by a consultant, the work steps will be the responsibility of the consultant with MDOT oversight.

WORK STEPS:

1. Input actual start date into project management software.

2. Based on the scope of work provided by the Project Manger, the MDOT Section 4(f) Specialist will perform an initial evaluation of for the project which will identify potential Section 4(f)/6(f) resources within the APE. This may include a review of various maps, aerial photos, and local and regional master plans. Field reviews may also be required to determine potential impacts.

3. The APE is overlayed with Section 4(f)/6(f) resources in the area and a determination is made by the Section 4(f) Specialist where an impact may occur for the project.

4. The Section 4(f)/6(f) Specialist and the Project Manager discuss the project design and work to eliminate and/or minimize the impact of any Section 4(f)/6(f) property through avoidance alternatives.

5. The Section 4(f)/6(f) Specialist contacts the official having jurisdiction over the potentially impacted properties to confirm the property is a recreational area and to inquire about future uses of the property and past grant monies received for the property. Mitigation measures are negotiated to reduce impacts to the property.

6. The Section 4(f)/6(f) Specialist consults the Michigan Department of Natural Resources (MDNR), Grants Administration Division to inquire if any L&WCF monies were used to acquire or develop the potentially impacted properties. The MDNR will also notify MDOT if they know of any other grant or deed restrictions placed on the property.

7. If there is an impact on a Section 6(f) property, negotiations take place with the official with jurisdiction over the property and the DNR, Grants Administration. The value/size of the property to be impacted must be appraised and the appraisal must be accepted by MDNR, Grants Administration. The property must be replaced in size, value, AND function. The replacement property must be approved by the official with jurisdiction over the property, the DNR, Grants Administration, and the Department of Interior. After the approvals have been received, the replacement property can be purchased.

8. If L&WCF monies (Section 6(f)) were not used to acquire or develop the property and an impact cannot be avoided by the project, the Section 4(f) Specialist will request concurrence from the official with jurisdiction over the property for MDOTs use of their property. If concurrence is given, any agreed upon mitigation measures are documented in correspondence between MDOT and the property owner and in the environmental document.

9. Input actual finish date into project management software.

10. Project is cleared for construction activities.

2313 Endangered Species Survey

Reporting Management Unit:	Bureau of Devel. – Env. Services – Compliance & Mit.
Task Start:	Notification to conduct Endangered Species Clearance Activities
Task Finish:	Obtaining final MDNR and/or USFWS approval
Date Last Modified:	January 2012

TASK DESCRIPTION:

Overview:

The identification of Threatened and Endangered Species and their habitats is required for compliance with the National Environmental Policy Act (NEPA), the Endangered Species Act of the State of Michigan (Part 365 of PA 451, 1994 Michigan Natural Resources and Environmental Protection Act), and the federal Endangered Species Act of 1973 as amended.

The identification of Threatened, Endangered, and Special Concern Species serves two primary purposes:

1. Analysis of alternatives through the identification of potential impacts to endangered species and their habitat.

2. Development of strategies to avoid, minimize, or mitigate impacts to endangered species and their habitat.

Before any research and fieldwork is begun, the Area of Potential Effect (APE) will be identified by the project manager in coordination with the Michigan Department of Natural Resources (MDNR) and the United States Fish and Wildlife Service (USFWS). After the APE is established, research is conducted to identify known or potential endangered species or their habitats. Extensive field research may be required through one entire growing season consisting of field surveys in the spring, summer, and fall.

Endangered Species are divided into two main categories, plants (flora) and animals (fauna). This consideration is often important, as federal endangered species requirements are different for plant and animal species.

Following the completion of fieldwork, reports and coordination with the MDNR and USFWS may be required. The state clearance process administered by the MDNR may require an Endangered Species Permit before work may be initiated. The federal clearance process may require informal or formal consultation with the USFWS along with the preparation of a biological assessment to determine potential impacts to the

species. Endangered Species impacts on United States Forest Service (USFS) lands will require additional coordination to ensure consistency with the forest master plan and their NEPA clearance process. This process can require the completion of an Environmental Assessment and several public involvement activities.

Description:

The survey work shall be conducted by a person meeting the professional qualifications set forth in MDOT's pre-approved consultant list for plant (floral) and animal (faunal) endangered species. The Endangered Species Specialist(s) will write the scope of services for hiring the consultant to perform these duties. For Environmental Assessments (EA's) or Environmental Impact Statements (EIS's) written by a consultant, the Project Manager will coordinate with environmental staff specialists and the consultant to generate a scope of services for an endangered species sub-consultant if required.

The survey will follow the Michigan Department of Transportation work specifications for Endangered Species investigation. These methods are a combination of MDNR, USFWS, and USFS requirements when working with Endangered Species. Phase One Endangered Species analysis is undertaken in an effort to locate and document all endangered species and their habitats within the APE. If additional field data is needed to determine impacts for a species or its habitat, a more intensive Phase Two Endangered Species assessment may be required.

Both Phase One and/or Phase Two investigations will assess the impacts of the proposed construction project on all state and federally listed Endangered Species, offer mitigation recommendations for the impacts, and recommend the need for any additional study.

A draft copy of the Phase One and/or Phase Two report will be submitted to MDOT, who will in turn, submit and coordinate the report with the MDNR and/or USFWS for review and comment. The final Phase One/Two report will incorporate all comments, and will be submitted to MDOT for coordination and approval by the regulatory agencies (MDNR/USFWS).

WORK STEPS:

1. Input actual start date into project management software.

2. The MDOT Endangered Species Specialist will perform a Phase One evaluation for the project, evaluation for the project, which will identify potential species and their habitats within the APE. This may include review of existing literature, MNFI database information check, various maps, and field reviews to determine potential impacts.

3. A Resource Agency Coordination letter will be sent to the MDNR and the USFWS identifying the project area and the proposed scope of work. The letter will ask both agencies to identify their endangered species concerns as they relate to the proposed project. These species will receive the highest consideration during the evaluation process and will require a no-effect determination for clearance to be approved by the resource agencies.

    a. Plant species coordination within MDOT will be performed by the Endangered Species Specialist.
    b. Animal species coordination within MDOT will be performed by the Wildlife Ecology Specialist.

4. State listed species will require the MDNR endangered species clearance process while federally listed species will require the USFWS process. If a species is both state and federally listed, both agencies will require consultation.

5. The Endangered Species Specialist(s) will prepare a scope of services or will coordinate with a prime consultant (for consultant-written EA's and EIS's) to generate a scope of services for a qualified sub-consultant to perform all Endangered Species clearance activities.

6. The consultant will conduct pre-field research (Phase One) with the MDNR/USFWS/USFS records to identify known Endangered Species (Threatened, Endangered, and Special Concern) within the APE.

7. Once potential impacts have been identified by the resource agencies, the consultant will conduct Phase Two field surveys of the required plant and animal communities within the APE. The data collected during these surveys will be used to determine if the listed species or critical habitats are present within the APE.

8. The consultant will identify areas that will require further field analysis (multiple surveys). They will determine the proper survey methods for each species and the best survey time as indicated by the resource agencies and Michigan Natural Features Inventory (MNFI). Surveys will be scheduled at the proper times of the year when the species are at maximum visibility to the observer.

9. The consultant will support MDOT and FHWA in meetings and consultations as required, including the development of formal and informal presentations and reports.

10. All surveys will be completed within state and federal survey guidelines as established by the MDNR and USFWS. Surveys for any listed species will require a state endangered species permit (State listed species) and a federal take permit (federally listed species) prior to conducting any fieldwork.

11. Once the habitat and species surveys have been completed, analysis of all alternatives is required to determine potential impacts. Both species and habitats need to be considered and evaluated. State and federal guidance on impact evaluation should also be followed and can be obtained from them directly.

12. The consultant will develop a draft Phase Two report and submit it to MDOT. MDOT will review the report and coordinate it with the MDNR and USFWS in an effort to develop concurrence on the impact analysis and proposed mitigation. The conclusion of the report will assess the proposed construction project's potential impacts on endangered species and their habitats, offer mitigation recommendations, and recommend the need for additional study. Copies of all field data sheets and field notes will be provided to MDOT staff separate from the Phase Two report. The Endangered Species Specialist(s) will submit the final report(s) to the MDNR and USFWS as required.

13. The MDNR and USFWS will review the final report and offer their concurrence with MDOT's recommendations. If concurrence is given, MDOT will obtain final environmental clearance from the MDNR and USFWS allowing for work to be performed according to the permit(s) issued by either agency.

14. Input actual finish date into project management software.

15. Project is cleared for construction activities.

2314 Wetland Assessment

Reporting Management Unit:	Bureau of Devel. – Env. Services – Compliance & Mit.
Task Start:	Notification to conduct wetland delineation and functional assessment
Task Finish:	Distribution of wetland technical report
Date Last Modified:	January 2012

TASK DESCRIPTION:

The identification of wetland resources is required for compliance with the National Environmental Policy Act of 1969 (NEPA) and the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994).

The identification of wetland resources serves two primary purposes:

1. The identification of the location and ecological health of wetlands that contribute to an analysis of alternatives through the identification of potential impacts to natural resources.

2. Development of a project design that avoids and minimizes impacts to the most practical extent possible. Where impacts can not be avoided, the information gathered can be used to mitigate impacts through a wetland mitigation design package that replaces lost wetland values and functions.

Before any research and field work is begun, the Area of Potential Effect (APE) will be identified by the Project Manager, in coordination with the Wetland Specialist and other specialists in the Environmental Services Section, acting in concert with Region permitting and resource specialists. After the APE is established, research to identify known or potential wetland resources will be conducted; extensive field research may also be required.

The identification/evaluation process can be subdivided into two major tasks by the type of information needed to identify the physical location of each wetland and the values and functions associated with them:

1. Identify known or previously mapped wetlands. This task is required for all jobs with earthwork/disturbance both within and outside of existing shoulders and is required on all work on new alignment.

2. Field verify known or previously mapped wetlands and conduct field survey for unmapped wetlands. This task is required for all projects and jobs with work outside of existing shoulders and includes radii improvements, sidewalk work curb and gutter, and tree removals. This task applies to all work on new alignment.

A wetland identification report and a wetland functional assessment report are required to fully complete the task for major projects. These reports should be combined into a single report in most situations.

Description:

(A) Wetland Identification and Delineation

The survey work shall be conducted by a person(s) with the requisite training and experience to conduct a field delineation of wetlands using either, or both, the USACE 1987 manual and MDEGLE (Michigan Department of Environment, Great Lakes, and Energy) Wetland Identification Manual. This requirement applies to both in-house and consultant work products.

The Environmental Services Wetland Specialist will write the scope of services for the hiring of a consultant for work that will not be conducted on in-house documents. For Environmental Assessments (EA's) or Environmental Impact Statements (EIS's) written by a consultant, the Project Manager will coordinate with the consultant to generate a scope of services for a natural resources sub-consultant with the appropriate expertise.

Wetland delineation for in-house documents will be coordinated with the Environmental Services Section as part of the project development process. Schedules for the completion of this work element will be included in the overall project schedule.

Draft copies of the work product for consultant-written documents shall be made available to Environmental Services Section staff for review and comment. The consultant should be apprised of the availability of MDOT staff specialists to act as a resource when in doubt as to an appropriate level of effort or methodology.

(B) Wetland Functional Assessment

No specific wetland functional assessment methodology is approved for use by either federal or state regulatory agencies at the present time. Selection of an acceptable assessment tool should be coordinated with the Environmental Services Section staff on a project by project basis. The survey work shall be conducted by a person meeting the professional qualifications as set forth for wetland delineation work.

In some instances additional surveys may be required for certain wetlands based on the presence of threatened/endangered species or other MDOT needs. The scope of services for the additional intensive-level surveys will be generated by the Project

Manager for in-house documents, or in coordination with the Project Manager for consultant-written documents with the involvement of Environmental Services Section specialists. The intensive-level survey submittals will follow the same procedure as outlined in the paragraph above.

WORK STEPS:

1. Input actual start date into project management software.

2. The Project Manager and Environmental Services Wetland Specialist will consult with the appropriate agencies on the Area of Potential Effect (APE). At the beginning of a project (after a job number has been assigned) the Environmental Services Wetland Specialist will perform a general database check to determine if previously identified sites exist within or near the APE. This may include review of pre-existing project documents. Field reviews may be required by the Project Manager and Wetland Specialist.

3. The Wetland Specialist will prepare a scope of services or will coordinate with a prime consultant (for consultant-written EA's and EIS's) to generate a scope of services for a qualified sub-consultant.

4. The consultant will conduct pre-field research using standard wetland mapping resources and soil surveys within the APE and develop maps indicating the location of these resources.

5. The consultant will develop a preliminary assessment of wetland resources using the Cowardin (et al.) wetland classification system. A cross-walk table should be constructed to identify wetlands as to type based upon other classification systems used for GIS based mapping.

6. The consultant will identify potential areas of elevated sensitivity for the presence of threatened/endangered/special concern species within wetlands associated with the APE. Species lists of all plants and animals identified during field surveys should be assigned to specific named wetland or upland units on mapping supplied as part of the technical report.

7. The consultant will support MDOT/FHWA in meetings/consultations as necessary, including developing formal and informal presentations, as required.

8. The consultant will perform a delineation of wetland boundaries, including the placement of wetland flagging, if required. The consultant will also conduct an impacts analysis based upon the use of an approved wetland functional assessment tool. The wetland delineation and functional assessment must be completed with full documentation using the approved field forms and nomenclature for each agency involved in the regulation of wetland resources (USACE/MEDGLE).

9. The consultant will develop a draft report and submit it to MDOT. The conclusion of the report will assess the proposed construction project's potential impacts on wetland resources, offer specific mitigation recommendations, and recommend the need for additional study if warranted by the findings of the work.

    a. Prepare a scope of work for any proposed additional study for submission to the Project Manager and Wetland Specialist.
    b. Copies of all field data sheets and field notes shall be provided as a separate document to MDOT for their review.

10. The consultant will complete the final report upon receipt of comments from MDOT and other reviewers.
    a. All comments must be satisfactorily addressed by the consultant in the final technical report.
    b. The final product shall be furnished in both hard copy and digital formats.

11. Input actual finish date into project management software.

12. The Wetland Specialist will submit the final report(s).

2315 Wetland Mitigation

Reporting Management Unit:	Bureau of Devel. – Env. Services – Compliance & Mit.
Task Start:	Notification that the project may involve impacts to wetland resources
Task Finish:	Distribution of wetland mitigation report
Date Last Modified:	January 2012

TASK DESCRIPTION:

State (Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act) and federal (Section 404 of the Clean Water Act) laws require MDOT to mitigate for unavoidable losses to wetland resources.
In addition, under federal executive order 11990 MDOT must comply with the federal "no let loss" of wetlands for any project that uses federal funding. The purpose of wetland mitigation is the replacement of unavoidably lost wetland resources with created or restored wetlands, with the goal of replacing as fully as possible the functions and public benefits of the lost wetland.

After the potential for a wetland impact is identified, compensatory mitigation must be proposed. Compensatory mitigation falls into two major categories:

1. Moment of Opportunity (MOO) mitigation can be used for any project that impacts less than 1/3 acre of wetland for each wetland complex and less than 2 acres of wetland for the total project. Under a Memorandum of Understanding between the Michigan Department of Transportation (MDOT) and the Michigan Department of Environmental Quality wetland impacts for these types of projects can be mitigated anywhere in the state at a 1:1 ratio regardless of wetland type. However, the environmental section or consultant need to determine if any site specific issues (such as flooding) exist that may result in the need for mitigation on site.

2. Site specific mitigation must be used if a project is likely to impact over 1/3 acre of wetland at a single wetland complex or over 2 acres for the total wetland. Site specific mitigation involves mitigating wetland resources at a specified mitigation site or bank site within the same watershed or eco-region as defined by the MDEGLE.

WORK STEPS:

(A) Moment of Opportunity Wetland Mitigation

1. Input actual start date into project management software.

2. The consultant will meet with MDOT's Wetland Mitigation Specialist to determine if site specific issues prevent the use of a MOO site.

3. The consultant will prepare a wetland mitigation plan stating the specific MOO site to be used. This step will require coordination with MDOT's Wetland Mitigation Specialist to determine which sites have available acreage.

4. The consultant will prepare a wetland mitigation write-up referencing the MOO site to be used. The write up shall include a history of the mitigation site (when was it constructed, what year of monitoring, how many credits are approved).

5. Input actual finish date into project management software.

(B) Site Specific Wetland Mitigation

1. Input actual start date into project management software.

2. The consultant will meet with MDOT's Wetland Mitigation Specialist to determine if issues exist on site that preclude the project from using an already constructed wetland bank site (if available).

3. If a wetland bank site is available, the consultant will prepare a wetland mitigation plan stating the specific bank site to be used. This step will require coordination with MDOT's Wetland Mitigation Specialist to determine the status of credit approval at the bank site and available acreage.

4. If a wetland bank site is not available, the consultant will perform the following:

    a. Meet with MDOT's Wetland Mitigation Specialist to discuss the need for wetland mitigation within a specific watershed eco-region.

    b. Conduct a GIS based search of suitable properties within a specific watershed or eco-region. In general, suitable properties are those which have a high water table, hydric soils and are currently under farming operations.

    c. After suitable sites are located, the consultant shall field review potential sites to further determine suitability for wetland mitigation. All sites shall be ranked according to suitability for cost effective wetland construction.

d. After sites are ranked the consultant shall make initial property owner contacts on a minimum of 5 of the highest ranked sites according to suitability, other agencies and governmental units involved, tasks pending, and schedules, etc.

e. If property owners express an initial interest, the consultant shall conduct a field review with MDOT's Wetland Mitigation Specialist and regulatory agencies (MDEGLE or USACE) to gain approval for the potential sites.

f. If approval is granted, the consultant shall prepare a conceptual mitigation plan for 3 of the 5 sites. The conceptual mitigation plan shall include a conceptual site design and a draft mitigation plan.

5. Input actual finish date into project management software.

2316 Other Technical Report(s)

Reporting Management Unit:	Bureau of Development. – Environmental Services Section - Adminstration
Task Start:	Project scope, cost and schedule approval; Notice to proceed; or distribution of EIS scoping documentation
Task Finish:	Transmittal of Technical Report to the Project Planning Division for inclusion in the EA or DEIS
Date Last Modified:	May 2013

TASK DESCRIPTION:

The Project Manager, Environmental Services Section, or a consultant(s) conducts comprehensive studies of the potential social, economic and environmental (SEE) impacts of the proposed project and alternatives. The specialist responsible for each concern (listed in the FHWA Technical Advisory T 6640.8) identifies and assesses the potential beneficial and adverse impacts of the proposed project and alternatives on the area of concern. The no-action" alternative and impacts during construction are included. The specialist also prepares a description of the affected environment, impacts and, if necessary, a description of possible measures needed to mitigate impacts.

The following information is applicable to the preparation of a Technical Report for a specific social, economic or environmental concern. In the technical report the amount of analysis needed will vary with the scope of a project and alternatives, but may include the following:

- A summary of the analysis undertaken, any major assumptions made, and supporting information on the validity of the methodology (where the methodology is not generally accepted as state-of-the-art).

- Sufficient supporting information or results of analyses to establish the reasonableness of the conclusions about impacts.

- A discussion, evaluation and resolution of the SEE issue for each alternative.

The Environmental Services Section has a coordination role during this task which will include:

- project meetings;
- schedules and status reports; and
- contact and coordination among the FHWA and other members of the project Study Team, the public, other agencies and departments, local government officials, and environmental and other special interest groups.

WORK STEPS:

1. Input actual start date into project management software.

2. Determine the SEE concern(s) and the amount of analysis needed for the concern through a technical study.
    a. This means that the significance action must be analyzed in several contexts:
        i. Society as a whole
        ii. the affected region
        iii. the affected interests
        iv. the locality.
    b. Both short-term and long-term effects are relevant and thus must be considered. Depending on the scope of a project and its alternatives, the number and types of concerns will vary.

3. A feasibility analysis must be completed for each alternative, including the applicable SEE factor(s). The no-action alternative and its impacts must also be included.

4. Determine impacts

5. Identify potential mitigation measures (if applicable)

6. Input actual finish date into project management software

7. Transmit Technical Report

2321 Prepare for Aerial Photography

Reporting Management Unit:	Design - Photogrammetry
Task Start:	Receipt of "Photogrammetric Services Request" Form
Task Finish:	Schedule Photogrammetry Flight(s)
Date Last Modified:	December 2005

TASK DESCRIPTION:

This task includes aerial photography for both projects requiring mapping services and photography only. This procedure provides documentation on the project's existing field conditions and land use practices. Upon the receipt of the "Photogrammetric Services Request" form the Requestor will meet with the Photogrammetry Unit to verify project limits and the desired deliverables.

Photography for mapping is typically flown from April to May after the snow has melted and before leaf out or November to December before snow appears and when leaves have fallen from trees. Spring is favored because the snow has matted the vegetation and the sun is higher in the sky producing shorter shadows. Requests for photography should be submitted well in advance of flying season. This allows for surveys and flights to be scheduled as soon as weather permits.

Specifically, photography for mapping will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

Mapping is primarily performed from black and white photography. The scale of photography will depend on the required accuracy of the mapping. Low altitude photography is generally used on projects requiring ground survey accuracy that have heavy traffic conditions making a ground survey dangerous and expensive. High altitude photography is used to create maps for route location studies where the exact corridor is unknown.

A precision aerial mapping camera will be used that has a nominal focal length of 6 inches (153 mm) and having a nominal 9 inch by 9 inch film format. A motion compensation system is recommended. The entire project area will be covered with overlapping images by at least 60%. The flight line and each photograph will be

centered on the median centerline of the highway in order to provide complete coverage of the paved portions of the roadway.

Mapping projects require that photo control targets are placed on the ground prior to photography (see Task 3321). Once surveyed (Task 3320), the targets will help to orient the photographs to the ground so that they can be used for Photo-grammetric mapping. The type, amount, locations, and accuracy of the ground control will be specified by the Photogrammetry Unit for each project. The Photogrammetry Unit will make a separate request to the Design Survey Unit to obtain the required photo control

Photography that will not be used for mapping purposes can be taken during any time of the year depending of the requestor's preferences for leaves on or off. Photography can be black and white, color, or infrared. Photography scales will depend on the level of detail the requestor needs from the photography and the area of desired photographic coverage.

The actual topographic mapping relates to and leads to Task 3310, and should be referenced on billing.

Additional details, especially pertaining to consultants, can be found in the Supplemental Information section following the work steps.

233M Aerial Photogrammetry Flight

Reporting Unit:
Bureau of Devel. – Des - Des Serv – Surveys – Consult Survey Support

This milestone identifies the actual day the flight was made after Tasks 2321 – Prepare for Aerial Photography and 3321 – Set Aerial Photo Targets are completed.

WORK STEPS:

Photography for Mapping, Photo Plan Sheets or Scaled Enlargements:

1. Receive request for Photogrammetric Mapping.
2. Input actual start date into project management software.
3. Prepare flight map.
4. Determine location of photo control targets.
5. Send Targeting Request to Design Survey (Task 3321).
6. Receive confirmation that targets are in place.
7. Request Photogrammetric Control Survey task 3320.
8. Schedule flight.

Photography Only:

1. Receive request for Photography.
2. Input actual start date into project management software.
3. Prepare flight map.
4. Schedule flight.

SUPPLEMENTAL INFORMATION FOR CONSULTANTS:
Please see the individual job scopes for MDOT provisions, and consultant requirements in terms of project schedule, deliverables, cost proposal, payment schedule, traffic control, permits, subcontracting qualifications, etc.

2322 Finish/Print Aerial Photography

Reporting Management Unit:	Design - Photogrammetry
Task Start:	Development of Flight Film and Making of Prints
Task Finish:	Request for Photogrammetric Control Survey
Date Last Modified:	December 2005

TASK DESCRIPTION:

This task includes finishing and printing the aerial photography for both projects requiring mapping services and photography only. This procedure provides documentation on the project's existing field conditions and land use practices.

Mapping is primarily performed from black and white photography. Low altitude photography is generally used on projects requiring ground survey accuracy that have heavy traffic conditions making a ground survey dangerous and expensive. High altitude photography is used to create maps for route location studies where the exact corridor is unknown.

A precision aerial mapping camera will be used that has a nominal focal length of 6 inches (153 mm) and having a nominal 9 inch by 9 inch film format. A motion compensation system is recommended. The entire project area will be covered with overlapping images by at least 60%. The flight line and each photograph will be centered on the median centerline of the highway in order to provide complete coverage of the paved portions of the roadway.

Mapping projects require that photo control targets are placed on the ground prior to photography (see Task 3321). Once surveyed (Task 3320), the targets will help to orient the photographs to the ground so that they can be used for Photogrammetric mapping. The type, amount, locations, and accuracy of the ground control will be specified by the Photogrammetry Unit for each project. The Photogrammetry Unit will make a separate request to the Design Survey Unit to obtain the required photo control.

Products available are photographs, mosaics, enlargements, photo plan sheets, and scaled enlargements in paper, film, or digital format. Photo plan sheets and scaled enlargements may require a limited amount of targeting and/or ground survey in order to determine proper photo to ground scaling ratios.

The actual topographic mapping relates to and leads to Task 3310, and should be referenced on billing.

Additional details, especially pertaining to consultants, can be found in the Supplemental Information section following the work steps.

WORK STEPS:

Photography for Mapping, Photo Plan Sheets or Scaled Enlargements:

1. Develop film and have prints made.
2. Identify targets on prints, add additional points if needed.
3. Input actual finish date into project management software.
4. Request Photogrammetric Control Survey task 3320, if you have not already done so.

Photography Only:

1. Develop film and have prints made.
2. Create desired products including photographs, mosaics, enlargements, photo plan sheets, and scaled enlargements.
3. NOTE: Photo plan sheets and scaled enlargements may require photo control targeting, and a limited amount of ground survey measurements that are performed by Design Surveys or the Photogrammetry Unit. See Task 3321 and 3320.
4. Input actual finish date into project management software.
5. Transmit photographic products to the requestor in desired format (paper, film, or digital image).

SUPPLEMENTAL INFORMATION FOR CONSULTANTS:

Please see the individual job scopes for MDOT provisions, and consultant requirements in terms of project schedule, deliverables, cost proposal, payment schedule, traffic control, permits, subcontracting qualifications, etc.

2330 Collect EPE Geotechnical Data

Reporting Management Unit:	Region - Construction and Technology
Task Start:	Receipt of request for EPE Geotechnical Investigation
Task Finish:	Distribution of EPE Geotechnical Investigation Report
Date Last Modified:	February 2013

TASK DESCRIPTION:

As part of this task a geotechnical investigation is performed for the Early Preliminary Engineering (EPE) phase of a project. The work included as part of the investigation will depend on the scope and special requirements of the project. The type of information required may include:

- wetlands conditions,
- wetlands monitoring, and
- soil borings along each alternative being considered.

Use Geotechnical Forms as necessary. This information is then used in making a determination of the recommended alternative.

WORK STEPS:

1. Receive a request for an EPE geotechnical investigation.
2. Input actual start date into project management software.
3. Assign a crew to conduct the investigation.
4. Check with the Region Real Estate Agent for ownership and to negotiate a right of entry, if necessary.
5. Conduct an on-site visit, including Miss Dig if necessary.
6. Conduct investigation.
7. Perform on-site or laboratory tests, record data, and collect information.
8. If appropriate, collect well monitoring data.
9. The Region Soils and Materials Engineers analyze the data and the borings to develop a recommendation.
10. Input actual finish date into project management software.
11. A memo is written by the Engineer and sent to the requester.

2340 Develop and Review Practical Alternatives

Reporting Management Unit:	Project Manager
Task Start:	Date of the Public Information Meeting
Task Finish:	Date of the Public Hearing
Date Last Modified:	January 2012

TASK DESCRIPTION:

During this task, the illustrative alternatives are examined in greater detail. Comments from the informational meeting are used to evaluate the illustrative alternatives. From the illustrative alternatives, the practical alternatives are identified. The level of detail with which each alternative is examined will vary from project to project. This work typically involves developing evaluation criteria to apply to the illustrative alternatives, which then leads to a set of practical alternatives. These criteria include:

- project cost
- utilities impacts
- right-of-way requirements
- traffic congestion
- accessibility
- mobility
- environmental and social impacts
- project development time

Other controls will influence the alternatives' alignment and layout which will be presented and analyzed in the draft environmental document. Many of these are similar to above. The types of controls can include:

- social, economic, and environmental (SEE) impacts
- horizontal alignment (curve radii, sight distance)
- vertical alignment
- grades
- geotechnical investigation
- structure spans and locations
- structure approaches
- roadway cross-sections
- vertical and horizontal clearances
- construction costs

In cooperation with Geometrics, a determination is made for each alternative regarding:

- ramp configuration
- level of service
- volume/capacity ratio
- queue analysis
- delay analysis
- number of lanes
- possible signalization

Right of Way limits are determined by Project Manager/Consultant. This information is used to determine:

- property taking
- relocation of residential/commercial occupants
- right of way cost

The results are documented in a report with accompanying drawings and sketches. The report is then submitted for review. Changes are incorporated to reflect review recommendations.

The practical alternatives are reviewed to ensure that the alternatives being considered have been examined in sufficient detail to identify potential issues or design considerations and are responsive to comments made by the public and other agencies. The level of detail will depend on the project but will need to be complete enough to evaluate the impacts of the various alternatives.

NOTE: Also as part of this task, assistance is provided in the preparation of the draft environmental document (Task 2360). Once the DEIS is approved for circulation, preparations are made for the public hearing. The necessary exhibits and materials to be distributed are prepared for the hearing.

WORK STEPS:

1. Evaluate and revise illustrative alternatives, incorporating comments from the Public Information Meeting.

2. Input actual start date into project management software.

3. Identify practical alternatives.

4. Develop practical alternatives design.

5. Document the proposed design for the practical alternatives.

6. Prepare a document for the practical alternatives.

7. Submit the Draft Practical Alternatives document to the Study Team for review.

    a. Review Steps:
        i. Review Draft Practical Alternatives Report
        ii. If appropriate, hold meeting to discuss alternatives
        iii. Organize and document review recommendations
        iv. Distribute review recommendations
        v. Review revisions to the report
        vi. iv. Approve practical alternatives

8. Incorporate the review recommendations into the document.

9. Prepare for the public hearing.

10. Input actual finish date into project management software.

11. Participate in the public hearing.

234M Concurrence by Regulatory Agencies With Practical Alternatives Considered

Reporting Unit: Bureau of Devel. – Env. Services – Compliance & Mit.

When it is anticipated that the wetlands impacts of a proposed project will be great enough to require that a Clean Water Act Section 404 permit will be needed, the Concurrent NEPA/404 Process requires that the Michigan Department of Environmental Quality, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service must concur with the alternatives to be carried forward for detailed study. This occurs as part of task 2340 (Develop and Review Practical Alternatives). This process and concurrence applies to Environmental Impact Statements (EIS) only.

2360 Prepare and Review Environmental Assessment (EA)

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Submission of the written description of the proposed project and alternatives
Task Finish:	FHWA signature approval of EA
Date Last Modified:	May 2013

TASK DESCRIPTION:

This task includes the work effort required to prepare an Environmental Assessment (EA). The document must be prepared in accordance with Federal, State, and local government guidelines. Environmental Administration will assign the work to the appropriate personnel.

Based on the results of the technical environmental studies (Task 2310+) (if appropriate), the EA for the project is prepared. The EA summarizes:

- project description, justification & history;
- all reasonable alternatives to the proposed action including the no action alternative
- the affected environment
- the social, economic and environmental impacts of the proposed project and alternatives, as developed in the technical studies
- the transportation impacts
- potential mitigation measures including a Project Mitigation Summary (Green Sheet).
- history of coordination with other agencies and public involvement tasks

A preliminary draft of the EA is submitted for internal review. A check is made to ensure that the document is complete. If the document is incomplete it is returned to the group preparing the document. If the document is complete, copies are made and distributed to the appropriate groups.

The review includes different groups from throughout the Department and will depend on the issues associated with the project. On most reviews the following groups are given an opportunity to review the document:

- Project Manager
- Transportation Planning
- Environmental Services Section
- Region and/or TSC Project Development Engineer
- Development Services (Real Estate)
- Design
- Other members of the Study Team
- Cooperating agencies

Recommendations are then made and the document is revised to address the identified concern.

Once the document has been completed, the draft is submitted to FHWA for its review. The document must meet all Federal and State requirements before it can be sent to FHWA for their review. The FHWA may recommend revisions. After the FHWA's revisions are incorporated into the EA, the FHWA approves the EA and authorizes the printing and distribution of the EA for public and agencies' review and comments.

As part of this task, an evaluation of the 4F/6F requirements is made. If a proposed project requires the use of "Section 4(f) land," preparation of a Section 4(f) Evaluation is required. For projects processed with an EA, the Section 4(f) Evaluation is included as a separate section of the document. A Section 4(f) Evaluation describes the type and extent of involvement with the 4(f) land, any feasible and prudent alternative(s) to the involvement, any measures to minimize the impact on the 4(f) land, and the results of coordination with the public official(s) having jurisdiction over the 4(f) property.

The Section 6(f) requirements are applied to all projects which impact recreational lands purchased or improved with land and water conservation funds. The purpose of the requirements is to preserve, develop and assure the quality and quantity of outdoor recreational resources for present and future generations. The Section 6(f) study is similar to the Section 4(f) study in that it looks at feasible alternatives and possible measures for minimizing the impacts of the proposed alternative on the area of concern.

WORK STEPS:

1. Receive inputs from the other groups, including a description of alternatives, technical studies, traffic analysis report, and project justification.

2. Input actual start date into project management software.

3. Complete a preliminary draft of the EA, including an evaluation of 4F/6F requirements as applicable.

4. Submit the preliminary draft for internal review.

   Review Steps:
   a. Review the draft document
   b. Make recommendations
   c. Incorporate review recommendations into the document
   d. Check the complete document for changes made to address review recommendations

5. Submit revised preliminary document to FHWA for review and approval.

6. Incorporate FHWA review recommendations into the document.

7. Input actual finish date into project management software.

8. Upon FHWA approval, print and distribute the EA.

236M Approval of Environmental Assessment by FHWA

Reporting Unit: Bureau of Devel. – Env. Services – Env. Admin.

When the EA document has been reviewed and found to be complete, it is submitted to FHWA for approval as part of Task 2360.

2361 Obtain Photogrammetry Consultant

Reporting Management Unit:	Design – Photogrammetry
Task Start:	Date of notification to the project manager of MDOT approval of project scope, schedule and cost; and assignment to specific support area, region office, or Transportation Service Center (TSC). The method may vary.
Task Finish:	Date of executed contract/authorization
Date Last Modified:	August 2005

TASK DESCRIPTION:

At the present time, all Photogrammetric flights are consulted out. This task deals with all the steps necessary to obtain consultant services for Photogrammetry, including all Photogrammetric aerial flights, image scanning, and aerial Photogrammetric mapping.

This task will require various and different steps from one type of service to another, and from one year to the next. The project manager will follow the work steps outlined in the **current** version of the Project Manager Contract Management Manual. This will require coordination with the appropriate contract administrator for each specific support area, region office, or TSC. These contacts may also be found in that manual.

Typically, this process will include the following major items: selection (with appropriate approval), price negotiation, contract/authorization initiation (with various approvals), and contract/authorization completion.

Each contract/authorization is unique and specific to the job/project. It will usually include the project scope, schedule, and cost, as agreed to by both the consultant and the department.

The execution of a contract/authorization will occur after all current department approval paths are met and the approvals granted. This task is considered complete when there is an actual executed contract/authorization, and this is also the date the consultant may begin work.

2370 Prepare and Review DEIS

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Submission of the written description of the proposed project and alternatives
Task Finish:	FHWA signature approval of DEIS
Date Last Modified:	May 2013

TASK DESCRIPTION:

This task includes the work effort required to prepare a Draft Environmental Impact Statement (DEIS). The document must be prepared in accordance with Federal, State, and local government guidelines. Environmental Administration will assign the work to the appropriate personnel.

Based on the results of the technical environmental studies (Task 2310), EIS scoping documentation (Task 2160) (if appropriate) and other related studies, the DEIS for the project is prepared. The DEIS summarizes:

- project description, justification & history
- all reasonable alternatives to the proposed action including the no action alternative
- the affected environment
- the social, economic and environmental impacts of the proposed project and alternatives, as developed in the technical studies
- the transportation impacts
- potential mitigating measures including a Project Mitigation Summary (Green Sheet)
- history of coordination with other agencies and public involvement

A preliminary draft of the DEIS is submitted for internal review. A check is made to ensure that the document is complete. If the document is incomplete it is returned to the group preparing the document. If the document is complete, copies are made and distributed to the appropriate groups.

The review includes different groups from throughout the Department and will depend on the issues associated with the project. On most reviews the following groups are given an opportunity to review the document:

- Project Manager
- Transportation Planning
- Environmental Services Section
- Development Services (Real Estate)
- Construction and Technology
- Region and/or TSC Project Development Engineer
- other members of the Study Team
- Cooperating agencies

Recommendations are then made and the document is revised to address the identified concerns.

Once the document has been completed, the draft is submitted to FHWA for its review. The document must meet all Federal and State requirements before it can be sent to the FHWA review. The FHWA may recommend revisions. After the FHWA's revisions are incorporated into the DEIS, the FHWA approves the document and authorizes the printing and distribution of the DEIS for public and agencies' review and comments.

As part of this task, an evaluation of the 4F/6F requirements is made. If a proposed project requires the use of "Section 4(f) land," preparation of a Section 4(f) Evaluation is required. For projects processed with a DEIS, the Section 4(f) Evaluation is included as a separate section of the document. A Section 4(f) Evaluation describes the type and extent of involvement with the 4(f) land, any feasible and prudent alternative(s) to the involvement, any measures to minimize the impact on the 4(f) land, and the results of coordination with the public official(s) having jurisdiction over the 4(f) property.

The Section 6(f) requirements are applied to all projects which impact recreational lands purchased or improved with land and water conservation funds. The purpose of the requirements is to preserve, develop and assure the quality and quantity of outdoor recreational resources for present and future generations. The Section 6(f) study is similar to the Section 4(f) study in that it looks at feasible alternatives and possible measures for minimizing the impacts of the proposed alternative on the area of concern.

WORK STEPS:

1. Receive inputs from the other groups, including a description of alternatives, technical studies, traffic analysis report, and project justification.

2. Input actual start date into project management software.

3. Complete a preliminary draft of the DEIS, including an evaluation of 4F/6F requirements as applicable.

4. Submit the preliminary draft for internal review.

   Review Steps:
   a. Review the draft document
   b. Make recommendations
   c. Incorporate review recommendations into the document
   d. Check the complete document for changes made to address review recommendations

5. Submit revised preliminary document to FHWA for review and approval.

6. Incorporate FHWA review recommendations into the document.

7. Input actual finish date into project management software.

8. Upon FHWA approval, print and distribute the DEIS.

237M Approval of DEIS by FHWA

Reporting Unit: Bureau of Devel. – Env. Services – Env. Admin.

When the DEIS document has been reviewed and found to be complete, it is submitted to FHWA for approval as part of Task 2370.

2380 Distribute Environmental Assessment (EA)

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	FHWA approval for the printing and distribution of the EA
Task Finish:	Distribution of the public hearing comments and transcript
Date Last Modified:	May 2013

TASK DESCRIPTION:

To ensure that the public's views are heard and fully considered in the highway decision-making process, the Environmental Assessment (EA) is made available for review. Several methods are used to inform the public of the availability of the EA and to distribute the document. The methods include:

- legal notices and press releases in the local media
- mailings to individuals known to be interested in the project

Environmental Administration will assign the work to the appropriate personnel. Notices published in the local media indicate where the document is available for review, how copies may be obtained, and where comments should be sent. These notices are published a minimum of 15 days prior to the public hearing. An EA must be available for comment for 30 days. A minimum of 45 days for comments is required for an EA containing a Section 4(f) Evaluation. These time frames must be accommodated as part of the period ranging from the publication of the first notice to the closing of public comments following the hearing. The document is sent to:

- local, state and Federal government agencies with responsibility for anticipated project impacts
- public officials
- interest groups
- individuals impacted by the project

Distribution of the EA permits the public and agencies to give input on the documents. (Reference - MDOT Procedures and Federal requirements)

When a public hearing is held, those interested in commenting on the project can do so either orally at the hearing or by providing written comments during the comment period which closes no sooner than 10 days after the hearing. The court reporter compiles the comments and provides it to MDOT as part of the hearing transcript. Written comments received are added as part of the public record. The transcript is then provided to the appropriate staff, usually the Project Manager and the Environmental Coordinator of the project, as well as the FHWA.

WORK STEPS:

1. Prepare document for printing
2. Input actual start date into project management software
3. Prepare a distribution list of recipients
4. Print document
5. Prepare a brochure and speech for the public hearing
6. Prepare public hearing exhibits
7. Set date and secure site for public hearing
8. Prepare and publish legal notices and press release
9. Distribute document
10. Hold pre-hearing task group meeting
11. Conduct hearing for EA as required
12. Certify public hearing
13. Input actual finish date into project management software
14. Assemble comments and transcript and send copies to environmental coordinator, Project Manager and FHWA

238M Public Hearing For Environmental Assessment

Reporting Unit: Bureau of Devel. – Env. Services – Env. Analysis

A hearing is held during the circulation period for the EA among concerned members of the public, and to offer the opportunity for the public to provide input and express any concerns. This occurs as part of Task 2380.

2390 Distribute DEIS

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	FHWA approval for the printing and distribution of the DEIS
Task Finish:	Distribution of the public hearing comments and transcript
Date Last Modified:	May 2013

TASK DESCRIPTION:

To ensure that the public's views are heard and fully considered in the highway decision-making process, the Draft Environmental Impact Statement (DEIS) is made available for review. Several methods are used to inform the public of the availability of the DEIS and to distribute the document. The methods include:

- legal notices and press releases in the local media
- mailings to individuals known to be interested in the project
- publication of Notice of Availability of the DEIS in the Federal Register

Environmental Administration will assign the work to the appropriate personnel. Notices published in the local media indicate where the document is available for review, how copies may be obtained, and where comments should be sent. These notices are published a minimum of 15 days prior to the public hearing. A DEIS must be available for public comment for 45 days. A minimum of 45 days for comments is also required for a DEIS containing a Section 4(f) Evaluation. These time frames must be accommodated as part of the period ranging from the publication of the notice in the Federal Register to the closing of public comments following the hearing. The document is sent to:

- local, state and Federal government agencies public officials, interest groups
- individuals impacted by the project
- NEPA 404 Agencies* (U.S. Fish and Wildlife, U.S. Environmental Protection Agency, U.S. Corp of Engineers, and Michigan Department of Environmental Quality). If it is anticipated that the wetlands impacts of a proposed project will be great enough that a Clean Water Act Section 404 permit will be needed, the Concurrent NEPA/404 Process requires that the Michigan Department of Environmental Quality, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service must concur with the alternatives to be carried forward for detailed study

Distribution of the DEIS permits the public and agencies to give input on the documents. (Reference - MDOT Procedures and Federal requirements).

When a public hearing is held, those interested in commenting on the project can do so either orally at the hearing or by providing written comments during the comment period which closes no sooner than 30 days after the hearing. The court reporter compiles the comments and provides it to MDOT as part of the hearing transcript. Written comments received are added as part of the public record. The transcript is then provided to the appropriate staff, usually the Project Manager and the Environmental Coordinator of the project, as well as the FHWA.

WORK STEPS:

1. Receive permission to print and prepare document for printing
2. Input actual start date into project management software
3. Prepare a distribution list of recipients
4. Print document
5. Prepare a brochure and speech for the public hearing
6. Prepare public hearing exhibits
7. Set date and secure site for public hearing
8. Prepare and publish legal notices and press release
9. Prepare and publish Notice of Availability in Federal Register
10. Distribute document
11. Hold pre-hearing task group meeting
12. Conduct hearing for DEIS as required
13. Assemble comments and transcript and send copies to Environmental Coordinator, Project Manager and FHWA
14. Input actual finish date into project management software
15. Certify public hearing.

239M Public Hearing for DEIS

Reporting Unit: Bureau of Devel. – Env. Services – Env. Analysis

A hearing is held during the circulation period for the DEIS among concerned members of the public, and to offer the opportunity for the public to provide input and express any concerns. This occurs as part of Task 2390.

2.3 EPE Final Draft Analysis (2500 Series)

2510 Determine and Review Recommended Alternative

Reporting Management Unit:	Project Manager
Task Start:	Receipt of transcript from the public hearing and comments from the circulation of the draft environmental document
Task Finish:	Date of MDOT approval of the recommended alternative
Date Last Modified:	May 2013

TASK DESCRIPTION:

The recommended alternative establishes the basis for the design and ultimately the construction of the project. The selection of the recommended alternative weighs the impact of the alternative as compared with the other practical alternatives. The level of detail required to make this choice varies from project to project. The documentation must provide information regarding the alternative in sufficient detail and format to reach a decision.

During this task, the comments from the circulation of the draft environmental document and public hearings are reviewed. A meeting is held with the appropriate groups to discuss the action required for the various comments.

Depending on the type of comments received, further refinement of project design may be required. This typically involves changes to the alternatives still under consideration such as:

- detailed design of sections of the project to address mitigation measures
- adjustments in the proposed alignments
- collection of additional data to evaluate proposed configurations

When sufficient information is available, a decision is made as to the recommended alternative.

The necessary documentation is then submitted for review and approval by the Study Team and the Program Project Review Board. For the Study Team to make a decision, the document must make a reasonable comparison between the shortcomings and strong points associated with each practical alternative. The level of detail will vary from project to project. The documentation must provide information regarding the alternative in sufficient detail and format to reach a decision.

The Engineering Report will be prepared for the recommended alternative upon approval. This is provided to the Designer to ensure that the scope developed in the EPE process continues through the design phase of the project.

WORK STEPS:

1. Review comments received from the circulation of the Draft Environmental Document and public hearing

2. Input actual start date into project management software

3. Hold Study Team meeting to discuss comments

4. If required, further develop the proposed design for alternatives still under consideration

5. Determine the recommended alternative

6. Further refine the proposed design for the Recommended Alternative

7. Submit Draft Recommended Alternative document to Study Team

   Review Steps:
   a. Review recommended alternative documentation
   b. If appropriate, hold Study Team meeting to discuss alternative
   c. If required, request additional information
   d. Determine the Study Team's recommended alternative

8. Organize documentation and submit for Department review and approval by Program Project Review Board.

9. The Program Project Review Board reviews and approves the Study Team's recommended alternative.

10. Input actual finish date into project management software.

11. Initiate development of the Engineering Report to reflect approved recommended alternative.

250M Concurrence by Regulatory Agencies With Recommended Alternative

Reporting Unit: Bureau of Devel. – Env. Services – Compliance and Mitigation

When it is anticipated that the wetland impacts of a proposed project will be great enough that a Clean Water Act Section 404 permit will be needed, the Concurrent NEPA/404 Process requires that the Michigan Department of Environmental Quality, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service must concur with the alternatives to be carried forward for detailed study. This occurs as part of Task 2510 (Determine and Review Recommended Alternative). This process and concurrence applies to Environmental Impact Statements (EIS) only.

251M Department Approval of Recommended Alternative

Reporting Unit: Project Manager

The task finish point for Task 2510, in which the recommended alternative is reviewed, is the approval of the recommended alternative by the Program Project Review Board.

2525 Prepare and Review Engineering Report

Reporting Management Unit:	Project Manager
Task Start:	Determination of Recommended Alternative
Task Finish:	Distribution of Final Engineering Report
Date Last Modified:	May 2013

TASK DESCRIPTION:

This report establishes the need for action. It describes the practical alternatives in depth and their impacts. This task documents the reasons for the choice of the Recommended Alternative. The type of information required may include:

1. Project Background

2. Purpose and Need for Action

3. Transportation Demand
    a. System Linkage
    b. Traffic Volumes
    c. Capacity/Level of Service

4. Description of Practical Alternatives
    a. Summary of Impacts
    b. Cost

5. Preferred Alternative
    a. Description of Preferred Alternative
    b. Typical Cross Sections and Right-of Way
    c. Drainage
    d. Mitigation
    e. Preliminary Cost Estimate

A draft copy of the Engineering Report will be distributed to MDOT staff, the FHWA and other members of the project team for review and comment. Comments received from the review will be incorporated in the final version of the Engineering Report, and upon approval by the Project Manager, will be printed and distributed to pre-arranged parties.

WORK STEPS:

1. Input actual start date into project management software.

2. Gather all required information for preparing the Engineering Report, including, but not limited to:
    a. Purpose of and need for action (see Task 2130)
    b. Description of Practical Alternatives (see Task 2340)
    c. Description of and Reason for Recommended Alternative (see Task 2510)
    d. See *Supplemental Information* for additional details.

3. Write Engineering Report.

4. Send draft copy of Engineering Report to appropriate MDOT staff, FHWA, and any other project team members for review and comments.

5. Incorporate comments into final document for approval by the Project Manager.

6. Input actual finish date into project management software.

7. Print and distribute the final Engineering Report to the appropriate parties.

SUPPLEMENTAL INFORMATION:

Document the reasons for the choice of the Recommended Alternative. The type of information required may include the following:

1. Project Initiation and Data Collection

2. Purpose and Need for Action (Task 2130)

3. Project Background
    a. Design criteria
    b. Assumptions
    c. Risk analyses
    d. Structural Details

4. Transportation Demand & other references

    a. System Linkage
    b. Traffic Volumes
    c. Capacity/Level of Service
    d. Geometrics
    e. Water Quality Analysis

f. Utilities
   i. Location and names
   ii. Utility plan
   iii. Profile plots

5. Existing Social, Economic, and Environmental Conditions

6. Description of Practical Alternatives (Task 2340)

7. Public Involvement Process

8. Summary of Impacts

9. Work breakdown schedule that completely defines the project with all necessary work packages. List of Figures, Tables, Appendices and Acronyms are to be included.

10. Project Schedule
    a. Date
    b. Task Number
    c. Description
    d. Example of Project Schedule

Date	Task Number	Description
Mar-03	2525	Prepare Engineering Report
May-03	2525	Review Engineering Report
Dec-03	2525	Complete Engineering Report

11. Preferred Alternatives
    a. Description of Preferred Alternatives
    b. Typical Cross Sections and Right-of-Way
    c. Drainage
    d. Mitigation
    e. Preliminary Cost Estimate

12. Project Status

13. Conclusion
    a. Supporting comments
    b. List of objectives
    c. Closing statement

2530 Prepare and Review Request for FONSI

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Receipt of Study Team recommendation
Task Finish:	FHWA issuance of a Finding of No Significant Impact (FONSI)
Date Last Modified:	May 2013

TASK DESCRIPTION:

Environmental Administration will assign the work to the appropriate personnel. Documentation supporting a Finding of No Significant Impact (FONSI) is prepared and provided with the request for a FONSI. The documentation includes the recommended alternative, responses to comments received from the public officials, agencies, and the public. The request is approved by the FHWA and the FONSI is granted. The documentation supporting a request for a FONSI and the FONSI are distributed to interested public officials, agencies and the public for information purposes. This completes the environmental clearance for an EA.

WORK STEPS:

1. Prepare responses to comments received.

2. Input actual start date into project management software.

3. Develop final mitigation for recommended alternative - Project Mitigation Summary – (Green Sheet)

4. Prepare supporting documentation requesting a FONSI

5. Submit supporting documentation and Request for a FONSI for internal review. Review Steps:
    a. Review those portions of the document which are to be included as needed
    b. Provide comments
    c. Make revisions to final document based on review comments
    d. Review completed final document

6. Submit document to FHWA for approval

7. Input actual finish date into project management software

8. FHWA approval of Request for FONSI and issuance of a Finding of No Significant Impact

253M FONSI issued by FHWA

Reporting Unit: Bureau of Devel. – Env. Services – Env. Admin.

At the end of the environmental study process, the final document (request for FONSI) is submitted to FHWA for approval as part of Task 2530.

2540 Prepare and Review FEIS

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	Receipt of Study Team recommendation
Task Finish:	FHWA approval of FEIS
Date Last Modified:	May 2013

TASK DESCRIPTION:

Environmental Administration will assign the work to the appropriate personnel.

After receipt of the Study Team's recommended alternative, the final environmental document is developed. The comments and recommendations received from the Draft Environmental Impact Statement (DEIS) review process and public hearing are compiled and analyzed for inclusion into the document. The Final Environmental Impact Statement (FEIS) identifies the recommended alternative, summarizes citizen involvement in the public review process, and describes the final mitigation developed for the recommended alternative. This includes the conceptual wetland mitigation plan and other measures necessary to mitigate environmental impacts of the recommended alternative. If a Draft Section 4(f) Evaluation was included in the DEIS, then a Final Section 4(f) Evaluation needs to be included as a separate section in the FEIS.

The draft FEIS is submitted to the Study Team and FHWA for review. The review ensures that all issues raised during the circulation of the DEIS are addressed. Comments made by the public and agencies are responded to in the document.

The recommended alternative is fully described and all mitigation measures are identified. The reasons for selecting the recommended alternative are also included. This decision balances the considerations for safe and effective transportation with the goals of environmental protection and enhancement. The review checks for completeness and accuracy of all materials submitted. Recommendations are finalized during the review process. There may be several episodes of review and revision before the document is finalized.

Completion of the final environmental document results in the selection of the project's location and design. This task ends when the FEIS is approved by the FHWA for distribution.

FHWA approval of the FEIS document allows for distribution of the FEIS and public notice of the FEIS approval and availability in the Federal Register.

WORK STEPS:

1. Prepare responses to comments received

2. Input actual start date into project management software

3. Develop final mitigation for recommended alternative – Project Mitigation Summary (Green Sheet)

4. Prepare final environmental impact statement, including a Final Section 4(f) Evaluation if applicable.

5. Submit FEIS document for internal review.

   Review Steps:
   a. Review the document
   b. Provide comments.
   c. Make revisions to final document based on review comments.
   d. Review completed final document.

6. Submit document to FHWA for approval.

7. Input actual finish date into project management software.

8. FHWA approval of FEIS.

254M Approval of FEIS by FHWA

Reporting Unit: Bureau of Devel. – Env. Services – Env. Admin.

At the end of the environmental study process, the final document (FEIS) is submitted to FHWA for approval as part of Task 2540.

2550 Obtain Record of Decision (ROD)

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Admin.
Task Start:	FHWA approval of FEIS document
Task Finish:	Issuance of Record of Decision
Date Last Modified:	May 2013

TASK DESCRIPTION:

Environmental Administration will assign the work to the appropriate personnel.

After the FEIS is signed by the FHWA, it is distributed to interested public officials, agencies and the public for a 30-day comment period. A "Notice of Availability" is also published in the Federal Register. Upon conclusion of the comment period and resolution of any issues that are raised during the comment period, the FHWA issues a Record of Decision (ROD). This completes the environmental clearance for an EIS.

WORK STEPS:

1. Prepare document for printing.

2. Input actual start date into project management software.

3. Explain reasons for selecting the recommended alternative

4. Provide mitigation measures – Project Mitigation Summary (Green Sheet)

5. Provide responses to any comments that were received during the comment period.

6. Update distribution list of recipients.

7. Make copies of final documents.

8. Prepare and publish Notice of Availability in Federal Register.
    a. Notice of Availability should be sent to appropriate governments, including local, state and federal.

    b. ROD document is signed when the FHWA has concurred that all issues have been addressed with regard to mitigation.

    c. Input actual finish date into project management software.

d. **FHWA signs ROD**. The ROD is signed when FHWA accepts the conclusions supported in the Final Environmental Impact Statement.

255M ROD Issued by FHWA

Reporting Unit : Bureau of Devel. – Env. Services – Env. Admin.

At the end of the environmental study process for an EIS, FHWA approves the Record of Decision as part of Task 2550.

2560 Obtain Preliminary Engineering Authorization

Reporting Management Unit:	Statewide Planning – Statewide Systems Implementation and Monitoring Unit
Task Start:	Receipt of request for Preliminary Engineering Programming
Task Finish:	Issuance of PE Authorization – Financial Chargeability
Date Last Modified:	April 2019

TASK DESCRIPTION:

Obtaining authorization for Preliminary Engineering requires obtaining the necessary approvals and coding to enable charges to be made to the Preliminary Engineering (PE) work phase. This task includes the programming process required to earmark state funds for the project. It may also include additional tasks that are required to obligate Federal funds.

Some of the work for this task duplicates what is performed for Task 1220, but because this task applies to jobs that are not New Roads/Increased Capacity, the Study Team and related input is not necessary. Any similarly related work may be performed under a broad coverage scoping job number before the concept is created. This significantly reduces the amount of time and hands-on effort required for this task, as does the usage of electronic forms and approvals. This preliminary work also helps to create the Draft Job in JobNet before moving jobs into the PE work phase.

A Draft Job should already be created in JobNet at this point. The Author is the 'default' project manager, and often a Program/System Manager or Cost & Scheduling Engineer or Region/TSC Project Development Engineer. The draft job should have a default job number automatically, and should be filled out completely before JobNet submittal. Funding Template and Category are very important to Job Programming, and will be examined by Finance as well as the appropriate Program Administrator. See the JobNet User Guides for more information on creating and submitting jobs. Further requirements may exist for Federal projects, including project maps. The submittal of the Draft Job initiates Task 2560.

Project authorization and approval includes the dollar amount being programmed, as well as the program category and funding template. Approvals may be given by Program Administrators/Managers and above. The work units then have the ability to work on the PE portion of the job and charge to that job number and phase.

WORK STEPS:

1. Submit Draft Job for electronic Project Authorization and various required approvals. This includes, but is not limited to:

    a. Dollar amount being programmed
    b. Program category
    c. Funding template

    NOTE: Various approvals required may be given by Program Administrators/ Managers and above.

2. Input actual start date into project management software.

3. For Federally funded projects:
    a. Initiate FHWA programming and obligation.
    b. The Project Manager submits the draft.
    c. Project maps are submitted.
    d. Finance finalizes PR-1 to initiate this process.

4. Upon approval of Draft Job, project is authorized. Project Authorization is provided by the Statewide Systems Implementation and Monitoring Unit for the majority of jobs.

5. Input actual finish date into project management software.

2.4 Contamination Investigation (2800 Series)

2810 Project Area Contamination Survey (PACS)/Initial Site Assessment (ISA)

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Staff Specialist
Task Start:	Notification to conduct (request for) the Project Area Contamination Survey (PACS)/ISA
Task Finish:	Identification of contaminated sites on plans or report of no potential contaminated sites/concerns
Date Last Modified:	January 2012

TASK DESCRIPTION:

Overview:
The identification and analysis of environmental contamination information is required for National Environmental Policy Act (NEPA) compliance (very important), the Environmental Assessment (EA), and the Environmental Impact Statement (EIS) processes, which often require extensive field research. The identification of environmental contamination serves three purposes:

1. Determine if there is a potential for worker safety issues.
2. Use of contaminated site information in the impact analysis of alternatives and the development of mitigation.
3. Assess risk (Low, Medium, High) of potential and known sites for impact to construction and liability issues.

Information provided in the Project Area Contamination Survey (PACS) should be reviewed prior to any field research or data gathering activities requiring earth disturbance, as part of the Early Preliminary Engineering (EPE). The Project Area Contamination Survey (PACS), and, if necessary, the Preliminary Site Investigation (PSI) will be conducted in order to identify and characterize any potential hazards to workers' health and safety. Any sites that pose potential health risks to EPE researchers and data gatherers are to be avoided or proper safety measures and equipment used when working in these areas. Proper safety measures to be taken will be reviewed by MDOT's Safety Administration, or defined in the PSI report. These should be in accordance with the rules and regulations of the Michigan Occupational Safety and Health Administration (MIOSHA), and, if applicable, Hazardous Waste Operation and Emergency Response (HAZWOPER) standards.

Description:
The purpose of this task is to investigate parcels of property for known or potential sites of environmental contamination that could affect the project's design, cost, or schedule. This task is performed for all jobs entailing subgrade work or work outside of existing shoulders (any earth work/disturbance). This also applies to work on or near asbestos covered utilities, bridges having lead based paint, demolition projects, and includes all classes of projects that require subsurface, environmental or soils testing.

The primary objectives in conducting the PACS are to determine:

I. the potential risk of the site (Low, Medium, High)*) to construction activities;
II. if further investigation on medium and high risk sites such as, testing, and/or additional records review may be necessary based on potential worker safety issues and areas of potential contamination conflicting with construction activities;
III. and to provide suggested mitigation for any issues

At the beginning of a project, when a job number is created, The Environmental Services Section's Environmental Quality Specialist (EQS) will perform a general MDEGLE (Michigan Department of Environment, Great Lakes, and Energy) database check that will identify potential contaminated sites near the project.

This information will be forwarded to the Project Manager (PM) and the Region Resource Specialist (RRS) by the Environmental Quality Specialist (EQS).

If the above requirements and initial information indicate a PACS is necessary, the Project Manager will provide the scope and limits of the project when requesting the PACS. The request is sent to, and the PACS conducted by,

- the RRS if no additional ROW is needed, <u>or</u>
- the EQS if additional ROW is needed.

The following records and historical information may be gathered:

- historical records
- site contamination lists from MDEGLE databases
- aerial photographs

This information can be used to identify the type of ownership and land use practices (commercial, industrial, and residential). A site visit is then made by the Resource Specialist and/or EQS to the project site/limits to make a visual inspection. The information collected, as well as the findings, are compiled by the RRS and/or EQS and reported to the Project Manager.

If no potential contaminated sites are identified, the findings are included in the report. The Project Manager should work with the RRS and/or the EQS to determine if a miscellaneous quantity for handling non-hazardous contaminated material is needed. This determination would end the investigation unless new information became available during either the preconstruction or construction process.

If the PACS identifies potential contaminated sites, the Project Manager will work with the RRS and/or the EQS to determine what further measures are needed. A list of potential contaminated sites is to be included in the contract documents. In general, if contamination is suspected and there will be work adjacent to the contaminated site, the Project Manager will add the Frequently Used Special Provision 03SP205(A) Special Provision for Non-Hazardous Contaminated Material Handling and Disposal, which includes appropriate pay items. The Project Manager may also work with the RRS and/or the EQS to determine what quantity will be put in the plans and if further investigation is needed.

If a PACS or PSI identifies hazardous materials, the Project Manager should contact MDOT's Safety Administration for potential implementation of a worker health and safety plan.
More specifically, if the following are suspected or identified, additional appropriate actions should be taken (see Work Steps for specifics):

- Monitoring wells
- Ground water contamination
- Contaminated sediments within a water body
- Potential soil contamination from leaking underground storage tank (LUST) sites
- Potential soil contamination originating from other than a LUST site (i.e 201 sites)
- Soil contamination originating from a lead base painted bridge

NOTE: Projects will need to be sent to FHWA for concurrence if: de-waterng is necessary, **estimated disposal quantity exceeds 2,000 cubic yards, or contaminated material is classified as hazardous waste. For hazardous waste, the project will need to be reassessed for its need and cost.**

Potential contaminated sites are identified on the conceptual plans, and this site information is used to evaluate the viability of alternatives by determining the impact on Illustrative Alternatives:

- Fatal Flaw: Does the contamination pose a significant environmental, safety or health hazard; is it overly expensive to mitigate; or does it present such a liability risk for MDOT, that it precludes consideration of an alternative?
- Design Change: Can the contaminated site be avoided or risk minimized through a design change?
- Acceptable Risk: Is the contamination within acceptable parameters for contamination, cost, and risk? Sites will be rated low, medium, high based on type of contamination, quantity, and degree of project impact.*

Any sites identified in the PACS that may effect the selection of an alternative will be further evaluated by conducting a Preliminary Site Investigation (PSI), if necessary.

These guidelines are all intended to detail and supplement Section 14.13 of the Road Design Manual, *Identification of Potential Contaminated Sites.*

**LOW RISK: Known LUST (Leaking Underground Storage Tank) and other underground sites that have been remediated and are officially closed; small body shops, brake shops, and such that may have had small spills in the past. Also open LUST sites where the source is at a great distance from the project.*

MEDIUM RISK: Open LUST sites, potential sites that have been identified as former gas stations, and processing facilities where there is no information based on testing. Known sites where remediation is occurring that may impact the project so some degree.

HIGH RISK: Open LUST sites with free product, other known open underground sites, landfill sites, and unknown sites that have been identified as former heavy industrial areas, former gasoline stations with potential for underground tanks to be present, or areas where chemicals may have been buried.

WORK STEPS:

1. The Project Manager (PM) sends the descriptions of the job's scope, project limits, time frame for completion of a Project Area Contamination Survey (PACS), and requests a PACS from:
    a. the Region Resource Specialist (RRS) if no additional ROW is needed,
    b. the Environmental Services Section's Environmental Quality Specialist (EQS) if additional ROW is needed.

2. Input actual start date into project management software.

3. The RRS or EQS will conduct the requested Project Area Contamination Survey (PACS). The PACS review may include:
    a. Searching state/local historical records
    b. Getting site contamination lists from MDEGLE databases, including:
        i. Remediation and Redevelopment Division (RRD) Part 201 list;
        ii. Leaking Underground Storage Tank (LUST) Part 213 list.
    c. Viewing aerial photographs.
    d. Interviewing state and local officials and citizens.

4. The Region Resource Specialist and/or EQS performs a visual inspection of the project area.

5. The RRS or EQS reports back to the Project Manager, the Environmental Section, and the ESCSS with a list of potentially contaminated sites or other areas that may pose any environmental or safety concerns.

6. If the following are suspected or identified, additional appropriate actions should be taken:
    a. <u>Monitoring wells</u> – add applicable special provisions and pay items for protecting and abandoning the wells, which must be identified or specified on the plans.
    b. <u>Ground water contamination</u> known and/or suspected within the influence of construction - the PM will work with the RRS, the Water Quality Specialist in the Environmental Section, the EQS if ROW is needed, and the Environmental Section Specialist to determine the need for specific or prescribed measures. Discharge options must be fully explored.
    c. <u>Contaminated sediments</u> known and/or suspected within a water body, to be handled or disturbed – PM will add FUSP 03SP205 (A) and the quantity of non-hazardous contaminated material requiring handling or disposal.
    d. Potential soil contamination from <u>Leaking Underground Storage Tank (LUST) sites</u> and possibly within construction influence – PM will add FUSP 03SP205(A), the quantity of non-hazardous contaminated material requiring handling or disposal, and the pay item for handling and disposal of non-hazardous contaminated material for the amount of soil expected to be removed.

e. Potential soil contamination originating from other than a LUST site (i.e 201 sites) and possibly within construction influence – PM will work with the RRS and/or the EQS for further definition of contaminants (further records search and/or a Preliminary Site Investigation).
f. Soil contamination originating from a lead base painted bridge – PM will add FUSP 03SP205 (A) and the quantity of non-hazardous contaminated material requiring handling or disposal. Soil testing can be done to determine the lead levels of the suspected contaminated soil, and then compared to state/federal regulatory limits.

7. The Project Manager notes location of potentially contaminated sites where risk factors are Medium or High:
    a. If the PACS identifies potential contaminated sites:
        i. The PM will work with the RRS and/or the EQS to determine whether further investigation, a PSI, quantities for non-hazardous contaminated material disposal and handling, or other measures are needed. A list of potential contaminated sites is to be included in the contract documents.
        ii. If potential contamination sites conflict with project work, the Project Manager may request the Environmental Services Section's Environmental Quality Specialist (EQS) to prepare a scope of field work with a cost estimate for the Project Manager. (Start of Task #2820).
    b. If no known or potentially contaminated sites/concerns are found, these findings are also included in the report, and:
        i. There is NO TASK 2820 required, and the Project Manager revises the network.
        ii. This determination ends the investigation unless new information becomes available during the preconstruction or construction process.

8. Input actual finish date into project management software.

2820 Conduct Preliminary Site Investigation (PSI) for Contamination

Reporting Management Unit:	Bureau of Devel. – Env. Services – Env. Quality Specialist (EQS)
Task Start:	Project Manager requests EQS to provide for site investigation services by consultant
Task Finish:	Distribution of the PSI report
Date Last Modified:	April 2019

TASK DESCRIPTION:

These guidelines are all intended to supplement Section 14.13 of the Road Design Manual, *Identification of Potential Contaminated Sites.*

Overview:
The identification and analysis of environmental contamination information is required for National Environmental Policy Act (NEPA) compliance, especially, and the Environmental Assessment (EA) and Environmental Impact Statement (EIS) processes, which often require extensive field research. The identification of environmental contamination here serves four purposes:

a. To identify and determine the type of risk to any workers, from planning through construction, within the identified area of possible contamination.
b. To use contaminated site information on the impact analysis of alternatives and the development of mitigation.
c. To aid in the identification of pay items and quantities for design.
d. To determine if construction will encounter contaminated groundwater that will require a dewatering special provision.

Before any research or data gathering that requires earth disturbance begins, a Project Area Contamination Survey (PACS), and, if necessary, a Preliminary Site Investigation (PSI) will be conducted in order to identify and characterize any potential hazards to workers' health and safety. Any sites that pose potential health risks to Early Preliminary Engineering (EPE) researchers and data gatherers are to be avoided or proper safety measures and equipment used when working in these areas. Proper safety measures to be taken will be determined by MDOT's Safety Administration, or defined in the PSI report. These should be in accordance with the rules and regulations of the Michigan Occupational Safety and Health Administration (MIOSHA), and if applicable, Hazardous Waste Operation and Emergency Response (HAZWOPER) standards.

Description:
A PSI can be conducted at sites identified by the PACS, or in some cases, in lieu of a PACS - identifying potentially hazardous, contaminated, or polluting materials, as well as those concerns or areas that may affect the selection of an alternative. The PSI involves the collection and chemical analysis of soil and/or water samples from individual sites. Information gathered by the PSI is used to confirm the presence of surface and subsurface environmental contamination and to prepare a rough estimate of pay items and of the construction costs related to contamination (work plans and price proposals).

The Project Manager (PM) or Region Resource Specialist (RRS) may request that the Environmental Services Section's Environmental Quality Specialist (EQS) arrange for a PSI by a consultant for further determination of potential for water or soil contamination issues. If a PSI is requested, the EQS will prepare a scope of work and cost estimate for the consultant. The PM will review and approve the scope and cost estimate. Once the consultant has been selected, the consultant will then:

- Obtain clearance from utilities and Miss Dig, and assemble or coordinate with the Region all necessary resources and personnel.
- Conduct or coordinate borings and monitoring well installation, and/or sample collection as necessary to complete the field work.
- Use professional judgment to notify MDOT for determining the need to notify Michigan Department of Environmental Quality (MDEGLE)/property owners of any contamination found during field work.
- Submit collected samples to contracted laboratory for analysis.
- Review and interpret the data and include in the PSI report for the Project Manager.
- Repeat these steps as necessary if the data is insufficient to draw complete conclusions or to determine the need for more information.
- Utilizing U.S. EPA and MDEGLE rules, regulations, guidance, and policies, develop and submit a report to the Project Manager and the Environmental Section containing the location, nature, extent and volume of any contamination found and recommendations for the project.

Consultants should also refer to the Supplemental Information for more details.

Recommendations will include any permits or special procedures and/or provisions that are required and pay items, with an estimate of construction costs relating to any contamination present. All measures recommended to the Project Manager must be clearly identified in the contract documents and adhered to during construction. The EQS will follow up on those measures with the Project Manager during Preliminary Plan Development and through the Final Project Coordination (FPC).

The EQS will coordinate any reviews with FHWA and forward appropriate documents for review and concurrence, and must be kept informed and copied on all correspondence concerning contamination reports and findings throughout the identification of potential contaminated sites process. The EQS will contact the Project Manager during the review of the project to see if a PACS has been previously conducted or completed, what excavation may take place, and the quantity of contaminated material estimated to be disposed of in the plans.

This site information will be used in evaluating the viability of alternatives by determining the impact on the Practical Alternatives:

- Cumulative Impact: Does the presence of contamination, in conjunction with other environmental impacts, create a significant impact?
- Fatal Flaw: Does the contamination pose a significant environmental, safety or health hazard; is it overly expensive to mitigate; or does it present such a liability risk for MDOT, that it precludes consideration of an alternative?
- Design Change: Can the contaminated site impacts be mitigated through a design change?
- Acceptable Risk: Is the contamination an acceptable risk for MDOT and the FHWA? Sites will be rated low, medium, high based on type of contamination, quantity, and degree of project impact.*

**LOW RISK:* *Known LUST (Leaking Underground Storage Tank) and other underground sites that have been remediated and are officially closed; small body shops, brake shops, and such that may have had small spills in the past. Also open LUST sites where the source is at a great distance from the project.*
MEDIUM RISK: Open LUST sites, potential sites that have been identified as former gas stations, and processing facilities where there is no information based on testing. Known sites where remediation is occurring that may impact the project so some degree.
HIGH RISK: Open LUST sites with free product, other known open underground sites, landfill sites, and unknown sites that have been identified as former heavy industrial areas, former gasoline stations with potential for underground tanks to be present, or areas where chemicals may have been buried.

The Attorney General prepares a Risk Assessment if required by the FHWA. A Mitigation Plan is prepared if necessary.

All information is compiled in the PSI report which is then forwarded to the Project Manager (PM), the EQS, and to the RRS. Transmittal of the report ends the PSI phase.

If the following are suspected or identified, additional appropriate actions should be taken (see Task 2810 - Work Step #6 for specifics):

- Monitoring wells
- Ground water contamination
- Contaminated sediments within a water body
- Potential soil contamination from leaking underground storage tank (LUST) sites
- Potential soil contamination originating from other than a LUST site (i.e 201 sites)
- Soil contamination originating from a lead base painted bridge

If contamination is identified, MDOT should use professional judgment for determination if the MDEGLE and the property owner need to be notified and provided with a copy of the final PSI report. If MDOT is liable for the contamination, MDEGLE notification must be made within 24 hours of discovery.

If the decision is made to go forward with the project after the PSI identifies contaminates that exceed MDEGLE clean-up criteria, the Project Manager will add a project specific Special Provision for Non-Hazardous Contaminated Material Handling and Disposal that includes requirements for HAZWOPER training and appropriate pay item(s) for the handling and disposal of the material. Also, if contaminated groundwater is encountered in areas where construction dewatering may be necessary, the Special Provision for dewatering petroleum contaminated groundwater should be included and an NPDES permit may be necessary.

WORK STEPS:

1. If potential contamination sites conflict with project work, the Project Manager requests the Environmental Services Section's Environmental Quality Specialist (EQS) to provide for site investigation services by consultant. (Start Task #2820)

2. Input actual start date into project management software.

3. PACS reports along with conceptual plans are provided to the EQS, which is then forwarded with a scope of work to the consultant selected to perform the PSI. Consultants also refer to Supplemental Information following the Work Steps for more details.

4. The selected consultant will return a work plan and priced proposal to the EQS for the work.

5. The EQS will forward the cost estimate to the Project Manager for their approval.

6. The consultant authorized to perform the work by the EQS will be responsible for the following steps (see Supplemental Information for more details):
    a. Prepares the Health and Safety Plan, obtains clearance from Miss Dig, and assembles or coordinates with the Region/TSC all necessary resources and personnel.
    b. Conducts/coordinates borings, monitors well installation and/or sample collection as necessary to complete the field work.
    c. Uses professional judgment to notify MDOT for determining notification of MDEGLE of any contamination or contaminated materials found during field work, especially if such contamination poses an imminent threat to people, or the environment. If contamination exists above background levels, MDOT may choose to provide the property owner with a copy of the report, thus serving notice of the owner's obligations under the statute. If MDOT is liable for the contamination, MDEGLE notification must be within 24 hours of the discovery.
    d. Submits collected samples to their laboratory for analysis, receives the results from the laboratory, reviews and interprets them.
    e. Utilizing all U.S. EPA and MDEGLE rules, regulations, guidance, and policies, develops and submits a report to the EQS.

7. The EQS reviews the contents of the report and sends a finalized copy to the Project Manager containing the location, nature, extent and volume of any contamination found, and recommendations for dealing with it.
    a. Recommendations will include any permits or special procedures and/or provisions that are required, and pay items with an estimate of quantities for construction costs relating to any contamination present. See Task 2810 – Work Step #6 for further details.

b. If a known underground storage tank (UST) is identified, the EQS will use their pre-qualified UST removal contractor and remove the tank prior to construction.

8. Input actual finish into project management software.

   The Project Manager receives the information and includes the pay items in the Plans, Specifications and Estimate by the Plan Review and in the development of Final Plans, Task 3840. (End of #2820)

SUPPLEMENTAL INFORMATION:

1. Consultant obtains and reviews PACS Report.

2. Consultant prepares and submits a Site Investigation work plan and price proposal within two to five work days of receiving the PACS Report and project plans. The work plan will provide the Project Manager with sufficient information to assure that all environmental contamination will be defined during the site investigation, including the limits and sources of the contamination.
   a. The plan should include, but may not be limited to:
      i. Maps showing proposed monitoring wells
      ii. Location and type of sampling proposed

3. Consultant revises the work plan as requested by the Project Manager.

4. Consultant provides a priced proposal for specific services.

5. Consultant performs the following services within a 90 to 120 day time frame:
   a. Conduct site investigation.
      i. Utilities
         1. Consultant must contact MISS DIG a minimum of three working days prior to performing work.
         2. Consultant is also responsible for locating any utilities not covered or marked by MISS DIG, including ones on MDOT property.
         3. Consultant is responsible for marking the locations of the proposed work prior to MISS DIG staking the site.
         4. Consultant must record and provide MISS DIG's confirmation number to the Project Manager prior to the start of work.
         5. Any utilities damaged during the course of work are the responsibilities of the consultant to repair.
      ii. Consultant Use of Premises
         1. Operations at the site shall be confined to areas permitted by applicable laws, ordinances, permits, and by the contract documents. The consultant shall not

unreasonably encumber the site with materials and equipment.

2. Consultants shall assume full responsibility for the protection and safekeeping of all materials, products, and equipment stored on the site or at another location.

b. Utilizing all U.S. EPA and MDEGLE rules and regulations and all available construction plans, develop and submit a PSI report to the Project Manager containing the following:
   i. Location of contamination
   ii. Nature of contamination
   iii. Extent of contamination
   iv. Volume of contamination
c. Recommend any means of dealing with the contamination
   i. Recommendations will include:
      1. Permits
      2. Special procedures
      3. Required provisions
      4. Pay items with an estimate of construction costs
   ii. The site investigation must contain specified information which can be found in the Supplemental Information on page 3 of 3.
d. Revise report as required. No payment will be made until report is approved.
e. If additional site investigation work is required, a new authorization will be required and steps 2, 3, and 4 will be repeated.

3. Preliminary Engineering

3.1 Design Scope Verification (3100 Series)

3130 Verify Design Scope of Work and Cost

Reporting Management Unit:	Project Manager
Task Start:	Receipt of Preliminary Engineering Authorization
Task Finish:	Verification of the job scope by the Project Manager/Cost and Scheduling Engineer
Date Last Modified:	October 2021

TASK DESCRIPTION:

Prior to this task, the draft job author should have obtained Authorization for Preliminary Engineering. This includes System Manager review and approval of the draft job's completeness and accuracy, discovery and approval of funding sources by the appropriate Trunkline Template Manager, and final Phase Initiator (PI) obligation of funds.

During this task, the Project Manager distributes existing plans and other available information to verify the scope of work as previously defined by the Region/TSC or Lansing Project Development. All assets within the project limits should be identified. This was done during the Call-for-Projects process in the Region/TSC or as described in the environmental document. Verifying and documenting the design scope early in the process will minimize possible scope changes occurring during the design development process, thus ensuring sufficient funding and reducing redesigns. It is at this time that the project schedule should be created in the scheduling software. A scope verification meeting is held along with a field inspection. Attendees at the meeting typically include:

- Project Manager/Cost and Scheduling Engineer
- FHWA rep (on non-exempt projects)
- Design unit leader
- Environmental rep (Lansing Environmental Section)
- Geometrics rep (Lansing Traffic and Safety)
- Construction rep (Lansing)
- ITS Operations/Signals (if any devices are within the project limits)
- Congestion & Reliability
- Region/TSC
    - Design/Development Engineer/Cost & Scheduling Engineer
    - Operations Engineer
    - Soils/Materials
    - Utilities/Permits
    - Construction Engineer
    - Maintenance
    - Development Services (Real Estate) (if applicable)

- Survey (if applicable)
- Region Resource and/or Environmental Permit Specialist

Items to be distributed prior to the scope verification meeting may include:

- a completed copy of the scoping plan sheet
- old plans and/or a sketch of the proposed typical for the work,
- pavement coring information,
- utilities information,
- ADT data,
- the Draft Job data,
- a cost estimate,
- preliminary environmental impact information, and
- other useful background information, such as a project limits map with identified assets.
- preliminary scope of signal work provided by Lansing Signal Operations Engineer

Items that should be discussed at the scope verification meeting may include:

- preliminary cost estimate,
- job description,
- job limits,
- preliminary environmental information,
- environmental impacts and mitigation measures,
- hazardous waste coordination efforts,
- job schedule,
- traffic and safety considerations,
- soils information,
- railroad impacts,
- geometrics information,
- right of way information,
- utilities information,
- political considerations,
- plans for traffic maintenance during construction (including upgrades to existing roads and/or modifications to existing signals/ITS/electronic traffic control devices),
- waterway crossings, and
- affected flood plains.
- incentive/disincentive clauses
- local agreements
- whether a pavement life cycle cost analysis may be needed

If the meeting results in a significantly changed scope of work and/or a cost increase, it will be the responsibility of the office that originally scoped the job to revise the job scope and/or request reprogramming of the job. The Project Manager will also review and, if necessary, revise the initial network.

WORK STEPS:

1. Receive notice of Preliminary Engineering Authorization.

2. Input actual start date into project management software.

3. Develop information packet and request any studies or data collection necessary to verify design scope and cost.

4. Identify impacts to specialty areas using any available GIS or asset management tools to overlay project limits to identify existing assets within project limits.

   a. If ITS/Signal assets are identified within project limits, contact ITS Program Office/Lansing Signal Operations to jointly determine scope of signal impacts and/or work. Obtain scope of signal work/layout request from Lansing Signal Operations Engineer.

5. Identify scope verification meeting attendees.

6. Request scope verification meeting through the job initiator.

7. Attend scope verification meeting.

8. Request any additional studies or data collection efforts to verify design scope and cost.

9. Request preliminary life cycle cost analysis if appropriate.

10. Review initial network.

11. Input actual finish date into project management software.

12. Approve design scope, cost estimate and schedule or notify the office that originally scoped the job to reprogram the job (all attendees of the scope verification meeting should receive a copy of this notification).

312M Department Concurrence of Design Scope Milestone

Reporting Unit: Design - Project Manager

The Project Manager prepares the scoping document and submits it to the appropriate agencies within the Department for approval as part of Task 3130.

411M Obtain ROW Obligation

Reporting Unit: Region Real Estate Agent

Prior to any other Right-of-Way work, the necessary approvals and coding must be made to enable charges to be made to the right of way (ROW) work phase. This milestone is the final step in the authorization process required to enable that for a job. It may also include additional tasks that are required to obligate Federal funds.

3140 Obtain Design Consultant

Reporting Management Unit:	Financial Operations – Contract Support
Task Start:	Notification that job is assigned to Consultant Management Section
Task Finish:	Date of an executed contract agreement signed by all parties
Date Last Modified:	October 2021

TASK DESCRIPTION:

This task deals with all the tasks necessary to obtain consultant services for design. There are two methods to retain a consultant for this effort:

- as-needed contract, and
- individual contract.

The as-needed contract is an open-ended contract which is used to retain the consultant on an as-needed basis. The contract has time and total dollar limits. Only the negotiation of labor hours for the as-needed contracts will be tracked as part of this task (steps 15 -17 of the work tasks). This task, for an as-needed contract, will typically require a shorter duration and smaller resources commitment as compared with the process for an individual contract.

The individual contract is specific to the job. The contract describes the scope, cost and schedule as agreed to by both the consultant and the Department. It is important to identify all consultant prequalification categories likely to be required for the project, including all specialty areas.

This task is considered complete when there is an actual executed agreement signed by all parties.

WORK STEPS:

As-Needed Contract:

1. Identify all prequalification categories likely to be required for the project, including all specialty areas.
2. Develop advertisement requesting letters of interest.
3. Input actual start date into project management software.
4. Place advertisement.
5. Receive letters of interest and conduct financial audit.
6. Establish selection committee.
7. Evaluate letters of interest.
8. Shorten list of viable consultants by qualifications and other applicable criteria.
9. Notify consultants who were short listed.
10. Submit request for contract to Finance to proceed with contracting effort/process.
11. Prepare final contract document.
12. Obtain necessary approvals.
13. Circulate document for signature.
14. Select consultant for individual job based on scope.
15. Estimate labor-hours and cost (in-house estimate).
16. Request labor-hour and cost estimate from consultant for specific job.
17. Negotiate hours and cost.
18. Submit to Commission Audit for review.
19. Input actual finish date into project management software.
20. Authorize consultant to proceed with job.

Work Tasks 1-13 are done outside of the job effort and are not included in the duration or resource requirement.

Individual Contract:

1. Prepare scope of work in sufficient detail to determine in-house and consultant costs.

2. Input actual start date into project management software.

3. Develop advertisement requesting letters of interest.

4. Place advertisement.

5. Receive letters of interest and conduct financial audit.

6. Establish selection committee.

7. Evaluate letters of interest.

8. Shorten list of viable consultants by qualifications and other applicable criteria.

9. Notify consultants who were short listed.

10. Prepare and distribute Request for Proposals (RFP).

11. Receive and review proposals and interview consultants, if appropriate.

12. Recommend consultant as top candidate and request price proposal.

13. Receive financial proposal from consultant.

14. Negotiate proposal with top candidate.

15. Submit request for contract to Finance to proceed with contracting effort/process.

16. Verify availability of funding with Program Administration.

17. Prepare final contract document.

18. Obtain necessary approvals.

19. Circulate document for signature.

20. Input actual finish date into project management software.

21. Hold briefing meeting and give notice to proceed.

3150 Environmental Classification of Categorical Exclusions

Reporting Management Unit:	Planning - Environmental Section - Project Coordination
Task Start:	Receipt of programming information and job description; once scope verification occurs.
Task Finish:	Transmittal of Classification information to Design and Finance which will be upon start of Preliminary Plans (end of Base Plans).
Date Last Modified:	April 2019

TASK DESCRIPTION:

All state trunk line jobs which involve federal funds are subject to the requirements of the National Environmental Policy Act of 1969 (NEPA), and subsequent implementing regulations and clarifying directives of the Federal Highway Administration (FHWA). That means they must go through an environmental classification/certification process.

Most state trunk line jobs are relatively small, such as minor reconstruction, resurfacing, and shoulder work, and do not normally result in any significant negative environmental impacts. In these cases, the environmental classification process consists of review and documentation by MDOT's Environmental Section staff.

The purpose of the categorical exclusion environmental classification process is to ensure that potential social, economic, and environmental impacts (SEE) are adequately identified, analyzed, and documented so that they can be taken into consideration during the job design process, and proper approvals obtained.

The number of SEE concerns and the amount of analysis needed will vary with the scope of work on a job, but may include the following:

▪ Rare and endangered plant and animal species impacts ▪ Historic and archaeological sites impacts ▪ Parks and wildlife refuges impacts ▪ Prime agricultural and ACT 116 lands impacts ▪ Coastal zone impacts ▪ Permit requirements	▪ Visual/tree removal impacts ▪ Wetland impacts ▪ Stream/lake/drain impacts ▪ Floodplain impacts ▪ NPDES impacts (National Pollution Discharge Elimination System) ▪ Social and economic impacts ▪ Detour impacts ▪ Noise impacts ▪ Air quality impacts

An Environmental Study Form (Form 1775-LAP) is prepared and circulated for all department jobs. The Environmental Study Form is used to document the following:

The location of the job and scope of work as it is known at the time of the environmental review.

- The potential environmental impacts of a job.
- An analysis of the potential environmental impacts.
- The proposed mitigation to eliminate or minimize environmental impacts.
- The environmental classification information that is needed to obtain federal funding which shows if a project is programmatic or non-programmatic.

The following information needs to be provided by job initiators in order to complete Form 1775 and receive classification:

- A completed Program Revision Change Request for the addition of jobs or phases.
- A completed Project Concept Statement that accurately describes the job.
- A completed Scoping Verification Checklist.
- A completed Program Revision Change Request in JobNet for any job changes.
- Completed answers to questions asked by the Coordinator.

WORK STEPS:

1. Obtain job programming and supporting information from scope verification.
2. Input actual start date into project management software.
3. Assess potential SEE impacts.
4. Analyze SEE impacts.
5. Note if/then statements and follow their instructions.
6. Propose mitigation to eliminate or minimize environmental impacts.
7. Transmit information to design and finance, if non-programmatic a memo will be sent requesting the needed information from design in order to obtain classification. Design can only proceed with plans to complete the environmental work. If project is programmatic, classification will be given for Design to proceed up to the Final Project Coordination (FPC) Meeting, then Environmental Certification will be needed.
8. If project is a non-programmatic Coordinator will send memo to FHWA requesting approval.
9. Once Project Manager sends needed information to Coordinator to clarify impacts the Coordinator will send another email to FHWA informing them of any impacts.
10. Classify job to obtain funding as either programmatic (minor impacts, no FHWA review needed) or non-programmatic (FHWA approval needed due to potential impacts) enter into database.
11. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION -- Specific Work Related to other Tasks

Task 3130: Attend Scope Verification meeting with preliminary environmental information on project area, and list of questions about scope of work. Provide input on potential environmental consequences of project. Request project information.

Tasks 3360/3380: Review and comment on Base Plans. Advise Project Manager on environmental issues and request project information not yet received.

Task 3361: Review and comment on Preliminary Right of Ways Plans. Advise Project Manager on environmental issues and request project information not yet received.

Tasks 3580/3590: Review and comment on Preliminary Plans. Advise Project Manager on environmental issues that may impact project schedule or require design modifications to avoid or minimize environmental impacts. Request project information not yet received.

Task 3581: Review and comment on Final Right of Ways Plans. Advise Project Manager on environmental issues and request project information not yet received.

Task 3840: Review and comment on Final Plans. Advise Project Manager on environmental issues that may impact project schedule or require design modifications to avoid or minimize environmental impacts. Request project information not yet received.

3155 Categorical Exclusion Environmental Certification

Reporting Management Unit:	Planning - Environmental Section - Project Coordination
Task Start:	Once Classification is given, upon start of Preliminary Plans
Task Finish:	Just prior to Plan Completion
Date Last Modified:	July 10, 2008

TASK DESCRIPTION:

All state trunk line jobs which involve federal funds are subject to the requirements of the National Environmental Policy Act of 1969 (NEPA), and subsequent implementing regulations and clarifying directives of the Federal Highway Administration (FHWA). That means they must go through an environmental classification and certification process.

The purpose of the categorical exclusion environmental certification process is to verify that all projects meet the environmental requirements of avoidance, minimization, or mitigation of environmental impacts; and confirm environmental classification is correct and all mitigation measures are addressed.

Construction funds will not be available through Phase Initiator (PI) until Environmental Certification is given. Environmental Certification will verify that the project still falls under the correct classification and all information has been obtained in order to determine any environmental impacts. This certifies that the project's environmental portion is complete.

WORK STEPS:

1. Once classification is received and the project design moves forward, mitigation measures will be incorporated in the plans by the project manager.

2. Coordinators will review project plans, project development and attend meetings to make sure no scope changes have occurred and that all mitigation measures have been included.

3. If classification is still valid at Project Plan QA Review (Task 3865) and mitigation measures are included, Certification will be given and a copy of the Environmental Certification Form should be submitted to the Project Manager.

4. ESS will be updated to allow funds for final design and construction.

SUPPLEMENTAL INFORMATION -- Specific Work Related to other Tasks

Task 3130: Attend Scope Verification meeting with preliminary environmental information on project area, and list of questions about scope of work. Provide input on potential environmental consequences of project. Request project information.

Tasks 3360/3380: Review and comment on Base Plans. Advise Project Manager on environmental issues and request project information not yet received.

Task 3361: Review and comment on Preliminary Right of Way Plans. Advise Project Manager on environmental issues and request project information not yet received.

Task 3580/3590: Review and comment on Preliminary Plans. Advise Project Manager on environmental issues that may impact project schedule or require design modifications to avoid or minimize environmental impacts. Request project information not yet received.

Task 3581: Review and comment on Final ROW Plans. Advise Project Manager on environmental issues and request project information not yet received.

Task 3840: Review and comment on Final Plans. Advise Project Manager on environmental issues that may impact project schedule or require design modifications to avoid or minimize environmental impacts. Request project information not yet received.

3160 Obtain Design Survey Consultant

Reporting Management Unit:	Design - Survey Unit
Task Start:	Receipt of Survey/Mapping Action Request by Management Unit
Task Finish:	Job Authorization (Proposal Acceptance Form is signed and returned to Contract Administration)
Date Last Modified:	February 2013

TASK DESCRIPTION:

This task deals with all the steps necessary to obtain survey consultant services for design through the use of a design services contract.

The design services contract is an open-ended contract which is used to retain the consultant on an as-needed basis. The contract has time and total dollar limits. Only the negotiation of labor hours for the design services contacts will be tracked as part of project management software.

This task is considered complete when the Proposal Acceptance Form is signed and returned to Contract Administration.

WORK STEPS:

1. Receipt of Survey Action Request (Form 0226).
2. Input actual start date into project management software.
3. Assign job to Survey Consultant Manager
4. Communicate technical and financial details to requestor.
5. Prepare scope of work and hour estimate in sufficient detail to determine in-house and consultant costs.
6. Short list consultants.
7. Convene Selection Committee and select consultant.
8. Prepare Authorization request and Fixed Fee form and submit to Contract Administration, who will prepare and send Request for Proposal (RFP) to selected consultant.
9. Receive technical and financial proposal from consultant.
10. Negotiate proposal with selected candidate.
11. Verify availability of funding with Program Administration.
12. Input actual finish date into project management software.
13. Sign Proposal Acceptance Form from Contract Administration.

3.2 Base Plan Preparation (3300 Series)

3310 Prepare Aerial Topographic Mapping

Reporting Management Unit:	Design - Photogrammetry/Consultant Coordination
Task Start:	Receipt of Photogrammetric Control Survey
Task Finish:	Transmittal of Photogrammetric mapping
Date Last Modified:	August 1999

TASK DESCRIPTION:

The Photogrammetry Unit will meet with the requestor to verify that the mapping limits have not changed since the initial "Photogrammetric Services Request" form. Aerial Triangulation is then performed to orient the photographs to the ground and assign coordinates to the photographs. The aerial triangulation process can detect errors in the Photogrammetric Control Survey which can require additional time and field measurements to resolve. Once the Aerial Triangulation Results are acceptable the mapping can begin.

Mapping products available include planimetric, terrain and ortho-photographs. Planimetric mapping is the line and symbol representation of the man made and natural features captured on the film, i.e., roads, buildings, rivers, trees, poles, etc. Terrain mapping uses a series of points and lines (break lines) to represent the shape of the ground. Areas of dense vegetation and shadows can cause the ground to be un-measurable with photogrammetric techniques and are represented as obscured areas which are void of data. From the terrain mapping contours and digital terrain models (DTM) can be produced. Ortho-photographs are produced by rectifying the photographs to the DTM. This process removes all scale variations that are inherent in aerial photographs and produces images that have a uniform scale. The resulting ortho-photos can then be used as a map to make measurements.

Additional "pickup" survey information may be required that is not obtainable from aerial photographs and photogrammetric mapping, i.e., bridge under clearances, manhole soundings, river bottom measurements, and obscured area mapping. Occasionally designers need very accurate elevations along existing pavement, especially in areas of super-elevation and where new pavement will tie into existing. This information can then be merged into the photogrammetric mapping to create a combined product.

WORK STEPS:

1. Receive Photographic Control Survey.
2. Input actual start date into project management software.
3. Meet with the requestor to verify the mapping limits.
4. Perform aerial triangulation.
5. Perform Planimetric and Terrain Mapping.
6. If requested create ortho-photographs.
7. Prepare map to design scale and transmittal letter.
8. Input actual finish date into project management software.
9. Transmit photogrammetric mapping and letter.

3320 Conduct Photogrammetric Control Survey

Reporting Management Unit:	Design - Survey/Statewide Survey GPS Crew
Task Start:	Conduct Control Survey
Task Finish:	Transmittal of control data
Date Last Modified:	June 2016

TASK DESCRIPTION:

This task includes the effort to locate and set permanent control monuments for the job/project. The control coordinate system that is established as part of this task is the basis for all future surveying and design of the job/project. The level of effort required is based on the size and requirements of the job/project.

Prior to flying a job/project for aerial mapping, targets are located and marked on the ground (Task 3321). The targets are marked using a large painted or fabric cross or "T" shape. The size and shape of the target varies per project. The targets are used to relate the actual ground to the photographs for mapping, using control monuments.

Once the targets are located, this Photogrammetric Control Survey may be performed at any time, but must be completed before the actual topographic mapping can start (Task 3310).

The control monuments, which are established for the job/project as part of this task, are identified using the State Plane coordinates and an elevation. These coordinates are then extended to the pre-selected photogrammetric control targets.

This and all survey tasks are subject to seasonal restrictions, i.e. no snow/ice on the ground to enable accurate data points. As such, survey tasks will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

WORK STEPS:

1. Receive control survey request.
   (Survey/Mapping Action Request – Form 0226).

2. Develop survey order and assign to the appropriate group.

3. Research and compile existing horizontal and vertical controls in the area.

4. Input actual start date into project management software.

5. Run bench loop to establish elevations.

6. Establish primary and photo control (State Plane Coordinates) using global positioning or existing horizontal and vertical controls.

7. Compute coordinates for photo targets.

8. Prepare and compile field notes and job/project reports.

9. Input actual finish date into project management software.

10. Transmit results to Photogrammetry.

3321 Set Aerial Photography Targets

Reporting Management Unit:	Design - Survey/Statewide Survey GPS Crew
Task Start:	Setting and marking of control targets
Task Finish:	Notification to Photogrammetry of Target Placement
Date Last Modified:	June 2016

TASK DESCRIPTION:

This task includes the effort to locate and construct targets on the ground, at the project site, that are required for the aerial photogrammetry and mapping. The level of effort required is based on the size and requirements of the job/project.

Prior to flying a job/project for aerial mapping, targets are located and marked on the ground (Task 3321). The targets are marked using a large painted or fabric cross or "T" shape. The size and shape of the target varies per project. The targets are used to relate the actual ground to the photographs for mapping, using control monuments.

Once the targets are marked and located, the Photogrammetric Control Survey may be performed at any time (Task 3320), but must be completed before the actual topographic mapping can start (Task 3310).

This and all survey tasks are subject to seasonal restrictions, i.e. no snow/ice on the ground to enable accurate data points. As such, survey tasks will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

WORK STEPS:

1. Receive target establishment request.

2. project management softwareDevelop survey order and assign to the appropriate group.

3. Input actual start date into project management software.

4. Set targets.

5. Notify Photogrammetry of target placement.

3325 Geotechnical Site Characterization -- Structures

Reporting Management Unit:	Construction and Technology - Geotechnical Unit
Task Start:	The receipt of a request for a foundation investigation, or written into consultant contract
Task Finish:	Distribution of Geotechnical Data Report
Date Last Modified:	February, 2013

TASK DESCRIPTION:

Geotechnical Site Characterization is necessary to define site conditions in the vicinity of a new or widened substructure where existing geotechnical information is inadequate. A structure includes bridges of all types, culverts, retaining walls, light supports, and cantilevered sign supports, among others. The investigation typically begins with the receipt of a request for a foundation investigation, which includes the designer's vision of the structure type, size and location. Subsurface investigation, typically soil borings with in-situ and laboratory testing, is conducted in accordance with MDOT control document "Geotechnical Investigation and Analysis Requirements for Structures" as found on the MDOT internet site.

Based on the information received, any existing soil borings are gathered and a determination is made as to the adequacy of the existing information and the need for additional soils information. Soil borings are normally required and access to private property must be obtained. Survey control points are required to identify the location of the borings. A boring pattern is established and utility clearances are obtained.

For bridge structures over water, the potential for scour must be evaluated by the Hydraulics Unit. Soil stratigraphy and grain size characterization is required for scour analysis. Additional soil borings may be located in the river channel to provide this information. Use Geotechnical Forms as necessary.

Once the pattern has been established, soil borings are performed with in-situ testing and laboratory analysis to characterize the engineering behavior of the soils within the influence of the proposed substructure. Soil boring data and laboratory test results are transmitted to Design Division for incorporation into Preliminary Plans.

In the case of a consultant contract, the consultant often subcontracts with a geotechnical engineering firm to perform the geotechnical investigation and distributes the results back to the Project Manager. This procedure covers a geotechnical investigation that must meet the requirements presented in the Michigan Design Manual, Bridge Design, Appendix 5.03.03 A.1.f. This investigation is necessary for all new structures and those existing structures that are to be widened or subjected to increased loads. The product of this task is a Geotechnical Data report for inclusion into

Reference Information Documentation (RID). The Geotechnical Data report includes only factual information such as the soil boring data and laboratory test results. Interpretive information such as a generalized soil profile, is prohibited.

WORK STEPS:

1. Receive a request for a foundation investigation, or need is written into consultant contract. The foundation investigation shall be in accordance with MDOT control document "Geotechnical Investigation and Analysis Requirements for Structures" as found on the MDOT internet site.

2. Input actual start date into project management software (MDOT).

3. Research, review and evaluate existing information such as existing borings, existing recommendations, etc., if available.

4. Obtain property access and request utility clearance.

5. Consultants must obtain all necessary permits, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section, required to perform this survey on any public and/or private property.

   For protection of underground utilities and according to Public Act 53, 1974, the Consultant shall dial Miss Dig 1-800-482-7171 a minimum of three full working days, excluding Saturdays, Sunday, and holidays, before beginning each excavation in areas where public utilities have not been previously located. Utility members will thus be routinely notified. This does not relieve the Consultant of the responsibility of notifying utility owners who may not be a part of the Miss Dig alert system.

   The Department's freeway lighting system, the ITS infrastructure, the IVHS, and other miscellaneous electrical systems are not a part of Miss Dig. Contractors working in the Metro Region shall call:

   Freeway Lighting
   Freeway Lighting Contract Manager (248) 373-0619

   IVHS and Freeway Operations
   SEMTOC (Southeast Michigan Traffic Operations Center) (313) 256-9802

   Lighting and Traffic
   Public Lighting Department (313) 267-7202

NOTE: Contractors working outside the Metro Region should contact the maintenance representative at the MDOT Region or TSC Office to have lighting systems staked, and submit MDOT Form 5300 (06/12) to have the MDOT underground ITS infrastructure staked. Metro Region requests should use Form 5300A.

6. Stake the soil borings locations, and use a GPS unit with submeter accuracy to determine the U.S. State Plane 1983 (Datum: NAD 1983 system (consus), COR96) and the latitude and longitude of each boring location.

7. Determine the ground or pavement surface elevation at each boring location using benchmarks provided by MDOT, using a level and a rod.

8. Perform soil borings and in-situ testing.

9. Collect the soil samples and seal in a labeled glass jar.

10. Perform laboratory testing.

11. Prepare individual soil boring logs, and Soil Boring Data Plan Sheets.

12. Send electronic Geotechnical Data Report, including Soil Boring Data plan sheets in both pdf and Microstation format, individual boring logs in both Gint and pdf format, and the Soil Test Results to Design Division for incorporation into Preliminary Plans. All Microstation files must be generated using the most current version of Microstation and conform to all MDOT standards.

13. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

14. Make necessary changes and resubmit the revised materials.

15. Input actual finish date into project management software (MDOT).

SUPPLEMENTAL INFORMATION

For more information, refer to the following:

Items available on the Design Division Website :
Michigan Design Manual, Bridge Design

Items available through Construction and Technology Website:
MDOT's control document "**Geotechnical Investigation and Analysis Requirements for Structures**", dated June, 1990, and updated in March 2004.

3330 Conduct Design Survey

Reporting Management Unit:	Region - Survey/Design - Survey
Task Start:	Identify government corners and benchmarks
Task Finish:	Completion of survey/forward copy to Records Center
Date Last Modified:	June 2016

TASK DESCRIPTION:

Consultants – See Scope of Design Services for job specific survey scope.

The field survey documents the job's existing conditions, drainage systems, utility lines, right of way, soil borings, control points and elevations. The design survey aids in the determination of the job location, geometric design, quantities, cost and hydraulic design. The notes are also used in the design and construction phase to plot a plan representation, profiles and cross-sections of the job. The design survey documents:

Existing Field Conditions — the survey crew records any topographic features which will influence or be influenced by the job design. These include existing structures, barriers, highway facilities, vegetation and concrete works. Also, cross-sections and profiles are prepared which define the ground contour within the anticipated limits of construction.

Drainage Systems — the drainage considerations in the survey include any bodies of water, open channels or pipe systems.

Utilities — the utility information consists of the location and ownership of all railroads, power lines, communications lines, substations and pipelines, and other utilities facilities.

Right of Way Considerations — the survey crew establishes the alignment and obtains taxation records to gain right of entry and for future ROW research.

This and all survey tasks are subject to seasonal restrictions, i.e. no snow/ice on the ground to enable accurate data points. As such, survey tasks will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

WORK STEPS:

1. Receive design survey request (See Survey/Mapping Action Request – Form 0226).

2. project management softwareDevelop survey order and assign to appropriate group.

3. Gather existing plans, control points, bench marks, old survey notes, right of way information, and other available information.

4. Obtain utility records from utility companies and incorporate into coordinate system.

5. Obtain tax descriptions, property corners, government corners and other property information as requested or required.

6. Input actual start date into project management software.

7. Locate and/or re-establish and witness government corners as needed, and incorporate into coordinate system. These are required if they are endangered by construction.

8. Establish bench marks, as necessary for construction.

9. If necessary, conduct additional control survey work.

10. Collect/annotate topography, other features, and terrain elevations.

11. Investigate and describe underground structures and incorporate into coordinate system.

12. Establish as constructed alignment, and legal alignment if needed/requested.

13. Prepare and compile field notes, survey control and government corner witnesses, computer files and job's surveyor's report into survey profile.

14. Input actual finish date into project management software.

15. Transmit results to Records Center and the appropriate unit(s).

3340 Conduct Structure Survey

Reporting Management Unit:	Region - Survey/Design - Survey
Task Start:	Receipt of request for structure survey
Task Finish:	Transmittal of survey data
Date Last Modified:	June 2016

TASK DESCRIPTION:

This task is used to collect information regarding structures associated with a job. The procedure listed covers not only the survey of structures and primary bridges, but also sound walls and similar structures. The survey is similar to and must conform to the requirements for design surveys, given in Task 3330. It must be completed before preliminary plans are prepared. The work typically includes:

- super- and substructure,
- roadway approaches (if appropriate),
- footing elevation,
- span length, and
- railroad alignment (if appropriate).

Structure reference points need to be re-established and witnessed as part of this task. The reference points are used to establish a reference line for the structure design. This task is not typically required for structures with a span less than 20 feet (6 meters).

This and all survey tasks are subject to seasonal restrictions, i.e. no snow/ice on the ground to enable accurate data points. As such, survey tasks will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

WORK STEPS:

1. Receive structure survey request (See Survey/Mapping Action Request – form 0226).

2. Review the information attached to the scope of design services.

project management software

3. Develop survey order and assign to appropriate group.

4. Gather existing plans, control points, bench marks, old survey notes, right of way information and other available information.

5. Make a list of utilities with installations in the job areas, which includes addresses, names, and phone numbers of contact person. Obtain utility records from utility companies and incorporate into coordinate system.

6. Obtain tax descriptions, property corners, government corners and other property information as requested or required.

7. Input actual start date into project management software.

8. Locate and/or re-establish and witness government corners as needed, and incorporate into coordinate system. These are required if they are endangered by construction.

9. Establish bench marks at structure, as necessary for construction.

10. If necessary, conduct additional control survey work.

11. Collect/annotate topography, other features, and terrain elevations.

12. Collect mapping data and bridge measurements for both plan and elevation view.

13. Establish as-constructed alignment, and legal alignment if needed/requested.

14. Investigate and describe underground structures and incorporate into coordinate system.

15. Prepare and compile field notes, survey control and government corner witnesses, computer files and job's surveyor's report into survey profile.

16. Transmit survey portfolio to the MDOT Project Manager.

17. Receive review comments and resolve. Submit revised materials to the MDOT Project Manager for approval.

18. Receive approval and evaluation.

19. Input actual finish date into project management software.

20. Transmit survey results to the appropriate requesting unit and Lansing Surveys, and enter into ProjectWise.

SUPPLEMENTAL INFORMATION:

For more information, refer to the following:

Bridge Design Manual
MDOT Design Survey Standards of Practice

Items to be purchased:

1. Michigan Design Manual, Bridge Design

Items to be provided:

1. MDOT Design Survey Standards of Practice

3350 Conduct Hydraulic Survey

Reporting Management Unit:	Region - Survey/Design - Survey
Task Start:	Site visit with hydraulics engineer or to begin survey
Task Finish:	Transmittal of survey data to Design Engineer - Hydraulics
Date Last Modified:	June 2016

TASK DESCRIPTION:

This task is used to gather information to be used for the hydraulic analysis (task 3520 or 3522) of an existing or proposed structure(s). The survey provides channel geometry data for the stream and the floodplain, both upstream and downstream of the site.

The location(s) to be surveyed are specified in the Scope of Design Services (see sample Attachment A).

This task can also include data collection for:

- shoreline protection
- determination of floodplain limits
- stream scour analysis
- other investigations as directed by the Design Engineer - Hydraulics.

This and all survey tasks are subject to seasonal restrictions, i.e. no snow/ice on the ground to enable accurate data points. As such, survey tasks will be scheduled by seasonal calendars according to the region of the job, as follows:

Superior – April 15 to November 10
North – April 1 to November 20
Grand and Bay – March 25 to December 1
SW, University, and Metro – March 15 to December 1

WORK STEPS:

1. Receive hydraulics survey request from Design Engineer – Hydraulics (See Survey/Mapping Action Request – Form 0226).project management software

2. Develop survey order and assign to appropriate group.

3. Gather and review existing plans, control points, bench marks, old survey notes, right of way information and other available information.

4. Input actual start date into project management software.

5. ***MDOT or Consultant Surveyor*** - Two weeks prior to starting the hydraulic survey, the surveyor shall contact the Design Engineer – Hydraulics to schedule a site visit with a MDOT hydraulics engineer.

6. ***MDOT or Consultant Surveyor*** - Meet with a MDOT hydraulics engineer at the site to discuss details of the survey and to clarify the intent of the survey. The MDOT hydraulics engineer will provide any pertinent information available from the MDOT. Notes must be taken at the site visit and submitted promptly to the survey coordinator and Design Engineer - Hydraulics.

7. Prior to performing the survey, the surveyor must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include reasons for the survey on private land, the approximate time of the survey, the extent of the survey including potential brush cutting, and an MDOT contact person (the MDOT project manager).

8. All vertical elevations shall be referenced to the National American Vertical Datum of 1988 (NAVD 1988) or job datum if different. Two bench marks shall be established at the stream crossing, one on each side of the stream. All bench marks must be accurately described. Bench mark leveling shall be a closed loop of at least third-order accuracy which requires an error of closure between known bench marks of not more than 0.06 feet times the square root of the distance in miles.

   All cross-sections shall be taken normal to the direction of flood flow and shall be tied to a roadway alignment baseline established so the sections may be accurately plotted. The sections shall be extended to the edge of the floodplain, to the elevation of the top of the road at the structure, or to a distance beyond the river bank agreed upon with the MDOT hydraulic engineer during the site visit. Note any high water marks and the date of occurrence, if available.

9. Conduct the hydraulic survey. At a minimum, the survey will include all work included in the sample "Attachment A". Specific requirements for cross section locations, structure data, water surface elevations, and other information will be provided to the consultant surveyor at the time of the site visit with the MDOT hydraulic engineer.

10. The survey notes must be submitted to the Design Survey Unit in 10 inch by 12 inch divided portfolios with flap covers. Each portfolio must be labeled on the outside as follows:

    Hydraulic Survey notes for:
    Route
    Location and Job Limits
    By
    Michigan Professional Surveyor License Number

    The notes for the hydraulic survey must be packaged in a separate portfolio. All field measurements, notes, sketches, and calculations must be included in the final transmission. The consultant surveyor must ensure that all required information is legible and in a form which is easily accessible to the Hydraulics/Hydrology Unit.

11. Surveyors shall submit cross-sections, other survey data, and original field notes to the MDOT Lansing Design/Surveys Unit. The MDOT Surveys Unit will review and reduce the data and transmit the data to the Design Engineer – Hydraulics. Retain a copy of the submittal as part of the job record.

12. Surveyors shall receive any items returned as incomplete or deficient. Make necessary changes and resubmit the revised materials with written responses to the comments. Keep copies of MDOT's comments and the revised materials for the job record.

13. ***Consultants*** - Receive the completed MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within four weeks of the Hydraulic Survey package submittal.

14. Input actual finish date into project management software.

Scope of Design Services - Sample Attachment A

1. All pertinent structure data including water surface elevations, flow lines, and underclearance elevations, both upstream and downstream, at the structure. Include a sketch of the structure showing all of this information.

2. One road profile along the crown of the existing roadway. If the road is on a superelevation, take the profile along the high point of the road.

3. Two cross sections, one at the upstream and one at the downstream face of the structure excluding roadway embankment.

4. All pertinent structure data including water surface elevations, flow lines, and underclearance elevations at any other structures encountered within the reach of the survey. Include sketches of these structures showing all of this information.

5. First floor elevations of all buildings within the survey limits.

6. The riparian owners in the four quadrants of the structure.

7. Water surface elevations at each section must be provided, with the date taken. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water. All water surface elevations should be taken on the same day if possible. If not, note the date taken and any event which may affect the evaluation.

8. A point list in ASCII format shall be provided, containing columns for point number, North (or Y), East (or X), elevation, and description.

9. One control sketch to scale, or CAD drawing, showing the relationship of the cross-sections to the structure and the road.

10. One control sketch to scale, or CAD drawing, of the area at the stream crossing, showing a basic map of the bridge including abutments and cross section shots (numbered).

3360 Prepare Base Plans

Reporting Management Unit:	Designer/Design - Consultant Coordination
Task Start:	Approval of the design scope of work or authorization to proceed
Task Finish:	Distribution of completed base plans to appropriate work centers
Date Last Modified:	October 2021

TASK DESCRIPTION:

The base plans show existing topography and field conditions and provide a general layout of the proposed job design, which is based on the defined scope of work. These plans show the preliminary limits of the job and document the proposed line, grade and typical cross sections. The plans also show the known right of way, structures and railroads.

The work associated with the preparation of the base plans will vary from job to job. For example, in preparing base plans for a Preserve job, the work is minimal because existing plans can be used to develop base plans. In the case of new construction or major reconstruction, the work is much greater and can include several drafts with several on-site visits. The base plans typically include:

- existing topography and conditions,
- approximate construction limits,
- preliminary horizontal and vertical alignments,
- intersection and interchange schematics,
- base plans for all applicable specialty areas, such as signals and/or ITS
- preliminary typical cross sections,
- potential structure involvement,
- preliminary vertical and horizontal clearances,
- environmental issues and impacts,
- known existing utilities, and
- general geometrics.

As part of this effort, if ROW is required, preliminary right of way is developed as part of the base plans, and notification sent to the Development Services (Real Estate) Division. As part of the Base Plans, the preliminary ROW plans should document:

- Government Lines, Section Numbers with Town and Range
- Ties to Survey Alignment(s) (if available)
- Subdivisions, including Subdivision Limits, Lot Lines & Lot No's and Block No's
- Proposed and Existing ROW lines
- Consent to Grade Lines, Consents to Grade Drive, Consents to Close Drive, Consents to Relocate Drive & Consents to Construct Sidewalk
- All Requirements For Preliminary ROW Plans as stated in the Road Design Manual - English, Chapter 5

More details are documented below. The ROW Process Improvement makes these plans a reference file to be included in the overall plan set.

WORK STEPS:

1. Review existing plans and other available information. Refer to the supplemental information at the end of this task for use in preparing your plans.

2. Input actual start date into project management software.

3. If necessary, request additional field survey and/or aerial mapping.
   a. If surveying is a Consultant task, then obtain required survey information.
   b. If surveying is NOT a Consultant task, then send a request and reason for additional survey information to the MDOT Project Manager.

4. Develop proposed job design using aerial mapping, field survey notes and/or old plans. The base plans show existing topography and field conditions and provide a general layout of the proposed job design, which is based on the defined scope of work. These plans show the preliminary limits of the job and document the proposed line, grade and typical cross sections. The plans also show known right of way, structures and railroads. Utilize your MDOT Project Manager as a resource person.

5. Develop title sheet, note sheet, typical sheet, & plan sheets.

6. Right of Way

   a. If Right Of Way is included in the Contract, then include Preliminary Right Of Way Plans (PROW) information on the Base Construction Plans. Refer to Michigan Design Manual, Road Design (SI), Volume 3, Chapter 5 (link) for guidance in the preparation of PROW Plans. The submittal of the PROW package is no longer a separate task. If the Consultant is unfamiliar with MDOT ROW procedures and requirements, please contact the MDOT Project Manager to arrange a meeting to discuss ROW.

   b. **If ROW is not part of the Contract, but determined necessary for construction, contact the MDOT Project Manager immediately**. Some examples of when Fee ROW, grading permits or easements will be required are:
      i. Closing, relocating or re-grading driveways beyond existing ROW.
      ii. Work or grading outside existing ROW.
      iii. Clear vision (sight distance) requirements.

c. If ROW is required:

Work Steps – In House

Design Unit/Consultant Coordination

1) Review completed PROW.
2) Verify "B" phase (ROW) is programmed; if not, process the Program Revision Change Request.
3) Complete draft PROW memo, Design Form 271 from MDOT website.
4) Place completed Preliminary ROW and Design Form 0271 (Preliminary ROW Plans Submittal) into ProjectWise in Folder: 2 – ROW Preliminary Plans.

E-mail all individuals and areas listed on Form 0271 indicating the Preliminary ROW Plans are ready to review. Include a link to Folder: 2 – ROW Preliminary Plans.

Design ROW Engineer-Quality Assurance

1) Review plans and memo*.
2) Identify and note corrections/deficiencies.
3) Place Comments in ProjectWise and notify the Design Unit/Consultant Coordinator.

Region Real Estate Agent

1) Review plans and memo*.
2) Identify and note corrections/deficiencies.
3) Plans with ROW comments placed in ProjectWise.
4) Region Real Estate Agent notifies Design Unit/Consultant Coordination of acceptance or rejection.

Environmental Section/Environmental Review Coordinator

1) Review plans and memo*.
2) Identify and note environmental concerns.
3) Comments sent to Design Unit/Consultant Coordination.

Design Unit/Consultant Coordination

1) Incorporates into plans, with corrections, or accepts with missing item.
2) Completes and signs PROW memo, Design Form 0271 from MDOT website. (Note: memo must be signed by Licensed Engineer).
3) Places plans into ProjectWise.
4) E-mails PROW memo to all areas identified on Design Form 0271 from MDOT website; including Link to Folder: 2 – ROW Preliminary Plans.
5) Files PROW plans Consultant memo and Design Form 0271 in Folder: 2 – ROW Preliminary Plans in ProjectWise.

**Occurs simultaneously*

--See following for steps as performed by Consultant --

Work Steps – Consultant

1) Prepare PROW submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:
   a) A cover letter stating that this is the PROW submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.
   b) CDs and FTPs should no longer be required. Drawings utilizing the Power Geopak V8i software should be available through the ProjectWise document system.
   c) Fill out a draft PROW memo, Design Form 0271 from the MDOT website for MDOT Project Manager use.
   d) Copies of the survey notes pertaining to government and property corners.

2) Check submittal package in accordance with the Consultant's QA/QC plan.

3) Submit the PROW package to the MDOT Project Manager.

4) Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5) Make necessary changes. Resubmit the entire PROW package including a written response to all comments.

6) Again, a CD or FTP should no longer be required. Receive notice of PROW plans in ProjectWise from the MDOT Project Manager.

7) Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the PROW package submittal.

SUPPLEMENTAL INFORMATION for PROW

For more details regarding the preparation of ROW refer to the following:

1. Michigan Road Design Manual – English, Chapter 5
2. Road Sample Plans
3. Sample RID Index
4. Michigan Road Design Manual – English, Chapter 1

The following is additional information relating to CADD layers and ROW information:

> The Power Geopak V8i Edition has layers established for the exclusive use of ROW issues.

The above-mentioned layers shall not contain unrelated items such as curve data, drainage, utilities, design notes or other text unrelated to ROW preparation. Any changes required by MDOT to ensure the final product is within requirements shall be the responsibility of the Consultant. The final layouts as approved by the MDOT Project Manager shall be made available by the Consultant throough ProjectWise.

TASK 3360 WORK STEPS - CONTINUED

7. Check the base plans conformance to the job as defined in the Project Concept Statement and minutes from the Scope Verification meeting.

8. Prepare a list of questions, concerns, and information requests for addressing at the Base Plan Review Meeting. Examples are: County Drain Commission coordination, added soils investigations, contaminated parcels, signals, signing, lighting, railroad crossings, bridge and/or geometric improvements, utility involvement, pavement life cycle cost analysis, etc.

9. Prepare Base Plan submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include the following:
   a. A cover letter stating readiness for Base Plan Review Meeting, which shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.
   b. If surveying is a Consultant task, then include a copy of the MDOT letter approving the survey.
   c. Reproducible base plan sheets including all areas of work; eg, bridge study plans, traffic signal plans, etc. Section Three of this task includes a partial listing of detailed requirements for the items that may be required on the base plans.

d. Estimate of Probable Construction Cost (quantities and unit prices).
e. Maintaining Traffic Concepts.
f. List of outstanding questions and/or considerations.

10. ***Consultants*** - Check submittal package in accordance with Consultant's QA/QC plan

11. Submit base plans and materials to the MDOT Project Manager through ProjectWise.

12. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

13. Make necessary changes and resubmit the revised materials. Keep copies of the MDOT Project Manager's comments, the marked-up prints (if they were included), and the revised materials for the job record.

14. Notification of completed base plans to appropriate work centers. This list should be similar to that in Task 3590 (p.2 of 3), or in The Road Design Manual, Section 14.36.02.

15. Input actual finish date into project management software.

16. ***Consultants***-Receive the MDOT Submittal Evaluation Form. Contact the MDOT Project Manager if one is not received within two weeks of the Base Plan package submittal.

Supplemental Information follows.

SUPPLEMENTAL INFORMATION FOR BASE PLANS

1. Title Sheet
   a. Location map
   b. POB & POE
   c. Traffic data
   d. Funding, control section and job number
   e. North arrow
   f. County, city/village, section, town and range
   g. Unit leader/consultant
   h. Station equations and structure numbers
   i. Legend
   j. Plan sheet index (Plan sheets should be numbered as P-GI 1, P-GI 2, etc.)

2. Job Scoping Plan Sheet

3. Typical Cross Sections
   a. Existing
      i. Stationing
      ii. ROW
      iii. Pavement and shoulder widths
      iv. Depth and width of bituminous/concrete, base and subbase
      v. Crown location and pavement slope
      vi. Removal items
         1. Pavement
         2. Curb and gutter
         3. Earth excavation
   b. Proposed
      i. Stationing
      ii. ROW
      iii. Survey and construction centerline
      iv. Crown location and pavement slope
      v. Lane and shoulder widths
      vi. Width and depth of bituminous/concrete, base, subbase and embankment
      vii. Plan grade location with point of rotation
      viii. Type of curb and gutter
      ix. Type and location of underdrain
      x. Bituminous application table
      xi. Superelevation with transition stationing
      xii. Slope restoration or seeding/sodding items

4. Note Sheet
    a. Standard notes
    b. Utilities
        i. company name
        ii. address
        iii. phone number
        iv. contact person
    c. Standard plans/special details
    d. Pay items for miscellaneous quantities

5. Standard Symbol Sheet (legend sheet)

6. Removal and Construction Sheets
    a. Existing and proposed ROW with easements and grading permits
    b. Stationing
    c. Bearings
    d. Curve data
    e. Superelevation
    f. Limits of removal items
        i. Pavement
        ii. crush and shape
        iii. cold milling
    g. Limits of construction items
        i. bituminous approach
        ii. miscellaneous concrete

7. Profile Sheets
    a. Existing and proposed elevations
        i. PI stationing
        ii. curve lengths
        iii. tangent grades
        iv. superelevation with transitions
    b. Existing sewer, culvert and drainage structures
    c. Existing ground profiles and ground points

8. Soil Boring/Pavement Coring Sheet

9. Plan Sheets from other work areas.

3370 Prepare Structure Study

Reporting Management Unit:	Design - Bridge/Consultant Coordination
Task Start:	Approval of the design scope of work or authorization to proceed
Task Finish:	Approval of the study by the Bridge Design Engineer
Date Last Modified:	November 2003

TASK DESCRIPTION:

This task is usually included in bridge jobs and is coordinated with other structure related tasks. The related milestone 337M – Submittal of Structure Study to FHWA, will need to be included in cases of FHWA oversight, as determined in the Michigan Design Manual, Bridge Design, Section 2.03.01 and 2.03.02.

Based on the overall job scope, the EPE plans and the Base plans, a study is done for each structure included in a job. The structure study document includes:

- structure type and size,
- appropriate construction limits,
- bridge clearances, and
- approximate footing elevations.

Refer to Section 3.01 of the Design Manual/Bridge for a complete list of the contents. The Structure Study must be approved before Preliminary Structure Plans may begin.

WORK STEPS:

1. Obtain and review/evaluate the Scope of Design Services, along with the job data and materials provided by MDOT. These materials may include, but are not limited to, the following: survey data, soil data, maintenance report, field notes, existing plans, EPE plans, and base plans.

2. Input actual start date into project management software.

3. Prepare Structure Study Plans and Estimate of Probable Construction Cost as defined in the Michigan Design Manual, Bridge Design, Section 3.01.

4. Document findings of structure study.

5. ***Consultant*** - Prepare a submittal cover letter stating the results of the Structure Study. The cover letter shall also state that the submittal was prepared and checked by the procedures specified in the Consultant's QA/QC plan. Include the names of those who did the QA/QC check.

6. Submit the completed Structure Study and Estimate to the MDOT Project Manager for review.

7. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

8. Make necessary changes and resubmit the entire package including a written response to all comments.
    a. *Consultant:* Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

9. If necessary, return the revised Structure Study to the MDOT Project Manager along with written responses to review comments. This process may need to be repeated until the study is approved.

10. Receive approval of Structure Study Plans and Estimate of Probable Construction Cost from MDOT Project Manager.

11. ***Consultant*** - Receive the MDOT Submittal Evaluation Form. Contact the MDOT Project Manager if one is not received within two weeks of submitting the Structure Study.

12. Request soil borings.

13. Obtain approval of Bridge Engineer.

14. Input actual finish date into project management software.

15. Obtain approval of FHWA, if appropriate, via the Project Manager. See Milestone 337M following.

337M Submittal of Structure Study to FHWA for Approval

Reporting Unit: Project Manager

As part of Task 3370, FHWA oversight requires submittal to, and approval of, the Structure Study by the FHWA before Preliminary Structure Plans can commence.

SUPPLEMENTAL INFORMATION:

For more information, refer to the following:
Items to be purchased:

1. Michigan Design Manual, Bridge Design

3375 Conduct Value Engineering Study

Reporting Management Unit:	State Value Engineering Coordinator
Task Start:	Identification of Need for Value Engineering Study
Task Finish:	Distribution of Final Decisions on Value Engineering Study Proposals
Date Last Modified:	May 2020

TASK DESCRIPTION:

These guidelines are intended to supplement Section 14.27 of the Road Design Manual, *Value Engineering Study.* See that portion of the Road Design Manual for background information and detailed procedures.

Value Engineering (VE) studies are required on federal projects with a total estimated cost (EPE, PE, ROW, Utilities, Construction, & CE) greater than $25 million for a road project; or greater than $20 million for a bridge project. (When the majority of the cost/work is related to bridge work, the project is defined as a bridge project.) The cost of a "project" is defined by the work included in the environmental clearance. VE studies are commonly performed between concept and 30% plan completion.

WORK STEPS:

1. Each quarter, the State VE Coordinator and Region/TSC Development Engineer/Cost & Scheduling Engineer identify potential projects that require a VE study.

2. The State VE Coordinator requests a "Value Engineering" folder in ProjectWise. The Design Project Manager activates the VE Task in project management software (for all related job numbers).

3. If a consultant is performing the VE study, the State VE Coordinator develops the RFP and submits it to Contract Services Division (CSD.) If MDOT is performing the VE study, the State VE Coordinator contacts the Performance Excellence Division (PED) to facilitate the VE study.

4. The State VE Coordinator schedules the VE study with the consultant or MDOT personnel as needed.

5. The Design PM gathers and furnishes plans, cost, and project information to the VE Team by a link in ProjectWise.

6. The VE team performs the VE study by determining recommendations that add value to the project. The Design PM participates on the first day of the study by presenting project background to the VE team. The VE team prepares a draft report.

7. The State VE Coordinator schedules a meeting with the Design PM to make decisions on the proposed recommendations. The VE recommendations can be accepted, rejected or accepted for further study by the PM with the direction of the State VE Coordinator and FHWA. If a recommendation is accepted, it is included in the project. If a recommendation is rejected, the PM must justify the reasons for rejecting the recommendation. If a recommendation is accepted for further study, the PM will determine at a later date whether the recommendation is incorporated into the project and report the outcome to the State VE Coordinator and the FHWA justifying any rejection of the recommendation. Decisions will be included in the final VE report and placed in ProjectWise.

8. The State VE Coordinator documents the task end date.

NOTE: An updated VE Study may be required if a project has a change to the scope of work between the final design and the letting and/or if there is a delay in the letting. This will be determined on a case by case basis.

3380 Review Base Plans (Pre-GI)

Reporting Management Unit:	Design - Project Manager
Task Start:	Request for Base Plan Review sent from the Project Manager
Task Finish:	Project Manager receipt of Base Plan Review Comments
Date Last Modified:	April 2015

TASK DESCRIPTION:

The Project Manager will distribute the base plans to the various groups who will be participating in the field inspection and plan review. A time is set for the meeting and field visit. The Project Manager notes on the review request any special groups that should be included in the review effort.

The base plan review document will include information about variances from the original job scope.

Groups from outside the Department may be included in the base plan review. The types of outside groups include:

- municipalities,
- private utilities,
- County/Twp. Agencies,
- other state Departments, and
- Federal Highway Administration.

Participants will review the Base Plans and upload their comments to the Comments document in ProjectWise, for the review at least two weeks prior to the meeting, by the Project Manager. The Consultant also attends the Base Plan Review Meeting to discuss and resolve review comments.

WORK STEPS:

1. Input actual start date into project management software.

2. The Project Manager determines if plans have been completed in sufficient detail to justify review and evaluates them relative to the job scope document; if not satisfactory, they return them to designer

3. The PM identifies groups to be included in plan review, both internal and external. A list of contacts is available in the Supporting Documents folder in the Set file (Review Meeting Contacts List.xlsx). See Task 3590 and Road Design Manual, Section 14.36.02.

4. ***Consultant*** - receive notice from the MDOT Project Manager stating the location, date and time of the Base Plan Review Meeting.

5. The PM notifies the participants that the plans are ready to be reviewed.

6. Plans are reviewed by participants. Participants will use a real-time collaborative milestone review process (such as Bluebeam – see the MDOT Wiki for more details) or Adobe commenting tools to make comments prior to the review meeting.

7. Participants upload comments to the Comment document at least two weeks prior to the meeting for review.

8. Project Manager begins to review the comments in the Comment document..

9. Input actual finish date into project management software.

3385 Preliminary Load Rating Evaluation

Reporting Management Unit:	Load Rating Engineer
Task Start:	After scope
Task Finish:	Before GI
Date Last Modified:	September 17, 2009

TASK DESCRIPTION:
At this time the P.M. should contact the Load Rating Engineer in the Bridge Operations Unit of the Construction and Technology Division with the scope for the structure. Depending on the type of work a load rating may be required.

The load rating should be based upon the best available data that has been obtained at this time. The data may include:

- Most recent Bridge Safety Inspection Report
- Existing bridge plans
- ADTT

The load rating is to be performed in accordance with the current AASHTO Manual for Bridge Evaluation, the Michigan Structure Inventory and Appraisal Guide the MDOT Bridge Analysis Guide and in accordance with Federal Highway Administration (FHWA) FHWA Memorandum titled Bridge Load Ratings for the National Bridge Inventory and dated October 30, 2006. The load rating should be performed using the current version AASHTO BRIDGEWare® Virtis software when possible.

WORK STEPS:

1. Identify scope of work.

2. Determine if scope of work requires load rating. Any work that replaces the superstructure, increases dead load or changes live load effects should be analyzed.

3. If load rating is required, determine if load rating should be performed during this task or in Task 3875. Any work that maintains a portion of the existing superstructure should be load rated during this task.

4. Obtain existing plans.

5. Obtain existing Bridge Safety Inspection Report and Structural Inventory and Appraisal Form.

6. Perform load rating in accordance with the current AASHTO Manual for Bridge Evaluation, the Michigan Structure Inventory and Appraisal Guide the MDOT Bridge Analysis Guide and in accordance with Federal Highway Administration (FHWA) FHWA Memorandum titled Bridge Load Ratings for the National Bridge Inventory and dated October 30, 2006. The load rating should be performed using the current version AASHTO BRIDGEWare® Virtis software when possible.

7. Notify PM of load rating results.

3390 Develop the Maintaining Traffic Concepts

Reporting Management Unit:	Region/TSC - Traffic and Safety
Task Start:	Receipt of Scope Verification Meeting Minutes
Task Finish:	Receipt of Completed Base Plans
Date Last Modified:	October 2021

TASK DESCRIPTION:

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

The Region/TSC Traffic and Safety Engineer, along with the appropriate MDOT work centers*, develops the concepts for the routing of traffic during job construction. In developing the concepts, the Region/TSC Traffic and Safety Engineer should consider the various stages of construction, lane requirements and hourly and seasonal restrictions.

*Representatives should include the following: Project Manager, Construction Engineer, and Region/TSC Project Development Engineer/Cost & Scheduling Engineer. Other disciplines may be invited as needed.

WORK STEPS:

1. Review the type of construction task(s) included in the job with appropriate work centers. Note: if any tasks or Resource Unit inclusions are determined to be missing, please contact the Planisware Team for assistance on making any necessary changes.

2. Input actual start date into project management software.

3. Send a request for current traffic data, projected construction year traffic data and future traffic data (15 year or 20 year) to the MDOT Project Manager.

4. Evaluate current traffic data.

5. Review the traffic data and the job site to determine job specific construction zone traffic requirements.

6. Prepare preliminary recommendations for maintaining traffic. Items that should be considered for inclusion in the recommendations are:

    a. Method for maintaining traffic based on guidance from the Decision Tree within the Work Zone Safety Mobility Manual
    b. Need for detour, staging, flagging operation
    c. Need for temporary widening or shoulder upgrading
    d. Time constraints and lane requirements
    e. Local considerations
    f. Need for temporary traffic signals
    g. Need for signal construction staging and timing for traffic signals
    h. Construction zone speed limits
    i. Special events
    j. Recommendations for expedited construction due to critical target dates

7. Send recommendations to Project Manager for inclusion into the base plans. A copy of the recommendations is also sent to the Environmental Section.

8. ***Consultant*** - Submit the recommendations with the Base Plan submittal package for discussion at the Base Plan Review meeting. The Base Plan Review meeting will not be scheduled unless the recommendations are received.

SUPPLEMENTAL INFORMATION:

For more information regarding preparation of maintaining traffic plans and special provisions, refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. MDOT Standard Specifications for Construction – current edition
3. MDOT Road and Bridge Standard Plans
4. Standard Highway Signs Manual
5. A Policy on Geometric Design of Highways and Streets (AASHTO) – current edition
6. Average Unit Prices for Traffic Control Items
7. MDOT Road Design Manual, Chapter 8
8. Maintaining Traffic Typical Diagrams
9. Typical Maintaining Traffic Special Provision
10. Work Zone Safety Mobility Manual – current edition

3395 Project Manager Base Plan Review and Meeting

Reporting Management Unit:	Project Manager
Task Start:	Receipt of Base Plan Review comments
Task Finish:	Distribution of Base Plan Review recommendations
Date Last Modified:	April 2015

TASK DESCRIPTION:

The Project Manager receives all Base Plan Review Comments, in the comments document for review. These comments are documented by the Project Manager, and approved and a notification is sent to all reviewers at least one week prior to the Base Plan Review meeting.

The Consultant attends the Base Plan Review Meeting to discuss and resolve review comments.

The Base Plan review meeting will address the combined document. The base plan review document will include information about variances from the original job scope. The comments, changes, and additional notes from the Base Plan Review Meeting will become part of the Preliminary Plans.

The purpose of a Base Plan Review Meeting is not to design the job in the field, but to review the thoughts of the designer. A good final design product starts with a good Base Plan Review Meeting and the Base Plan Review is only as good as the information provided.

WORK STEPS:

1. Project Manager receives all of the comments in the Comment document.

2. Input actual start date into project management software.

3. The PM reviews the Comments document prior to the meeting.

4. The PM should notify all meeting participants of the Comments document in ProjectWise, or send a set of plans for their review, at least one week prior to the meeting.

5. The PM coordinates and conducts review meeting and site visit.

6. ***Consultant*** - attend the meeting and site visit. The meeting and site visit may require more than one day.
    a. Try to hold the number of Consultant participants to essential (two or three) personnel.
        i. Record meeting minutes
        ii. Utilize the MDOT expertise at the meeting to resolve job issues
    b. Distribute meeting minutes to all attendees.

7. The Project Manager documents the review recommendations.

8. The PM approves and distributes review recommendations through ProjectWise, which will become part of the Preliminary Plans.

9. Input actual finish date into project management software.

332M Base Plan Review Milestone

Reporting Unit: Design - Project Manager

A team is selected to participate in a Review Base Plans (Pre-GI) exercise as part of Task 3380. The meeting is held after Task 3395. The approved recommendations that result from this are forwarded to the Design Unit by the Project Manager.

3.3 Preliminary Plan Preparation (3500 Series)

3500 Develop Transportation Management Plan

Reporting Management Unit:	TSC Traffic and Safety Engineer
Task Start:	Scoping (or Scope Verification)
Task Finish:	Plan Completion
Date Last Modified:	August 2021

TASK DESCRIPTION:

This task description is not comprehensive, but is considered more of an overview to provide exposure to this task and its meaning. Further details on the task can and should be obtained by reading the Work Zone Safety and Mobility Manual with emphasis on Sections involving Transportation Management Plans, which contains extra information on procedures leading up to and beyond the Transportation Management Plan.

NOTE: In cases where the policy and the manual conflict, the policy will be the authority of note.

A Transportation Management Plan (TMP) is required on all projects, should be commenced during the project scoping/development phase, and exists through construction. A TMP provides detailed information for managing project work zone safety and mobility impacts for all road users, and is intended to be a dynamic document. Strategies to minimize impacts are acted on by project staff. Particular emphasis should be placed on the Plan Review timeframe to catch major plan changes.

There are three major components to a TMP that pertain to development from scoping to plan completion. These three components are developed during the scoping/development phase. Any project in which the Work Zone Safety and Mobility impacts are determined to be 'significant' (again see the policy and the manual) at scoping or beyond will require all three components. Any project in which the Work Zone Safety and Mobility impacts are determined to be *non-significant* at scoping or beyond does not require a TOP or PIP. They may be added as appropriate, as the significance of impacts could change. Mitigation of any possible impacts should be done as early as possible in design. The three components are:

Temporary Traffic Control Plan (TTCP) (aka Maintenance of Traffic (MOT))

Information on how facility traffic will be safely and efficiently maintained during construction. This also relates directly to the Maintaining Traffic Tasks (3390, 3540, and 3830). The TTCP is required on all projects.

Transportation Operations Plan (TOP)

This is the strategies on operations and management of the transportation system(s) that are affected by the project. This is required on 'significant' projects.

Public Information Plan (PIP)

How project information will be communicated to all affected parties, the public, and stakeholders prior to and during construction. This is required on 'significant' projects.

The following is a summary of what is required for each of these three parts.

Temporary Traffic Control Plan (TTCP)

This is the most critical part of the TMP, as this outlines the maintenance of traffic operations during construction. Typical plans can be found in the Part 6 of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and the MDOT Traffic and Safety Division Maintaining Traffic Typical Library. Job specific, further development of these plans may be required to address all elements and features. Further information on required elements, and items to include as appropriate, may be found in the WZSMM. Planning for timing and commencement of traffic pattern modifications should be considered and documented.

Transportation Operations Plan (TOP)

The TOP includes strategies to operate and manage all transportation modes flowing through the work zone and adjacent corridors and facilities impacted by the work zone. A key component is proposed mitigation measures, as well as the methodology to monitor, measure, and document impacts, mitigation measures, and mobility during all stages of work. Examples are included in the WZSMM.

Public Information Plan (PIP)

The Public Information Plan should create on organized and systematic process to communicate information to the traveling public and project stakeholders. This will include what information, communications strategies, and methods of delivery. All of these items should be the most proper and effective, with specifics as appropriate. Again, there are more details in the WZSMM.

WORK STEPS:

Note: This is intended only as an overview and not a complete guide. Please see the Work Zone Safety and Mobility Policy Manual for details. The policy will take precedent in any areas of conflict.

1. Initial project concepts are proposed and early mobility discussions initiated. This includes other transportation agencies and stakeholders that may be impacted by the proposed project(s).

2. Input actual start date into project management software.

3. Detours and potential alternate routes during construction are identified, and coordination efforts are begun regarding any local and state work on parallel or adjacent routes at the same time. The traffic management plan should consider the impacts of this work as well. The Decision Tree within the Work Zone Safety Mobility Manual will be used to balance mobility and safety of all stakeholders.

4. A capacity analysis shall be done for the existing condition and proposed construction work zone(s) once the preliminary project limits are determined.

   a. If the approved project capacity analysis drops below the threshold outlined in the WZSMM, the project is deemed "significant" and a full transportation management plan, including the TTCP, TOP, and PIP must be developed. See Section 'Project Significance' in the WZSMM.

   b. If the approved project capacity analysis is deemed "non-significant", only the TTCP is required – keeping in mind that the significance could change, which may influence outward TOP and PIP inclusions pending changes to significance.

5. Mitigation measures should be undertaken to minimize delays, especially on significant jobs. Measures exceeding 25% of project costs will be brought to the attention of the Region Engineer and Chief Operations Officer for Peer Review Team (PRT) review. See WZSMM Section 'Peer Review Team (PRT)' and Step 9 below.

6. Preliminary Engineering activities begin, and prior gathered data is checked for accuracy. Higher involvement of the Project Manager begins.

7. Further crash analyses and capacity analyses are performed for normal operations and construction stages to confirm and refine the TMP and mitigation measures.

8. Review Step 3 above. Further reviews and updates of the TMP, capacity analysis, mitigation measures, threshold limits, etc. are performed throughout development, especially at each formal plan review stage.

9. In cases where the project is deemed "significant", the PRT will meet (Task 3800) and review the TMP between The Plan Review and the Final Project Coordination (FPC). Be sure to include Bureau of Field Services Work Zone Management Unit in meeting invitation/Bluebeam session for review of TMP.

10. With Plan Completion, input actual finish date into project management software.

Note: For project management software purposes, this task ends at Plan Completion. The TMP actually continues through construction. Again – please see the WZSMM for further details.

3505 Preliminary Pavement Design and Selection

Reporting Management Unit:	Region/TSC Soils (Pavement Design) Engineer or Construction Field Services Pavement Design Engineer
Task Start:	Receipt of Request for Preliminary Pavement Design
Task Finish:	Completion of Preliminary Pavement Design and inclusion in Preliminary Plans
Date Last Modified:	May 2020

TASK DESCRIPTION:

At this time the P.M. should verify that the life-cycle policy in the Pavement Selection Manual has been followed. Depending on the type of work and estimated pavement cost a Life Cycle Cost Analysis (LCCA) may be required. If the procedure has not been followed the P.M./Design Engineer should contact the Construction Field Services (CFS) Pavement Design Engineer/Region Soils Engineer in order that the process can be followed and completed.

A preliminary pavement design should be performed in order to identify job costs. The preliminary pavement design should be based upon the best available data that has been obtained at this time. The data may include:

- 20 year Design ESAL's(Equivalent Single Axle Loads)
- Roadbed soil resilient modulus
- soil borings/pavement cores
- FWD(Falling Weight Deflectometer) Data
- drainage
- geometry of typical section
- PMS Data
- Fix history

The pavement design is to be performed in accordance with the 1993 AASHTO "Guide for Design of Pavement Structures" and the AASHTO pavement software DARWin Version. Some fix types will be designed with AASHTO's "Mechanistic-Empirical Pavement Design Guide: A Manual of Practice" and the AASHTOWare Pavement ME Design software. Consult the CFS Pavement Design Engineer or Region Soils Engineer for information on what design procedure will be used for your project. If the data used for the pavement design is final then the preliminary pavement design may become final if the Pavement Design & Selection Policy has been followed.

An informational Life Cycle Cost Analysis (LCCA) may be appropriate for a variety of reasons prior to processing of an official analysis. Informational LCCA's will only be conducted more than 30 months prior to the project let date. Any LCCA's within 30

months of the let date will be considered official life-cycle. In addition, some circumstances will require re-analysis, such as scope changes or scheduling delays. The Pavement Selection Manual contains the policies for informational and official LCCA's, and which circumstances require that an official life-cycle be re-run. Projects must be monitored during project development to ensure a valid LCCA is in place prior to advertisement, and that the correct pavement type has been specified in the plans.

WORK STEPS:

1. Identify preliminary fix.

2. Input actual start date into project management software.

3. Verify Pavement Selection has been followed.

4. Obtain 20 year design ESAL's.

5. Obtain soil borings/pavement cores. (May not be necessary in some cases.)

6. Obtain recommended subgrade soil resilient modulus value from region soils engineer. FWD data may be used as an aid in the recommendation.

7. Obtain and review PMS data. (May not be necessary in some cases.)

8. Review drainage availability.

9. Obtain proposed typical cross section geometry for the existing pavement.

10. Review the fix history and old plans of the job.

11. Determine appropriate design parameters.

12. If the project meets the requirements for a life-cycle, fill out form 1966 "Life Cycle Cost Analysis" and submit to the Pavement Performance and Selection Engineer.

13. Perform pavement design in accordance with the 1993 AASHTO "Guide for Design of Pavement Structures" and the AASHTO pavement software DARWin Version" and/or AASHTO's "Mechanistic-Empirical Pavement Design Guide: A Manual of Practice" and the AASHTOWare Pavement ME Design software.

14. Input actual finish date into project management software.

15. Verify that MDOT minimum thicknesses are met for all layers of the pavement section and that the appropriate hot mix asphalt mix type and/or concrete pavement type is being set up.

3510 Perform Roadway Geotechnical Investigation

Reporting Management Unit:	Region - Construction and Technology/Design - Consultant Coordination
Task Start:	Receipt of a request for data on an existing pavement, or receipt of a request for roadway geotechnical investigation
Task Finish:	The distribution of findings/geotechnical investigation report
Date Last Modified:	October 2021

TASK DESCRIPTION:

For preserve jobs, this task entails gathering existing soils and pavement data, and typically involves taking pavement cores and/or shoulder borings, and researching old plans to see what currently exists. Analysis is done on pavement cores to determine pavement depth, physical condition and recycle potential. Hand-auger borings are typically done through core holes to determine depth of existing gravel and sub-base, if applicable. Use Geotechnical Forms as necessary.

This information may have been obtained as part of the Pavement Management System or as part of the Call for Projects. The information is needed to verify the proposed design scope of work. This work should be completed prior to initiation of the base plans.

For improve/expand jobs, the geotechnical investigation typically involves soil survey, swamp soundings, shoulder borings, culvert borings, cut borings, or pavement coring; in general, any hand or power auger borings needed to help assess the level of impact and cost of a job, as an aid for determining recommended alternatives. This data may also include steps typically performed for preserve jobs (see above). The data and analysis are incorporated into a document and/or a memo.

This work includes full depth coring of composite and flexible pavements for determination of pavement thicknesses and conditions. Soil borings shall be taken at all locations through the core hole to determine subbase and subgrade conditions.

For traffic signal jobs, the geotechnical investigation involves a boring within 10 feet of each proposed strain pole location.

WORK STEPS:

1. Receive request for existing pavement data/geotechnical investigation.

2. Input actual start date into project management software.

3. Research existing pavement history, if applicable.

4. Assign a crew to conduct the investigation.

5. The Consultant is responsible for taking all pavement cores and soil borings at the frequencies identified herein. All coring should be done with a 100 mm or 150 mm core barrel.

6. The Consultant is responsible for maintaining traffic during all operations. The Consultant's method of maintaining traffic shall have prior approval by the Regional Traffic and Safety Engineer, and be in accordance with the MUTCC and the MDOT maintaining traffic details.

7. The Consultant is responsible for locating utilities by calling MISS DIG (800-482-7171). The Consultant is also responsible for locating other utilities not on the MISS DIG system.

8. The Consultant is responsible for preparing all core and boring reports including the following as a minimum.

    a. Date and site of core.
    b. The location by station in metric (located from the Point of Beginning P.O.B. or Point of Ending P.O.E. if stationing is not provided), including lateral and longitudinal offsets referencing lanes and cross streets. Label mainline, shoulder, turn lane, etc.
    c. Core Identification number
    d. Graphic profile indicating depth of each layer in the core, in millimeters, the type of pavement material and condition (especially for concrete), depth of steel and coarse aggregate type. The graphic profile should be extended to show the aggregate base (mm), sand subbase (mm), and subgrade (meters) conditions where soil borings are taken through the core holes. If the soil boring information can be completely conveyed in the core report, then a separate soil boring log need not be attached.
    e. Indication of presence of water, where soil borings are taken through the core holes.
    f. Names of the coring crew members.

9. The Consultant is responsible for classifying all soils using the Michigan Department of Transportation Uniform Field Soil Classification System (Modified Unified Description) as shown in Appendix A. Standard penetration values are not needed.

10. The Consultant is responsible for patching all core holes prior to leaving the specific location with bituminous patching material.

11. The Consultant is responsible for maintaining all field notes and cores for 60 days after submitting reports. After 60 days all cores shall be disposed of by the consultant.

12. Check with the Region Real Estate agent for land ownership and right of entry, if necessary.

13. Conduct a field investigation.

14. Perform on-site and/or laboratory tests, record data and collect information.

15. The Region C & T Engineer/Consultant then analyzes the data and the borings to develop a recommendation.

16. Input actual finish date into project management software.

17. A report of the findings/geotechnical investigation report is then written by the Engineer and sent to the requester.

SUPPLEMENTAL INFORMATION

Information and/or Services that will be Supplied by MDOT

All questions can be directed towards the MDOT Regional Soils Engineer.

Coring and Boring Frequency

Refer to the specifications in the Consultant Responsibilities portion of the Scope of Design Services.

Job Deliverables

The Consultant shall deliver a copy of all completed reports to the MDO Regional Soils Engineer and the Design Project Manager within two weeks of completion.

Items available through Construction and Technology Website:
MDOT's control document "**Uniform Field Soil Classification System**".

3520 Hydraulic Analysis for Bridges and Culverts, and Scour Analysis

Reporting Management Unit:	Environmental Services - Hydraulics
Task Start:	Receipt of request for analysis
Task Finish:	Distribution of recommendation to design unit
Date Last Modified:	May 2020

TASK DESCRIPTION:

This task determines the size of the waterway opening for a bridge or culvert structure(s). Appropriate hydraulic analyses are performed based on the MDOT Drainage Manual.

For structures with drainage areas greater than two square miles, the hydraulic analysis is coordinated with the MDEGLE (Michigan Department of Environment, Great Lakes, and Energy) to obtain preliminary approval of the proposed design. Hydraulic analyses for structures with drainage areas less than two square miles are done under Task 3522, either by the road design unit or per request to the Design Engineer – Hydraulics. For bridge structures, a scour analysis is done to evaluate the adequacy of the structure's foundation.

Consultants working on a bridge are directed to the MDOT Bridge Design Manual, Appendix 5.03.03 A.1.e, “Scope of Work Statement for Hydrologic, Hydraulic, and Scour Analysis”.

Upon receipt of a request for a hydraulic and/or scour analysis for a waterway crossing from a bridge or road design unit, the Hydraulics unit requests/obtains the following Tasks and information:

- Design discharge (flow) and floodplain data from the MDEGLE
- Hydraulic survey (Task 3350)
- If applicable, soils information (Task 3530).

After receipt of the discharge information and hydraulic survey, the hydraulic analyses of the existing and proposed conditions are performed and a Hydraulic Report prepared. The Report is forwarded to MDEGLE for concurrence. Following MDEGLE's concurrence on the hydraulics analysis the scour analysis (if necessary) is completed. Soil information is used in the scour analysis and the design of a scour countermeasure. The findings of the hydraulic report, a copy of MDEGLE concurrence,

and the scour analysis findings are forwarded to the design unit/project manager and Region Environmental Permit Coordinator for inclusion in the hydraulic summary table in the plans and preparation of a EGLE permit application (tasks 3720 and 3730 respectively). The scour data is reviewed by the bridge design unit, in coordination with the Construction Field Services Geotechnical Services Unit (task 3530), for structural stability and selection of appropriate scour countermeasure design. The Design Engineer - Hydraulics may provide riprap design as a scour countermeasure.

WORK STEPS:

1. Request data for investigation and analysis including hydraulic survey (Task 3350), soil information (Task 3530), and design discharge (flow) information from EGLE. Discharge requests are made to the EGLE Hydrologic Studies Unit and shall be coordinated through the Design Engineer – Hydraulics. The request, at a minimum, should include the 2 % chance (50-year), 1% chance (100-year) and the 0.2 % chance (500-year) flood flows.

2. Input actual start date into project management software.

3. Conduct and document a site investigation of the stream and surrounding floodplain area. Take photographs upstream and downstream of the waterway crossing, including the over bank areas. Include any existing structures that may be modeled in the hydraulic analysis.

4. Conduct hydraulic and scour analyses. Coordinate sizing of waterway opening with design squad. Complete a hydraulic report.

5. Consultant: Coordinates steps #1 through #4 with the Design Engineer – Hydraulics. Submits 2 copies of the hydraulic report to the Design Engineer - Hydraulics for review and approval. If changes are needed, the report will be returned to the consultant for corrections until the report is deemed acceptable by MDOT.

6. Design Engineer – Hydraulics approves and submits hydraulic report for EGLE preliminary review and approval.

7. Upon EGLE approval, perform a scour analysis if required per MDOT Drainage Manual. Request review of scour analysis by both the Bridge Design Unit and Geotechnical Services Unit (Task 3530) for structure stability and scour countermeasure recommendations.

8. Send summary memo to the appropriate design squad with copy to the Region Environmental Permit Coordinator for Tasks 3720 and Environmental Section for Task 3155. The memo shall contain a copy of the EGLE approval memo, a structure hydraulic summary data table, and scour info.

9. Coordinate with bridge/road design on selection of scour countermeasure and stream stability designs. Provide scour countermeasure design, description of scour countermeasure limits, or provide sketches for scour countermeasure placement.

10. Input actual finish date into project management software.

3522 Drainage Study, Storm Sewer Design and Stormwater Post-Construction Best Management Practices (PC-BMP's)

Reporting Management Unit:	Designer/Consultant Coordination
Task Start:	Receipt of request for analysis or assistance
Task Finish:	Distribution of recommendation to design unit
Date Last Modified:	May 2020

TASK DESCRIPTION:

This task determines the existing and proposed drainage system needs for a job. Appropriate hydraulic analyses are based on the MDOT Drainage Manual.

Hydraulic analysis for structures with drainage areas greater than two square miles is done under Task 3520. Contact the Design Engineer – Hydraulics for assistance with this task.

Storm water conveyance system such as a storm sewer, drain/ditch, and bridge deck drainage are analyzed and designed with this task. Drainage outlets must be identified and analyzed to determine if adequate capacity is available for the conveyance system discharge. Flood storage must be provided if the receiving body does not have sufficient capacity. If county drainage systems are to be used as the conveyance system outlet, the system needs the review of the MDOT Drainage Coordinator or Drainage Specialist.

Post-construction stormwater BMP's are also determined with this task. They are used to ensure the water quality requirements of MDOT's National Pollution Discharge Elimination System (NPDES) permit that is required of all Municipal Separate Storm Sewer Systems (MS4) operators. Stormwater BMPs are required for all projects meeting NPDES criteria in order to obtain environmental clearance. BMP's may be structural or operational and may be evaluated by the Drainage Specialist upon request of the MDOT Project Manager.

Design flows are computed and routed through the storm water conveyance system. Adequate energy dissipation structures and a Special Drainage Structure Plan (Task 3672) may be needed. Storm sewer and other storm water conveyance system designs are done by the road design units and reviewed upon request by the Design Engineer - Hydraulics. However, the Project Manager or road design unit may request design assistance from the Design Engineer – Hydraulics.

The following information should be obtained to complete a drainage study and hydraulic analysis:

- Hydrologic information for the computation of design flows for each system
- If required Hydraulic Survey (Task 3350) from the Design Statewide Survey Section,
- If applicable, Structure Foundation Investigation (Task 3530) from the Construction Field Servics Geotechnical Services Unit.
- Determine adequate capacity of receiving waterways, and designate county or intercounty drains
- Local regulations regarding allowable discharges.
- Drainage/cost share agreements between MDOT and the local agency.

Proposed structure types and sizes, profile grades, and any special provisions are included in the drainage study. Information in the drainage study will be incorporated into the design plans by the Project Manager/design unit.

WORK STEPS:

1. Gather hydrologic data for design flows and discharges that include potential future development within the drainage area per Federal Aid Policy Guides for each storm water conveyance system. Determine existing outlet capacity

2. Input actual start date into project management software.

3. Request review by MDOT Aquatic Resource Specialist on any job specific post-construction BMP's to meet storm water quality requirements. Request should be made through the Drainage Specialist.

4. Based on hydraulic analyses, determine the adequacy of existing system using projected design flows and determine needed storm water conveyance system(s), system improvements, and post-construction BMP's.

5. If any part of the proposed drainage requires an environmental permit, provide preliminary permit information to the Project Manager, the Environmental Services Section, and Region Environmental Permit Coordinator 6 months prior to the plan completion date.

6. If requested by the Project Manager, the Environmental Services Section of Project Planning will coordinate a meeting with all pertinent parties to review storm water recommendations for post-construction BMP's.

7. Submit drainage study with recommend structure types and sizes, including any special provisions, to the Project Manager, with a copy to the Environmental

Services Section for Task 3155. Coordinate Special Drainage Structures Plan (Task 3672) design as necessary.

8. ***Consultants***: Coordinate steps 1 through 7 with the Project Manager. Prior to the Plan review, submit drainage study to Project Manager for review and approval. Submit design calculations, drainage maps and plans as part of the drainage study. If changes are needed, the drainage study will be returned to the consultant for corrections until the report is deemed acceptable by MDOT.

9. Project Manager may request design review assistance from the Design Engineer – Hydraulics and/or the Drainage Specialist.

10. Obtain or amend necessary agreements with the local agencies. Please see Task 3630 – Prepare and Process Participation/Special Operational Agreements. Requests for agreements shall be made to the Design Engineer – Utility Coordination, Agreements & Permits Unit, and must be reviewed by the Drainage Coordinator/Drainage Specialist.

11. Input actual finish date into project management software.

3530 Geotechnical Foundation Engineering Report

Reporting Management Unit:	Construction and Technology - Geotechnical Unit
Task Start:	Receipt of Base Plans and/or Structure Study, and completion of Scour Analysis
Task Finish:	Distribution of Geotechnical Foundation Engineering Report to Project Manager
Date Last Modified:	August 30, 2012

TASK DESCRIPTION:

Foundation Engineering is necessary to determine the most efficient foundation treatment for transmitting the loads from the planned structure to the earth. This task begins with an assessment of the type, size, elevations, and anticipated loading of the proposed structure, with respect to the planned substructure locations. Soil stratigraphy, soil strength, and anticipated scour are used to determine the available geotechnical resistance from the earth. Recommendations are made as to type of foundation (i.e. spread footing, driven piles, etc.). Engineering criteria is developed for sizing foundation elements.

The foundation investigation shall be in accordance with MDOT control document "Geotechnical Investigation and Analysis Requirements for Structures" as found on the MDOT internet site. Use Geotechnical Forms as necessary.

WORK STEPS:

1. Receive Base and/or study plans and scour analysis (if structure over water). Plans must show individual substructure locations and elevations.

2. Input actual start date into project management software (MDOT).

3. Develop foundation support concepts interactively with Design Engineer.

4. Perform engineering analysis to determine available geotechnical resistance.

5. Evaluate costs and select preferred foundation treatment.

6. Develop design criteria for sizing foundation.

7. Prepare Geotechnical Foundation Engineering Report and transmit to Bridge Design Engineer for evaluating information into the Preliminary Plans.

8. Receive any items returned by the MDOT Project Manager as incomplete or deficient

9. Make necessary changes and resubmit the revised materials.
10. Input actual finish date into project management software (MDOT).

3535 Conduct Structure Review of Architectural & Aesthetic Improvements

Reporting Management Unit:	Design – Roadside Development
Task Start:	Receipt of request for review
Task Finish:	Distribution of recommendation to design unit
Date Last Modified:	July 7, 2003

TASK DESCRIPTION:

This task determines the type of aesthetic treatment and architectural details for bridges, retaining walls, noise barriers and other structures.

Upon receipt of a request for an aesthetic/architectural review from a bridge or road design unit, TSC or Region, the unit gathers the following information:

- Structure type and location
- Region Corridor Aesthetics Plans
- Aesthetic Project Opportunities Inventory
- Scenic Corridor Management Plans
- Architectural treatments on existing structures within the corridor
- Local/community interests or commitments

The aesthetic review is performed. Proposed architectural details and any special provisions are included. Information is forwarded to the Project Manager for incorporation into the design plans.

WORK STEPS:

1. Gather structure design information.

2. Input actual start date into project management software.

3. Conduct aesthetic enhancements study as necessary.

4. Provide technical input in the EPE phase for Improve/Expand jobs at public meetings and/or workshops, etc.

5. Determine type of architectural/aesthetic treatment; coordinate with TSC/Region/Local agency

6. Develop details and special provisions as necessary.

7. Recommend architectural details, including any special provisions, to the Project Manager.

8. Input actual finish date into project management software.

9. Provide construction assistance, as needed.

3540 Develop Maintaining Traffic Plan

Reporting Management Unit:	Region/TSC- Traffic and Safety
Task Start:	Receipt of Base Plans
Task Finish:	Distribution of maintaining traffic plan
Date Last Modified:	August 2021

TASK DESCRIPTION:

The Region/TSC Traffic and Safety Engineer, along with the appropriate MDOT work centers* and/or a consultant, develops a plan for the routing of traffic during job construction. The plan and level of detail will vary from job to job. The plan will detail the maintaining traffic concepts previously submitted to the Project Manager for inclusion into the base plans. The objective of the traffic control plan is to maintain a safe and effective system by minimizing the obstruction of traffic and maximizing motorist and worker safety.

* Representatives should include the following: Project Manager, Construction Engineer, Operations Engineer, and Region/TSC Project Development Engineer. Other disciplines may be invited as needed.

WORK STEPS:

1. Receive and evaluate base plans review comments.

2. Input actual start date into project management software.

3. Select appropriate traffic control method(s) and verify that project traffic control methods balance safety and mobility by using the Decision Tree located in the Work Zone Safety Mobility Manual (WZSMM).

4. Contact the local governmental agency to determine if local issues will have a bearing on the construction of the job (ordinances, tree cutting, work hours, parade routes, local festivals, special events, public relations, etc.).

5. If Scope of Design Services includes traffic signal modifications, then follow the procedures and requirements (including Consultant prequalification) detailed in TASK 3551 - PREPARE/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN.

6. Prepare draft Work Zone Traffic Control package for inclusion in plans and proposal, including:
    a. Special Provision for Maintaining Traffic
    b. Maintaining traffic quantities
    c. Maintaining traffic diagrams and typical plans
    d. Signing details, temporary pavement markings, traffic signal modifications, etc.
    e. Staging typical cross-sections and plans as required

7. Submit preliminary Work Zone Traffic Control Plan package to MDOT Project Manager. Include a cover letter stating readiness for the first maintaining traffic coordination meeting. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

8. Receive confirmation of the date, time and location of the meeting.

9. Attend the first maintaining traffic coordination meeting. Record the meeting minutes.

10. Send a copy of the meeting minutes to all attendees.

11. Revise the traffic control items to reflect the recommendations made at the first maintaining traffic coordination meeting.

12. Submit the revised Work Zone Traffic Control Plan package with the Preliminary Plan submittal package for discussion at the Preliminary Plan Review Meeting.

13. Send recommendations to Project Manager for discussion at THE Plan Review Meeting. THE Plan Review Meeting will not be scheduled unless the recommendations are received.

14. Input actual finish date into project management software.

15. Attend THE Plan Review Meeting.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of maintaining traffic plans and special provisions, refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. MDOT Standard Specifications for Construction – current edition
3. MDOT Road and Bridge Standard Plans
4. Standard Highway Signs Manual
5. A Policy on Geometric Design of Highways and Streets (AASHTO) – current edition
6. Average Unit Prices for Traffic Control Items
7. Michigan Road Design Manual, Chapter 8
8. Maintaining Traffic Typical Diagrams
9. Typical Maintaining Traffic Special Provision
10. Work Zone Safety Mobility Manual

3551 Prepare/Review Preliminary Traffic Signal Design Plan

Reporting Management Unit:	Traffic Signals - Design Subunit
Task Start:	Receipt of layout request from Traffic Signals – Analysis/Operations Subunit
Task Finish:	Distribution of the Preliminary Traffic Signal Design Plan
Date Last Modified:	June 29, 2006

TASK DESCRIPTION:

This task entails the preparation of preliminary traffic signal plans for the new installation or modernization of existing electronic traffic signal control devices. New traffic signal work typically includes the installation of: signal support poles and/or pedestals, span wire, traffic and pedestrian signals, and traffic signal controller. Modernization traffic signal work typically includes the replacement, as needed, of: signal support poles and/or pedestals, span wire (if appropriate), traffic and pedestrian signals, and traffic signal controller. Design works for other electronic traffic control devices are included in this task too. Examples of other devices include flashers on signs and electronic speed limit signs.

Consultants:

The location(s) and type of work for each traffic signal is stated in the Scope of Design Services.

NOTE: If the traffic signal falls under the jurisdiction of a local agency, the design and preparation details will be defined in the Scope of Design Services.

WORK STEPS:

1. Receive layout request from the Traffic Signals Analysis/Operations Subunit.

2. *Consultant*: Receive comments and/or correspondence from Base Plan Review from the MDOT Project Manager.

3. Input actual start date into project management software.

4. *Consultant*: Request a meeting with the Traffic Signals Unit (Area Layout Technician) and Automated Roadway Data Subunit of the MDOT Traffic and Safety Division through the MDOT Project Manager to become familiar with MDOT signal design requirements. The purpose of this meeting is to review this scope of work, location of data sources and contact persons, and relevant MDOT operations. The Consultant shall review and clarify job issues, such as data needs and availability and signal work for construction staging. Discussion will clarify critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, and utility conflict resolution. Items the Consultant will receive at this meeting:

    a. Appropriate Traffic and Safety Notes
    b. Availability of photolog
    c. Typical MDOT signal plan set and proposal components
    d. Available design plans and/or geometric layout for each location
    e. Available signal phasing or operational information for each location
    f. Traffic and Safety Division Signal Plan (CADD) Requirements

5. *Consultant*: Request a meeting with the Region Construction/Testing Engineer or Soils Engineer through the MDOT Project Manager to discuss the geotechnical requirements for this job.

    a. If TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION is a Consultant task, then obtain the required soil borings, complete the related analysis, identify any suspected contamination of the boring site, and prepare strain pole foundations design if required. The following information shall be provided for proper analysis of strain pole foundations:

        i. Accurate pole location information.
        ii. Soil classification.
        iii. Standard penetration values every 750 mm for 1.5 X foundation depth.
        iv. Ground water table elevation.
        v. Unconfined compressive strength. If it is found to be less than 119.7 kPa, then the Consultant shall run an unconfined compressive strength lab test(s).

    The Consultant shall submit the geotechnical investigation to the Region Construction/Testing Engineer or Soils Engineer for review, approval, and recommendations.

    b. If TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION is **NOT** a Consultant task, then send a request for the geotechnical investigation to the MDOT Project Manager.

6. Make all necessary field investigations and studies of all existing overhead and underground utilities. Show underground utilities on plans with each utility specifically identified.

7. If available, obtain/provide existing signal layout drawings.

8. Design and develop preliminary traffic signal plans, engineering documents and related work necessary for new installation or modernization of electronic traffic signal control devices, including Construction Staging as appropriate.

9. Check right-of-way restrictions, overhead utilities and/or underground utilities to determine if the placement of equipment creates a conflict. If conflicts are found, contact the MDOT Project Manager.

10. *Consultant*: Submit four sets of preliminary traffic signal plans, special provisions and estimates for review and approval by the MDOT Project Manager prior to preparing the Preliminary Plan submittal package. Preliminary plans include, but are not limited to:

    a. construction details
    b. condition diagram to nearest half meter (Scale: 1:400)
    c. possible underground and/or overhead utility conflicts
    d. all pertinent operational features; i.e., lane lines & usage, street width, etc.
    e. signal phasing diagram(s) if required
    f. traffic signal removal and installation plan sheets
    g. traffic signal removal and proposed wiring diagrams
    h. list of Materials and Quantities.
    i. span calculation diagrams
    j. appropriate note blocks for contact persons, etc.
    k. soil boring information including depths, soil description, water level, and foundation depths
    l. draft special provisions and specifications

11. *Consultant*: Receive any items returned by the MDOT Project Manager as incomplete or deficient.

12. *Consultant*: Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

13. *Consultant*: Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the preliminary traffic signal submittal.

14. *Consultant*: Check preliminary traffic signal items in accordance with Consultant's QA/QC plan.

15. *Consultant*: Incorporate the preliminary traffic signal plans, special provisions and estimates into the Preliminary Plan submittal package.

16. Input actual finish date into project management software.

17. In-House: Distribute preliminary traffic signal design plan to Project Manager.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of signal plans, estimates and special provisions, refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. National Manual of Uniform Traffic Control Devices
3. MDOT Standard Specifications for Construction – current edition
4. Michigan Vehicle Code
5. Local and National Electrical Codes
6. MDOT Typical Signal Construction Detail Sheets
7. MDOT Typical Signal Information Note Sheet
8. MDOT Typical Signal Legend Sheet
9. Cell library
10. Blank standard plan sheet with borders and title block
11. MDOT Special Provisions
12. MDOT Supplemental Specifications

3552 Develop Preliminary Permanent Pavement Marking Plan

Reporting Management Unit:	Region/TSC Traffic and Safety or Consultants
Task Start:	Receipt of base plans/submittal of base plans to consultant
Task Finish:	Distribution of the Preliminary Pavement Marking Plan
Date Last Modified:	January 2004

TASK DESCRIPTION:

This task includes the work effort required to develop preliminary permanent pavement marking quantities and plans for pavement markings on MDOT design jobs. Most jobs will typically only require pay items and quantities to be included on the note sheet. Detailed drawings will be required for non-typical areas, such as interchanges, complex intersections and individual locations where the pavement marking layout needs to be detailed.

WORK STEPS:

1. *Consultant:* Receive comments and/or correspondence from Base Plan Review via the MDOT Project Manager.

2. Input actual start date into project management software.

3. Collect and evaluate data, including:
    a. performing field review,
    b. design criteria, including choice of materials,
    c. accident data, and
    d. base plans.

4. *Consultant:* Contact the MDOT Project Manager and request a meeting with the Region/TSC Traffic & Safety Engineer. At this meeting the Consultant will be briefed as to the pavement marking requirements for this job.

5. *Consultant:* Incorporate Base Plan Review comments and develop the preliminary pavement marking plans and estimates.

6. Develop preliminary pavement marking plan and quantities, including special provisions as appropriate.

7. *Consultant:* Incorporate the preliminary pavement marking plans and estimates into the Prepare Preliminary Plan submittal package.

8. Input actual finish date into project management software.

9. Submit preliminary pavement marking plan to Project Managers for inclusion in the Preliminary Plans for distribution and THE Plan Review.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of pavement marking traffic plans refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. MDOT Standard Specifications for Construction – current edition
3. Michigan Design Manual, Road Design (SI), Volume 3 (Chapter 7)
4. Pavement Marking Typical Plans
5. MDOT Pavement Marking Policy

3553 Develop Preliminary Non-Freeway Signing Plan

Reporting Management Unit:	Region/TSC Traffic and Safety or Consultants
Task Start:	Receipt of base plans
Task Finish:	Distribution of the Preliminary Non-Freeway Signing Plan
Date Last Modified:	June 2013

TASK DESCRIPTION:

This task entails developing quantities, plans and special provisions for non-freeway signing on Michigan Department of Transportation (MDOT) design jobs.

The Responsible Reporting Management Unit shall review the existing non-freeway signs for replacement, upgrading, or relocation. The existing sign legends shall also be reviewed. The Responsible Reporting Management Unit shall also make recommendations for additional signs. The Responsible Reporting Management Unit shall also review the adequacy of the existing support system to meet current MDOT sign support standards.

MDOT manages an annual sign upgrading program. Projects selected are based on the age and condition of the signs in place along various state trunklines. The sign population on any segment of roadway includes new and old signs. The Department requires use of high-intensity legends and background on all new signs. In general, high-intensity signs are expected to last fifteen years. Any signs three years old and older are considered for replacement. Signs which do not conform to the MDOT's Standard Highway Signs (SHS) Manual, Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and any other applicable guidelines, or have deteriorated to an extent that they no longer provide adequate nighttime reflectivity, are damaged, are incorrectly installed or located, or are structurally deficient will be replaced. Passing zones must be reviewed to determine the correct placement of passing restriction signs.

Large overhead support structures such as trusses, cantilevers, and bridge-mounted sign structures will be evaluated by the Department. This information will be provided when requested by the Consultant during the term of the contract. Determination of replacement or retention of a structure will be made by the Department. The Department will specify repairs required to retain overhead sign structures.

WORK STEPS:

1. *Consultant:* Receive comments and/or correspondence from Base Plan Review via the MDOT Project Manager.

2. Input actual start date into project management software.

3. Collect and evaluate data, including:
   - non-freeway sign inventory data,
   - performing field review,
   - design criteria,
   - base plans.

4. *Consultant:* Request a meeting with the Traffic Signing Unit to become familiar with MDOT's requirements.

5. *Consultant:* Request copies of the Traffic Control Orders (TCO's) from the MDOT Project Manager. Determine if signing for speed limits and parking restrictions are located in accordance with the existing TCO's.

6. Begin creating the preliminary non-freeway signing plans. Consider the following requirements:

   a. Use the road CADD files for the basis of the preliminary non-freeway signing plans. Do not include road design or right-of-way details.
   b. The preliminary non-freeway signing plans will show the major features of the existing roadway including cross roads, interchanges, ramps, grade separations, rest areas, weight stations, and overhead and ground-mounted signs.
   c. The horizontal alignment and laneage of the roadways shall be included.
   d. Show all existing signs at the approximate location. Include the existing sign legends, and necessary distance references.
   e. Maintain the ability to move an entire sign drawing to anywhere on the preliminary signing plans. This facilitates proper placement of additional signs and replacement signs as the plans are developed.
   f. Include special provisions as applicable/appropriate.

7. Conduct a field review to verify the existing sign inventory. Correct the inventory to reflect the actual field conditions. As a minimum, record the following information for all existing signs:

   a. Size and type
   b. Message
   c. Location

d. Support system
e. Type of sign support foundation

8. MDOT will provide structure reports and determine the required action.

9. Develop the preliminary non-freeway signing plans.

   a. The preliminary non-freeway signing plans shall show the existing signs, proposed signs, all supporting structures, and signs to be removed. Existing signs shall be shown either as removed, retained, or replaced.
   b. Include fabrication details for unique signs. Sign designs for non-standard signs will be shown on separate detail sheets. Standard signs may be referred to by the appropriate sign code (for example, R5-6).
   c. The selection of signs, location, letter size, color, etc. shall be according to the current version of the Michigan Standard Highway Signs (SHS) manual.

10. *Consultant:* Submit the preliminary non-freeway signing plans, special provisions and estimates for review and approval to the MDOT Project Manager prior to preparing the Preliminary Plan submittal package.

11. *Consultant:* Receive any items returned by the MDOT Project Manager as incomplete or deficient.

12. *Consultant:* Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

13. *Consultant:* Check preliminary non-freeway signing items in accordance with Consultant's QA/QC plan.

14. *Consultant:* Incorporate the preliminary non-freeway signing plans, special provisions and estimates into the Preliminary Plan submittal package.

15. Input actual finish date into project management software.

16. Submit preliminary non-freeway signing plan to Project Managers for inclusion in the Preliminary Plans for distribution and THE Plan Review.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of non-freeway signing plans and special provisions, refer to the following:

Items to be purchased:

1. Microstation
2. SignCAD

Current versions of the following items are available through the MDOT Traffic and Safety website:

1. Signing plan note sheets
2. Cell library
3. Blank standard plan sheet with borders and title block
4. MDOT Supplemental Specification
5. MDOT Special Provisions
6. SignCAD Templates
7. Traffic Sign Design, Placement, and Application Guidelines (TSDPAG)
8. TSDPAG Appendix
9. Michigan SHS Manual
10. Any other pertinent guidelines

3554 Develop Preliminary Freeway Signing Plan

Reporting Management Unit:	Traffic Signs & Delineation - Reflective Systems Design
Task Start:	Receipt of base plans
Task Finish:	Distribution of the Preliminary Freeway Signing Plan
Date Last Modified:	June 2013

TASK DESCRIPTION:

This task entails developing quantities, plans and special provisions for freeway signing on Michigan Department of Transportation (MDOT) design jobs.

The Responsible Reporting Management Unit shall review the existing freeway signs for replacement, upgrading, or relocation. The existing sign legends shall also be reviewed. The Responsible Reporting Management Unit shall make recommendations for additional signs. The Responsible Reporting Management Unit shall also review the adequacy of the existing support system to meet current MDOT sign support standards.

MDOT manages an annual sign upgrading program. Projects selected are based on the age and condition of the signs in place along various state trunklines. The sign population on any segment of roadway includes new and old signs. The Department requires use of high-intensity legends and background on all new signs. In general, high-intensity signs are expected to last fifteen years. Any signs three years old and older are considered for replacement. Signs which do not conform to the MDOT's Standard Highway Signs (SHS) Manual, Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and any other applicable guidelines, or have deteriorated to an extent that they no longer provide adequate nighttime reflectivity, are damaged, are incorrectly installed or located, or are structurally deficient will be replaced. Passing zones must be reviewed to determine the correct placement of passing restriction signs.

Large overhead support structures such as trusses, cantilevers, and bridge-mounted sign structures will be evaluated by the Department. This information will be provided when requested by the Consultant during the term of the contract. Determination of replacement or retention of a structure will be made by the Department. The Department will specify repairs required to retain overhead sign structures.

WORK STEPS:

1. *Consultant:* Receive comments and/or correspondence from Base Plan Review via the MDOT Project Manager.

2. Input actual start date into project management software.

3. Collect and evaluate data, including:

    - freeway sign inventory data,
    - performing field review,
    - design criteria,
    - base plan

4. *Consultant:* Request a meeting with the Traffic Signing Unit to become familiar with MDOT's requirements.

5. *Consultant:* Request copies of the Traffic Control Orders (TCO's) from the MDOT Project Manager. Determine if signing for speed limits and parking restrictions are located in accordance with the existing TCO's.

6. Begin creating the preliminary freeway signing plans. Consider the following requirements:
    a. Use the road CADD files for the basis of the preliminary freeway signing plans. Do not include road design or right-of-way details.
    b. The preliminary freeway signing plans will show the major features of the existing roadway including cross roads, interchanges, ramps, grade separations, rest areas, weigh stations, and overhead and ground-mounted signs.
    c. The horizontal alignment and laneage of the roadways shall be included.
    d. Show all existing signs at the approximate location. Include the existing sign legends and necessary distance references.
    e. Maintain the ability to move an entire sign drawing to anywhere on the preliminary signing plans. This facilitates proper placement of additional signs and replacement signs as the plans are developed.
    f. Include special provisions as applicable/appropriate.

7. Conduct a field review to verify the existing sign inventory. Correct the inventory to reflect the actual field conditions. As a minimum, record the following information for all existing signs:

    a. Size and type
    b. Message
    c. Location
    d. Support system

e. Type of sign support foundation

8. MDOT will provide structure reports and determine the required action.

9. Develop the preliminary freeway signing plans.

   a. The preliminary freeway signing plans shall show the existing signs, proposed signs, all supporting structures, and signs to be removed. Existing signs shall be shown either as removed, retained, or replaced.
   b. Include fabrication details for unique signs. Sign designs for non-standard signs will be shown on separate detail sheets. Standard signs may be referred to by the appropriate sign code (for example, R5-6).
   c. The selection of signs, location, letter size, color, etc. shall be according to the current version of the Michigan Standard Highway Signs (SHS) manual.

10. *Consultant:* Submit the preliminary freeway signing plans, special provisions and estimates for review and approval to the MDOT Project Manager prior to preparing the Preliminary Plan submittal package.

11. *Consultant:* Receive any items returned by the MDOT Project Manager as incomplete or deficient.

12. *Consultant:* Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

13. *Consultant:* Check preliminary freeway signing items in accordance with Consultant's QA/QC plan.

14. *Consultant:* Incorporate the preliminary freeway signing plans, special provisions and estimates into the Preliminary Plan submittal package.

15. Input actual finish date into project management software.

16. Submit preliminary freeway signing plan to Project Managers for inclusion in the Preliminary Plans for distribution and THE Plan Review.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of freeway signing plans and special provisions, refer to the following:

Items to be purchased:

1. Microstation
2. SignCAD

Current versions of the following items are available through the MDOT Traffic and Safety Website:

1. Signing plan note sheets
2. Cell library
3. Blank standard plan sheet with borders and title block
4. MDOT Supplemental Specification
5. MDOT Special Provision
6. SignCAD Templates
7. Traffic Sign Design, Placement, and Application Guidelines (TSDPAG)
8. TSDPAG Appendix
9. Michigan SHS Manual
10. Any other pertinent guidelines

3555 Prepare Preliminary Traffic Signal Operations

Reporting Management Unit:	Project Manager (consulted) or Traffic Signal Operations/Analysis Subunit
Task Start:	Receipt of Base Plans
Task Finish:	Incorporation of Signal Operations review comments into Preliminary Plans
Date Last Modified:	October, 2021

TASK DESCRIPTION:

This task includes developing and reviewing the proposed traffic signal operations for the project, including reviewing the preliminary signal plans.

WORK STEPS:

1. Input actual start date into project management software.

2. Collect and analyze traffic signal data, including:

    a. Proposed synchro models for construction staging and final design,
    b. traffic volume information,
    c. signal timing permits for construction staging and final design, and
    d. signal plans

3. Develop proposed traffic signal operations for Construction Staging and final design as appropriate, including all signal timing permits and synchro models.

4. Distribute proposed signal operations, timing permits, synchro models, and preliminary plans to the Traffic Signal Operations Subunit.

5. Incorporate comments from the Traffic Signal Operations Subunit into the preliminary plans and related documents.

6. Input actual finish date into project management software.

3560 Conduct Preliminary Geometrics and Roadside Safety Reviews

Reporting Management Unit:	Traffic and Safety - Geometrics
Task Start:	Receipt of Preliminary Plans
Task Finish:	Submission of geometrics comments to Project Manager
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task encompasses the review and evaluation of the proposed job geometrics and roadside safety features. This is performed on all projects except non-hot mix asphalt overlay Capital Preventative Maintenance projects. This is an ongoing effort throughout the development and evaluation of the preliminary plans. It is important that periodic communications be made so that the preliminary plans can be completed and the job geometrics and safety features accepted prior to the Final Project Coordination (FPC) meeting.

The evaluation made by the Department's Geometrics Unit addresses areas such as:

- sight distances,
- design speeds,
- curve and interchange placement,
- turning radii,
- exit and entrance ramps,
- driveways,
- turn lanes,
- capacity/operation,
- horizontal/vertical alignment
- superelevation
- lane/shoulder width
- grade
- vertical clearance
- crossslope
- bridge width
- horizontal clearance
- ramp acceleration/deceleration lanes
- roadside safety, and
- Intersection design.

WORK STEPS:

1. Evaluate proposed job geometrics and roadside safety features.
2. Input actual start date into project management software.
3. Prepare and submit comments.
4. Attend THE Plan Review Meeting
5. Meet with designer to review comments, as needed.
6. Input actual finish date into project management software.
7. Approve job geometrics and roadside safety features or return to step 4.

3565 Preliminary Constructability Review

Reporting Management Unit:	Concept Author/Project Manager
Task Start:	Assignment of Construction Engineer
Task Finish:	End of Preliminary Plans
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task is intended to ensure review and evaluation of the constructability of the project during the scoping and early plan development process.

This task specifically addresses the scoping and scope verification process, and should be performed in conjunction with the Early Project Scoping Constructability Checklist.

After the draft job has been created in JobNet, the project author or Project Manager should work with the Region/TSC Construction Engineer initially and periodically throughout the plan development process to ensure that constructability is taken into account. Much of the work under this task should occur before the Scope Verification Meeting (see also Task 3130 – Verify Design Scope of Work and Cost).

With this task, any existing plans and/or base plans, typicals, etc. that are available, along with a field review, should be utilized to aid in filling out the Early Project Scoping Constructability Checklist.

On small projects this task may consist of only the transmittal of base plans to the Construction Engineer for comment. On large projects with complex staging, one or more meetings with the Construction Engineer and Region/TSC Traffic and Safety Engineer may be required throughout this task. In both instances the review and incorporation of any comments must occur prior to Preliminary Plan Development.

In conjunction with the Early Project Scoping Constructability Checklist, the following items, as well as possibly others, should be investigated:

- **I.** Biddability
  - **A.** Needs and coordination with other agencies/utilities/parties
  - **B.** Required permits; <u>gather information for application process asap</u>
- **II.** Buildability
  - **A.** Site Investigation
  - **B.** Right of Way
  - **C.** Construction Staging
  - **D.** Maintenance of Traffic
  - **E.** Soil Erosion and Sedimentation Control (SESC)

Please see the Early Project Scoping Constructability Checklist for more detail

WORK STEPS:

1. Notification of assignment of Construction Engineer.
2. Input actual start date into project management software.
3. Research or obtain any plans available to use for assistance.
4. Make plans available to Construction Engineer for review.
5. Set up meeting with Construction Engineer and Region/TSC Traffic and Safety Engineer and conduct field review.
6. Review Early Project Scoping Constructability Checklist with participants.
7. Representatives from Development and Construction areas sign off on the Early Project Scoping Constructability Checklist.
8. Incorporate notes and comments at Scope Verification (Task 3130) and into Preliminary Plans.
9. Input actual finish date into project management software.

3570 Prepare Preliminary Structure Plans

Reporting Management Unit:	Design - Bridge/Consultant Coordination
Task Start:	Approval of Bridge Structure Study, if required, or approval of Design Scope of Work, and authorization to proceed
Task Finish:	Submission of Preliminary Structure Plans for THE Plan Review Meeting
Date Last Modified:	May 2008

TASK DESCRIPTION:

This task is usually included in bridge jobs and is coordinated with other structure related tasks. The Structure Study shall be approved before starting this task, and FHWA approval is required on jobs with FHWA oversight. The FHWA approval is Milestone 357M. Please see the Michigan Design Manual, Bridge Design, Sections 2.03.01, 2.03.02, and 3.01 for more information.

The Preliminary Structure Plans document the suggested layout for the proposed structure design. In preparing the general plan and elevation, the structural design is based on the structure study or existing plans. Additional plans are also prepared to further detail the structure design. The preliminary structure plans submission includes:

- foundation report;
- appropriate explanatory remarks;
- preliminary structure design;
- preliminary engineer's estimate; and
- design concerns.

A complete list of inclusions to these plans can be found in the Design Manual/Bridge Section 3.02.

During the preparation of the Preliminary Structure Plans, the plans progress from the study sketches to a detailed General Plan of Site sheet and a General Plan of Structure sheet.

The assigned structure designer coordinates with the roadway designer (as applies) and the Project Manager. This interaction leads to plans which provide for the best overall design (i.e., acceptable grades, well-designed approaches, limited future corrections in the design, etc.). Consideration is given to the impacts of plans on other groups.

WORK STEPS:

1. Receive and review job data, including comments on the approved Structure Study Plans.

2. Obtain approval of FHWA, if appropriate, via the Project Manager. See Milestone 357M following.

3. Input actual start date into project management software.

4. If necessary, acquire soil boring information:

    a. *Consultants:* If obtaining soil borings is a Design Consultant task, then obtain required soil information.
    b. If obtaining soil borings is NOT a Design Consultant task and soil borings are required, then send a request for additional soil information to the M•DOT Project Manager.

5. Evaluate roadway plans, bridge sketches, utilities, hydraulic and scour analysis, and permit requirements.

6. Submit pertinent information for agreements/permits to MDOT Project Manager. See Section 3.02.05 and Chapter 14 of the Michigan Design Manual, Bridge Design.

7. Prepare Preliminary Structure Plans and Estimate of Probable Construction Cost as defined in the Michigan Design Manual, Bridge Design, Section 3.02. Some items included are:

    a. general Plan of Site,
    b. general Plan of Structure,
    c. soil borings and foundation recommendations,
    d. staging plans, and
    e. scour protection measures.

    Contact the MDOT Project Manager immediately if the cost estimate varies significantly from the programmed construction cost estimate.

8. Document any decisions made while developing the Preliminary Plans.

9. Check the Preliminary Plans for conformance to the Structure Study review comments.

10. Prepare a list of questions, requests for information and concerns that need to be addressed at the Preliminary Plan Review Meeting (GI). Examples are: coordination with County Drain Commissioner, additional soils investigation,

contaminated parcels, signals, permanent signing, lighting, railroad crossings, bridge improvements, geometric improvements, utility involvement, etc.

11. Prepare Preliminary Plan submittal package. Check submittal package in accordance with QA/QC requirements. Contact the MDOT Designer/Project Manager if you have questions regarding submittal requirements.

<u>NOTE: With the move to electronic plans and proposals, it is preferred that the Designer/Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package.</u>

The submittal package shall include the following:

a. A cover letter stating readiness for the Plan Review Meeting. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan. Include the names of those who did the QA/QC check.
b. Reproducible plan sheets including all areas of work; e.g., preliminary bridge plans, traffic signal plans, approach plans, etc.
c. Draft job specific special provisions for items not covered by MDOT Standard Specifications.
d. Draft Special Provisions for Maintaining Traffic and preliminary staging plans.
e. Preliminary job quantity and cost estimate by pay items. Any agency participation anticipated for this job shall be stated and the estimated quantities and costs shall be tabulated by agency.
f. Written responses to Structure Study review comments.
g. List of outstanding questions and/or considerations.

12. Submit preliminary plans and materials to the MDOT Project Manager. (Two half size sets)

13. Receive any items returned by the MDOT Project Manager as incomplete or deficient. Make necessary changes and resubmit the revised materials. Keep copies of the MDOT's comments, the marked up prints/files (if it was included), and the revised materials for the job record.

14. *Consultants:* Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the Preliminary package submittal.

15. Input actual finish date into project management software.

16. Submit for THE Plan Review Meeting.

357M FHWA Concurrence of Structure Study

Reporting Unit: Project Manager

As part of Task 3570, FHWA approves the Structure Study on jobs with FHWA oversight before Preliminary Structure Plans can commence.

SUPPLEMENTAL INFORMATION

For more information, refer to the following:
Items to be purchased:

Michigan Design Manual, Bridge Design

3580 Develop Preliminary Plans

Reporting Management Unit:	Designer/Design - Road/Consultant Coordination
Task Start:	Completion of base plans
Task Finish:	Submission of request for The Plan Review Meeting
Date Last Modified:	March 2015

TASK DESCRIPTION:

During this task the designer incorporates the base plan review comments into the plans. The job geometrics are detailed. The design is developed in sufficient detail for The Plan Review Meeting. This task is completed when the Preliminary Plan Review submittal package is accepted by the MDOT Project Manager.

The plan also provides a proposed pavement design which was developed based on the roadway geotechnical data gathered and AASHTO guidelines.

Final ROW is included in the construction plans, when appropriate, as part of this task. These plans reflect the anticipated right of way requirements for the job. This description now includes the steps for the preparation and submittal of Final Right-Of-Way (FROW) plans, Right-Of-Way Revisions and Final ROW Resubmittals, as necessary. All submittals are developed as part of this task. More details are documented below. The ROW Process Improvement makes these plans a reference file to be included in the overall construction plan set.

Coordination with the Geometrics Unit is carried out throughout this task. Several submissions may be required to address all geometric concerns prior to the submission for The Plan Review Meeting.

MDOT has developed a Reference Information Document (RID) process by which electronic data files such as Computer Aided Design (CAD) or survey files are made available through the e-Proposal website. Contractors may use these non-contractual items upon and after advertisement of construction projects. In order to facilitate the process of posting RID files in a uniform manner to the e-Proposal site, maintain uniform ProjectWise file structuring, and create statewide consistency for ease of finding information for future use, file naming conventions and standard formats have been established.

WORK STEPS:

1. The MDOT Project Manager shall review and compile the comments for each item into one file to reconcile any discrepancies.

2. Input actual start date into project management software.

3. If significant changes are made to the design intent, prepare and submit to the MDOT Project Manager an updated Base Plan level job quantity and construction cost estimate reflecting Base Plan Review comments within four weeks following receipt all comments. The estimate should have quantities and unit prices for major items of work that properly reflect the changes. Other portions of the job can be estimated using lump sums or percentages. The MDOT Project Manager has the discretion to eliminate this partial job quantity and construction cost estimate based on the significance of the changes.

4. Incorporate Base Plan Review comments and develop the preliminary plans, specifications and estimates per Road Design Manual Section 14.36.

5. Request pavement design and geotechnical data, if necessary for section and model templates.

6. Resolve any outstanding issues and/or conflicting comments with the MDOT Project Manager.

    a. *Consultant:* Upon resolution of a conflict, the Consultant must document, in correspondence to the MDOT Project Manager, the solution to the conflict and the engineering judgment used by the Consultant in reaching this decision.

    b. This step also includes plotting existing utilities and identifying conflicts (see also Task 3610 – Compile Utility Information).

7. *Consultant:* If TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION is **NOT** a Consultant task, then send a request for additional soil information to the MDOT Project Manager.

8. *Consultant:* If TASK 3540 - DEVELOP THE MAINTAINING TRAFFIC PLAN is **NOT** a Consultant task, then coordinate staged construction plans and Special Provisions for Maintaining Traffic through the MDOT Project Manager.

9. Right Of Way

   a. If Right Of Way is included in the Contract, then include Final Right Of Way (FROW) information on the Preliminary Construction Plans. Refer to Road Design Manual Chapter 5 for guidance in the preparation of FROW Plans. The submittal of the PROW package is no longer a separate task. If the Consultant is unfamiliar with MDOT ROW procedures and requirements, please contact the MDOT Project Manager to arrange a meeting to discuss ROW.

   b. **If ROW is not part of the Contract, but determined necessary for construction, contact the MDOT Project Manager immediately**. Some examples of when Fee ROW, grading permits, easements, or other temporary/consent parcels will be required are:

      1. Closing, relocating or re-grading driveways beyond existing ROW.
      2. Work or grading outside existing ROW.
      3. Clear vision (sight distance) requirements.

      The Project Manager shall notify the Lansing Environmental Section and appropriate Development Services (Real Estate) personnel of any changes in ROW in all cases (b,c,d).

   c. If a significant change in ROW is anticipated for a parcel, the Consultant shall notify the MDOT Project Manager in writing as soon as the need is recognized in order for the MDOT Project Manager to initiate a ROW Hold for the affected parcel(s). A ROW Hold requests the MDOT Development Services (Real Estate) Division to suspend the current activity for the specified parcel(s). Upon the resolution of the ROW change, the Consultant shall notify the MDOT Project Manager in writing or if required, through a ROW Revision, the status of the parcel(s) so that the MDOT Project Manager can initiate release of the ROW Hold.

   d. If changes are required to the previously submitted FROW, then the Consultant shall notify the MDOT Project Manager as soon as the need is recognized. Every effort should be made to utilize the existing or FROW if possible. Refer to the following work steps for further direction on preparing a ROW Revision. Examples of when ROW Revisions will be required are:

      i. When alterations are made to the Final ROW; ie, alterations to the alignments, ties, and existing or proposed ROW lines.

ii. When design changes cause a significant impact to site conditions.
iii. When necessary corrections and/or changes to the drawings are directed by MDOT.

The Consultant shall have MDOT's approval before utilizing any ROW Revisions for design purposes.

Work Steps - In-House

Design Unit/Consultant Coordination

1) Review completed FROW information with comments received from the Preliminary ROW (PROW) submittal.
2) Ensure completeness of plans for Requirements for Final ROW Plans as stated in the Road Design Manual - English, Chapter 5.
3) Input actual start date into project management software.
4) Verify "B" phase (ROW) is programmed; if not, process the Program Revision Change Request.
5) Complete draft FROW memo, Design Form 0271B (Final ROW Plans and Authorization to Acquire ROW) from the MDOT website, checking the Original Submittal Box.
6) Place completed Final ROW Plans and Design Form 0271B into ProjectWise Folder: 4 – ROW Final Plans.
7) E-mail all individuals and areas listed on Form 0271B indicating that the Final ROW Plans are available for review. Include a link to Folder: 4 – ROW Final Plans.

Design ROW Engineer-Quality Assurance

1) Review plans and memo*.
2) Identify and note corrections/deficiencies.
3) Comments placed in ProjectWise and the Design Unit/Consultant Coordinator notified.

Region Real Estate Agent

1) Review plans and memo*.
2) Identify and note corrections/deficiencies.
3) Plans with ROW comments placed in ProjectWise.
4) Region Real Estate Agent notifies Design Unit/Consultant Coordination of acceptance or rejection.

**Occurs simultaneously.*

Design Unit/Consultant Coordination

1) Incorporates corrections into plans, or if accepted with missing item, or if OK.
2) Completes and signs FROW memo, Design Form 0271B from MDOT website (checking the Original Submittal Box). (Note: memo must be signed by Licensed Engineer).
3) Places Final ROW Plans and Form 0271B into ProjectWise in Folder: 4 – ROW Final Plans.
4) E-mails all individuals and areas identified on Form 0271B indicating the Final ROW Plans are ready to review. Include a link to Folder: 4 – ROW Final Plans.
5) If Final ROW Plans accepted with missing items, submits affected Plan Sheets and Design Form 0271A (Request to Revise ROW) from MDOT website, when all missing items have been incorporated into the plans.
6) Place revised Final ROW Plan Sheets and Design Form 0271A into ProjectWise Folder: Revision under Folder: 4 – ROW Final Plans.
7) E-mail all individuals and areas identified on Design Form 0271A. Include a link to Folder: Revision.
8) If the Final ROW Plans are rejected or substantial revisions are required (more than half of the Plan Sheets are affected) then resubmit entire Final ROW Plan Package and Design Form 0271B (checking the Resubmittal Box) when all items have been incorporated into the Plans.
9) Place Resubmitted Final ROW Plans and Resubmitted Design Form 0271B into ProjectWise in Folder: Revision under Folder: 4 – ROW Final Plans.
10) E-mail all individuals and areas identified on Form 0271B indicating the Resubmitted Final ROW Plans are ready to review. Include a link to Folder: Revision in ProjectWise.

- *See following pages for steps as performed by Consultant –*

Work Steps - Consultant

FINAL RIGHT-OF-WAY PLANS

1) Prepare FROW submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

   a) A cover letter stating that this is the FROW submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the CONSULTANT'S QA/QC plan.
   b) Complete draft FROW memo, Design Form 271B from the MDOT website for MDOT Project Manager use.
   c) CDs and FTPs should no longer be required. Drawings utilizing the Power Geopak V8i software should be available through the ProjectWise document system.

2) Check the submittal package in accordance with the Consultant's QA/QC plan.

3) Submit the FROW package to the MDOT Project Manager.

4) Receive any items returned by the MDOT Project Manager as incomplete or deficient.

   a) Make necessary changes.
   b) Resubmit the entire FROW package including a written response to all comments. Again, utilize ProjectWise as applicable.
   c) Complete draft FROW memo, Design Form 0271B from the MDOT website (checking the Original Submittal box) for MDOT Project Manager use.

5) Again, a CD or FTP should no longer be required. Receive notice of PROW plans in ProjectWise from the MDOT Project Manager. These plans will have the signed MDOT ROW approval block in the lower left hand corner.

6) Consultant updates the lower left corner box in the CADD files with the date of submission of FROW to all the plans in the FROW submission; and the date of any Final ROW Resubmittal or Revisions.

7) Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the FROW package submittal.

RIGHT OF WAY REVISIONS

1) Prepare Final ROW Revision submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

   a) A cover letter stating that this is a ROW Revision submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.
   b) All affected drawings (found in ProjectWise) utilizing the Power Geopak V8i system format.
   c) Highlight revised ROW locations on the affected sheets. Include the Revisions on the plans in ProjectWise.
   d) Complete draft of Design Form 0271A (Request to Revise ROW) from MDOT website for MDOT Project Manager use with written description of each individual ROW revision.

2) Check the submittal package in accordance with the Consultant's QA/QC plan.

3) Submit the ROW Revision package to the MDOT Project Manager.

4) Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5) Make necessary changes. Resubmit the entire ROW Revision package including a written response to all comments.

6) Receive notice of PROW plans in ProjectWise from the MDOT Project Manager. These plans will have the signed MDOT ROW approval block in the lower left hand corner.

7) Consultant updates lower left corner box in the CADD files with the date of submission of ROW Revision to all the plans in the ROW Revision submission.

8) Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the ROW Revision package submittal.

RIGHT OF WAY RESUBMITTALS

1) Prepare Final ROW Resubmittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

   a) A cover letter stating that this is a Final ROW Resubmittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.
   b) All affected drawings (found in ProjectWise) utilizing the Power Geopak V8i system format.
   c) Complete draft of Design Form 0271B (Final ROW Plans and Authorization to Acquire ROW) from MDOT website (checking the Resubmittal Box) for MDOT Project Manager for use with written description of each individual ROW revision.

2) Check the submittal package in accordance with the Consultant's QA/QC plan.

3) Submit the Final ROW Resubmittal package to the MDOT Project Manager.

4) Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5) Make necessary changes. Resubmit the entire Final ROW Resubmittal package including a written response to all comments.

6) Receive notice of PROW plans in ProjectWise from the MDOT Project Manager. These plans will have the signed MDOT ROW approval block in the lower left hand corner.

7) Consultant updates lower left corner box in the CADD files with the date of submission of Final ROW Resubmittal to all the plans in the Final ROW Resubmittal submission.

8) Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the ROW Revision package submittal.

SUPPLEMENTAL INFORMATION for ROW Plans

For more details regarding the preparation of ROW plans refer to the following:

A. Michigan Road Design Manual - English, Chapter 5.
B. Road Sample Plans
C. Sample RID Index
D. Michigan Road Design Manual – English, Chapter 1

The following is additional information relating to CADD layers and ROW information:

The Power Geopak V8i Edition has reserved layers for the exclusive use of ROW issues.

The above-mentioned layers shall not contain unrelated items such as curve data, drainage, utilities, design notes or other text unrelated to ROW preparation. Any changes required by MDOT to ensure the final product is within requirements shall be the responsibility of the Consultant. The final layouts as approved by the MDOT Project Manager shall be made available by the Consultant throough ProjectWise

---

TASK 3580 WORK STEPS – CONTINUED

10. If water mains and/or sanitary sewers are present within the job limits, the CONSULTANT shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Road Design Manual Chapter 9. The CONSULTANT shall submit a report to the Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager.

    a. If relocation of water main and/or sanitary sewer is necessary refer to TASK 3670 - DEVELOP MUNICIPAL UTILITY PLANS. If TASK 3670 is not part of the Scope of Work, contact the MDOT Project Manager immediately.

11. Coordinate with utilities, local governments and other governmental agencies.

12. Establish pay items and develop special provisions as necessary.

13. Prepare a preliminary cost estimate and if necessary, submit a request for a municipal agreement.

14. Check the preliminary plans for conformance to the job as defined in the Base Plan Review meeting minutes.

15. Prepare a list of questions, requests for information and concerns that need to be addressed at The Plan Review Meeting. Examples are: coordination with County Drain Commissioner, additional soils investigation, contaminated parcels, signals, permanent signing, lighting, railroad crossings, bridge improvements, geometric improvements, utility involvement, etc.

16. Prepare the Preliminary Plan submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements.

<u>NOTE: With the move to electronic plans and proposals, it is preferred that the Designer/Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package. This also applies to the Supplemental Information following.</u>

The submittal package shall include the following:

a. A cover letter/email stating readiness for The Plan Review Meeting. The cover letter/email shall state that the submittal was prepared

and checked by the procedures described in the Consultant's QA/QC plan.

b. Electronic set of plans (11X17 PDF) including all areas of work; e.g., preliminary bridge plans, traffic signal plans, etc. Supplemental information following this task includes a link to the Road Sample Plans for detailed requirements for the items that may be required on the preliminary plans. Please also see Standard Naming Conventions.
c. Draft job specific special provisions for items not covered by MDOT Standard Specifications.
d. Draft Special Provisions for Maintaining Traffic and preliminary staging plans.
e. Preliminary job quantity and cost estimate by pay item. Any agency participation anticipated for this job shall be stated, and the estimated quantities and costs shall be tabulated by agency.
f. Documented responses to Base Plan Meeting review comments.
g. List of outstanding questions and/or considerations.
h. Guardrail worksheets
i. Index to Frequently Used Special Provisions, Notice to Bidder, and Supplemental Specifications.
j. Draft copy of any Design Exceptions.
k. The RID Review Checklist.xlsm should be filled out by the Design Team.
l. Files required at Preliminary Plans for RID per the Project Data Requirements Table and Milestone Submittals. Files named in accordance with the Standard Naming Conventions.

17. Check submittal package in accordance with QA/QC requirements.

18. Submit the preliminary plans and materials to the MDOT Project Manager.

19. Receive any items returned by the MDOT Project Manager as incomplete or deficient. Make necessary changes and resubmit the revised materials. Keep copies of MDOT's comments, the marked up files (if they were included), and the revised materials for the job record.

20. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION

The items identified in Road Sample Plans should be included on plans submitted for Preliminary Plans. This list is not intended to be all inclusive. Some sheets may be supplied by MDOT.

ADDITIONAL ITEMS TO BE INCLUDED
Index to Standard Special Provisions
Index of Notice to Bidders
Index to Standard Supplemental Specifications
Drafts of Unique Special Provisions
Detailed Cost Estimate
Preliminary Maintaining Traffic Special Provision
Guardrail Worksheet

3590 Review THE Plans (Hold THE Plan Review Meeting)

Reporting Management Unit:	Design - Quality Assurance
Task Start:	Receipt of Request for THE Plan Review Meeting
Task Finish:	Project Manager receipt of Preliminary Plan Review comments
Date Last Modified:	July 2020

TASK DESCRIPTION:

THE Plan Review Meeting is important to assure that the plan development is proceeding according to the scope as defined and agreed to at the scope verification meeting. The Quality Assurance Unit reviews the material submitted to ensure all the required information is included as listed in Chapter 14 (Procedures) of the Road Design Manual for a listing of required items. Quality Assurance schedules the meeting, distributes all the material and notifies all the participants of the meeting.

The Consultant attends the Plan Review Meeting to discuss and resolve review comments.

The purpose of the Plan Review Meeting is not to design the job in the field, but to review the thoughts of the designer. A good final design product depends on a good Plan Review Meeting and the Plan Review is only as good as the information provided.

The Participants will review the material and upload their comments to the Comments documents in ProjectWise, for the review at least two weeks prior to the meeting, by the Project Manager.

The Federal Highway Administration should be notified of THE Plan Review Meeting for all jobs classified as “non-exempt”.

The following areas are notified that the Plans and other material are ready for review:

NOTE: It is preferred that the Designer/Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package.

Engineer of Construction and Technology
Region/TSC Field Engineer
Region/TSC Operations Engineer
Region/TSC Project Development Engineer/Cost & Scheduling Engineer
Region/TSC Construction Engineer
Region/TSC Soils Engineer
Region/TSC Traffic and Safety Engineer
Region/TSC Maintenance Engineer
Region/TSC Utilities/Permits Engineer
Region/TSC Real Estate Agent (if applicable)
Construction Engineer
FHWA (non-exempt)
Railroad Coordination (if applicable)
Geometrics-Lansing Traffic and Safety
Lansing Utilities/Permits

Lansing Project Development Engineer (if Project Manager)
Lansing Environmental Section
ITS Operations/Signals (as applicable)
Congestion and Reliability

City or Village (if applicable)
County (if applicable)
County Drain Commissioner (if applicable)
County Road Commission

WORK STEPS:

1. Receive request to schedule THE Plan Review Meeting, a set of plans and drafts of maintaining traffic and all applicable unique special provisions.

2. Input actual start date into project management software.

3. *Consultant:* Receive notice from the MDOT Design Division's Quality Assurance Unit stating the location, date and time of the Plan Review meeting.

4. Review plans to determine if all the necessary information and detail are included.

5. Identify participants to be included in THE Plan Review.

6. Schedule the meeting and field review for participants.

7. Distribute plans and special provisions.

8. Participants review plans and special provisions. Participants will use a real-time collaborative milestone review process (such as Bluebeam – see the MDOT Wiki for more details) or Adobe commenting tools to make comments prior to the review meeting.

9. Participants send commented plans to the PM for review at least two weeks prior to the meeting.

10. Project Manager acknowledges receipt of commented plans.

11. Input actual finish date into project management software.

3.4 Utilities/Railroad (3600 Series)

3600 Project Manager Plan Review

Reporting Management Unit:	Project Manager
Task Start:	Receipt of Preliminary Plan Review comments
Task Finish:	Distribution of THE Plan Review Meeting Comments
Date Last Modified:	August 2015

TASK DESCRIPTION:

The Project Manager receives all Preliminary Plan Review Comments, and combines them for review. These comments are documented by the Project Manager, and are approved and distributed to all reviewers at least one week prior to THE Preliminary Plan Review meeting.

The Consultant attends the Preliminary Plan Review Meeting to discuss and resolve review comments.

THE Preliminary Plan review meeting addresses the combined document, which will include information about variances from the original job scope. The comments, changes, and additional notes from THE Preliminary Plan Review Meeting will become part of the Final Plans.

At the meeting the various disciplines discuss the combined comments. Unresolved issues are noted and resolved as soon as possible after the meeting by Quality Assurance and/or the Project Manager. Those involved in each issue are notified of the outcome. If enough unresolved issues are encountered during the meeting another meeting may have to be scheduled after the issues are settled. Quality Assurance documents additional review comments and distributes them to the participants.

The purpose of THE Preliminary Plan Review Meeting is not to design the job in the field, but to review the thoughts of the designer. A good final design product starts with a good Preliminary Plan Review Meeting, and that review and meeting is only as good as the information provided.

WORK STEPS:

1. Project Manager receives commented plans.

2. Input actual start date into project management software.

3. The PM reviews the combined comments prior to the meeting

4. The PM should notify all meeting participants of the combined file in ProjectWise, or send a set of plans for their review, at least one week prior to the meeting.

5. *Consultant:* Attend the meeting and the site visit. The meeting and site visit may require more than one day. Hold the number of Consultant participants to essential (two or three) personnel. Although the MDOT Quality Assurance Representative will take the meeting minutes, it may prove helpful to the Consultant to take their own notes to have an independent record.

6. In-House - Coordinate and conduct meeting and field review, and identify conflicts requiring immediate resolution.

7. Quality Assurance and Project Manager resolve conflicts and Quality Assurance documents the review recommendations.

8. Input actual finish date into project management software.

9. Quality Assurance distributes review recommendations.

352M THE Plan Review Milestone

Reporting Unit: Design - Quality Assurance

A team is selected to participate in THE Preliminary Plan Review meeting and field inspection as part of Task 3590. The meeting is held after Task 3600. The comments and recommendations that result from these are coordinated, documented and distributed by Quality Assurance.

3610 Compile Utility Information

Reporting Management Unit:	Project Manager
Task Start:	Completion of Base Plans
Task Finish:	Inclusion of Utility Information on Preliminary Plans
Date Last Modified:	August 2013

TASK DESCRIPTION:

The objective of this task is to gather utility information to determine the location of all utilities that may be impacted by the project. This task shall include any type of private, public, municipal or county drain commission facility that is within or near the limits of the project. Utilities may include but are not limited to:

- electrical
- water
- CATV
- sanitary sewer
- gas
- communication

Additional information may be found on MDOT's intranet at this link under Development Services (Real Estate) (Utility Coordination and Permits module – see especially the Utility Coordination Manual) or at this link on michigan.gov.

WORK STEPS:

Project Manager

1. Contact the TSC Utility Coordinator to request Letter Requesting Utility Information at Base Plan Stage, (Form 2480). Provide the following information:

   a. Project location
   b. Scope of work
   c. Control section(s)
   d. Job number(s)
   e. Proposed plan completion date
   f. Consultant information, if applicable

   Note: When project information exceeds the allowed space on Form 2480 an additional document shall be supplied by the PM detailing this information. The applicable field(s) on Form 2480 shall state "see attached sheet" when this occurs.

2. Input actual start date into project management software.

TSC Utility Coordinator

3. Receive request for Form 2480 letters from the PM.

4. Generate Form 2480 letters, for all applicable utilities within the project limits, using the Utility Relocation Tracking System (URTS).

   Note: Form 2480 shall include a "Please respond by" date. It is recommended that the "Please respond by" date be no earlier than 30 days after the date of the letter.

5. Generate the standard Cover Letter using URTS. The Cover Letter contains all applicable utility names, contacts, addresses and the number of plan sets requested.

6. Provide the Cover Letter and all Form 2480 letters to the PM within 7 working days of receiving the request for Form 2480 letters.

Project Manager

7. Receive the Cover Letter and all Form 2480 letters from the TSC Utility Coordinator.

8. Review and sign Form 2480 letters.

9. Send Form 2480 letters and plans to the utilities with courtesy copies to TSC Utility Coordinator:

   Note: Old plans, Right-of-Way maps, or MDOT Construction Base Plans are acceptable for sending to the utilities. The plans must provide the project's location and limits of work. Vicinity maps may be included for general information, but shall not be used as the sole project plans as they provide inadequate information for the utilities to plot their facilities. This includes log jobs that may affect a utility.

TSC Utility Coordinator

10. Receive a courtesy copy of all signed Form 2480 letters and plans from the PM.

11. Receive Request for Utility Information – Return Form (Form 2480) and plans from utilities.

12. Evaluate returned Form 2480 and plans from the utilities.

    Note: If it is determined that the information received from a utility is not useful,

the TSC Utility Coordinator shall contact the utility for additional information.

13. Forward returned Form 2480 and plans to the PM.

14. Follow up with non-responsive utilities.

    Note: One method to follow up with non-responsive utilities is to send a second request for utility information letter. See the Request for Utility Information Follow Up Example.

15. Contact the PM with the status of utility responses within two weeks of the "Please Respond By" date on Form 2480.

Project Manager

16. Receive utility responses (returned Form 2480 and plans) from the TSC Utility Coordinator.

17. Enter date all utility responses are received as the finish date into project management software.

18. Plot all utility facilities on the preliminary plans.

311M Utility Notification Milestone

Reporting Unit: Project Manager

This milestone occurs as part of Task 3610, and coincides with the start of that task. Upon completion of Base Plans/Structure Study, the Project Manager solicits utility information using Form 2480 titled "Letter Requesting Utility Information at Base Plan Stage".

3630 Prepare and Process Special Participation/Special Operational Agreements

Reporting Management Unit:	Development Services – Utility Coordination, Agreements & Permits
Task Start:	Receipt of request for first agreement/contract
Task Finish:	Execution and distribution of final agreement/contract
Date Last Modified:	September 1999

TASK DESCRIPTION:

This task involves the negotiating and drafting of agreements with local governmental agencies, private parties, or other state and Federal agencies. The agreements cover participation, construction, or long-term rights and obligations with respect to trunk line work, or tasks along a trunk line, right of way or outside of the right of way facilitating a trunk line function. Act-51 participation, parking restrictions, utility construction, bikeway maintenance, added construction, etc. are examples of items covered.

Requests for agreements may come from a variety of sources such as regions, other bureaus, and other state Departments. Governmental Coordination will determine if an agreement is required and the type of agreement. They will determine the requirements within the agreement in accordance with Federal and state law and Departmental policy and practices.

The processing of agreements consists of obtaining Department and state approval, and agreement with the participating party. Governmental Coordination prepares the draft contract or reviews the supplied draft, and then processes the contract through reviews as required for the type of contract. Reviews may include Commission Audit, Finance, Attorney General, etc. Governmental Coordination transmits the approved contract to the local agency and places the job on the appropriate approval agenda for the Commission, Administration Board, and/or Director. The contract is then executed. The executed contract is transmitted to the local agency and distributed within the Department.

WORK STEPS:

1. Receive requests for agreements and determine need for and type of agreement.
2. Input actual start date into project management software.
3. Establish and maintain an information file on agreements (paper and computer).
4. Review plans for situations requiring agreements.
5. Sign off on certification acceptance.
6. Request and collect information for agreements.
7. Negotiate terms of agreement.
8. Draft agreement.
9. Review and make necessary changes to draft contract.
10. Process contract through internal reviews and approvals.
11. Transmit contract to local agency for execution.
12. Monitor status of agreement and revise agreement, if necessary.
13. Obtain Director's or appropriate Department Manager's signature.
14. Input actual finish date into project management software.
15. Distribute executed contract.

3650 Coordinate Railroad Involvement for Grade Separations

Reporting Management Unit:	Office of Rail – Infrastructure Unit
Task Start:	Receipt of request for railroad coordination and Preliminary Plans
Task Finish:	Certification acceptance sign off
Date Last Modified:	November 2020

TASK DESCRIPTION:

This task involves the process of reviewing the job for railroad(s) involvement, making the initial contact with the railroad(s), and authorizing the railroad(s) to proceed with preliminary engineering where required. This is followed up by negotiating with the railroad(s) on the requirements to facilitate the job, processing of permits and licenses, and drafting of agreements as required.

All special provisions and coordination clauses required for the job are developed, and then sent for review and approval by the railroad company.

Any required agreements are transmitted to Finance for processing upon execution of the agreement; formal authorization is issued to the railroad for needed force account work.

WORK STEPS:

1. Notification of scoping meetings for upcoming jobs.
2. Receipt of preliminary plans from designer.
3. Input actual start date into project management software. *(MDOT completes this work step)*
4. Contact involved railroad(s) and request Preliminary Engineering Estimate for plan review.
5. Review and mark-up of preliminary plans and return to designer.
6. Program railroad force account Job Number in JobNet. *(MDOT completes this work step)*
7. Receive “revised” preliminary plans back from designer.

8. Send revised preliminary plans to, and request Construction/CE estimates from railroad(s).

9. Begin agreement preparation, if required, and special provisions.

10. Review proposed job with railroad(s)

11. Receive estimates from railroad(s).

12. Review estimates and renegotiate with railroad(s) if needed.

13. Obtain final MDOT approved estimates.

14. Program railroad force account Job Number in JobNet. *(MDOT completes this work step)*

15. Negotiate required agreements with railroad(s).

16. Negotiate terms and conditions of railroad(s) involvement.

17. Office of Rail receives Final Plans form designer and forwards to railroad(s) for review and approval.

18. Draft agreements

19. Receive final approval of final plans from railroad(s).

20. Process railroad agreements. *(MDOT completes this work step)*

21. Request obligation of funds thru Phase Initiator (PI) and receive FHWA approval for railroad force account Job Number. *(MDOT completes this work step)*

22. Monitor status of agreements. *(MDOT completes this work step)*

23. Receive executed agreements. *(MDOT completes this work step)*

24. Authorize CE and associated Construction railroad force account work. *(MDOT only)*

25. Enter work items for railroad force account Job Number into AASHTOWare Project Preconstruction. *(MDOT only)*

26. Input actual finish date into project management software. *(MDOT only)*

27. Sign off on certification acceptance when all requirements are fulfilled. *(MDOT completes this work step)*

3655 Coordinate Railroad Involvement for At-Grade Crossings

Reporting Management Unit:	Office of Rail – Infrastructure Unit
Task Start:	Receipt of request for railroad coordination
Task Finish:	Certification acceptance sign off
Date Last Modified:	November 2020

TASK DESCRIPTION:

This task involves the process of reviewing the job for railroad(s) involvement, making the initial contact with the railroad(s), and authorizing the railroad(s) to proceed with preliminary engineering where required. This is followed up by negotiating with the railroad(s) on the requirements to facilitate the job, processing of permits and licenses, and drafting of agreements as required.

All special provisions and coordination clauses required for the job are developed, and are reviewed for subsequent approval by the railroad company.

Any required railroad agreements are written and processed for execution, and formal authorization is then issued to the railroad for needed force account work.

WORK STEPS:

1. Notification of scoping meetings for upcoming jobs. Review locations for coordination of railroad work.

2. Review preliminary plans for type of railroad involvement.

3. Input actual start date into project management software.

4. Complete Notification of Proposed Project Involving a Public Railroad Crossing (Form Number 1425) and submit to Rail Safety - link is provided below. Rail safety will notify Project Manager if a Diagnostic Study Team Review (DSTR) is required and will schedule and invite required attendees. If additional attendees are needed such as utilities or local jurisdictions let Rail Safety know to include.

5. Request work estimate from railroad.

6. Coordinate utility relocations if required for railroad updgrades.

7. Coordinate safety upgrades between railroad, MDOT, and local jurisdictions.

8. Receive estimate and plans from railroad, revise as necessary with the railroad.

9. Program railroad force account Job Number in JobNet. *(MDOT completes this work step)*

10. Review and have updated required agreements between railroad(s) and their sub-contractor for requirements.

11. Develop railroad related bid documents for roadway job.

12. Send roadway plans and bid documents to railroad for review and comment.

13. Provide review and comment at FPC meeting concerning railroad work and coordination items.

14. Enter work items for railroad force account Job Number into AASHTOWare Project Preconstruction. *(MDOT only)*

15. Obligate funds in Phase Initiator (PI) for railroad force account work and issue railroad force account authorization. *(MDOT only)*

16. Authorize railroad force account work. *(MDOT only)*

17. Input actual finish date into project management software. *(MDOT only)*

18. Sign off on certification acceptance when all requirements are fulfilled. *(MDOT only)*

19. Coordinate with OOR Economic Development, Budget, and Contracts for payment to railroads. *(MDOT only)*

3660 Resolve Utility Issues

Reporting Management Unit:	Project Manager
Task Start:	Sending Preliminary Plans to TSC Utility Coordinator
Task Finish:	Sign off on Certification Acceptance
Date Last Modified:	April 2019

TASK DESCRIPTION:

The objective of this task is to coordinate with utilities to ensure utility facilities are plotted correctly and conflicts are identified and resolved. This task shall include any type of private, public, municipal or county drain commission facility that is within or near the limits of the project. Utilities may include but are not limited to:

- electrical
- water
- CATV
- sanitary sewer
- gas
- communication

Section 14.26 of the Road Design Manual contains additional information regarding this task. Additional information may also be found on MDOT's intranet at this link under Development Services (Real Estate) (Utility Coordination and Permits module – see especially the Utility Coordination Manual) or at this link on michigan.gov.

WORK STEPS:

Project Manager

1. Send preliminary plans and a list of potential utility conflicts to the TSC Utility Coordinator.

   Note: The TSC Utility Coordinator will distribute the preliminary plans and schedule a utility meeting if necessary.

2. Enter date preliminary plans are sent to the TSC Utility Coordinator as the start date in project management software.

TSC Utility Coordinator

3. Ensure all utility facilities have been plotted on the preliminary plans in accordance with the Utility Coordination Manual, Procedure 1802.01.

4. Determine if the project has potential utility conflicts. This may include discussion with the Project Manager.

5. Send preliminary plans to the utilities with one of the following:
   a. Utility Coordination Meeting Invitation letter citing PA 368, authorizing preliminary engineering, and providing relocation reimbursement information. See Utility Coordination Meeting Invitation with PA 368 Info (Exhibit 1802.05a) in the Utility Coordination Manual.
   b. Forms 2481 and/or 2482

   Note: If a Utility Coordination Meeting is deemed necessary at a later date the Utility Coordination Meeting Invitation letter will <u>not</u> require citing PA 368, authorizing preliminary engineering, and providing relocation reimbursement information. See Utility Coordination Meeting Invitation (Exhibit 1802.05b) in the Utility Coordination Manual.

6. Conduct the Utility Coordination Meeting, if necessary. See procedure 1802.05 in the Utility Coordination Manual.

   Note: It is desirable to schedule the Utility Coordination Meeting after the Plan Review Meeting and before the Final Project Coordination (FPC) Meeting.

<u>Project Manager</u>

7. Attend the utility meeting, if scheduled.

8. Include any changes or utility work in the preliminary plans.

9. Attend the Plan Review meeting.

10. Receive the Utilities Status Report and, if applicable, the Notice to Bidders – Utility Coordination from the TSC Utility Coordinator.

11. Enter the date on the Utility Status Report as the finish date in project management software.

12. Sign off on the Certification Acceptance form.

360M Utility Conflict Resolution Plan Distribution

Reporting Unit: Project Manager

This milestone occurs as part of Task 3660, and coincides with the start of that task. The Project Manager should submit a copy of the marked up Base or Preliminary plans to the TSC Utility Coordinator for use in Task 3660.

361M Utility Meeting Milestone

Reporting Unit: Project Manager

This milestone occurs as part of Task 3660. A meeting is held with affected utility companies and Department personnel to identify and resolve utility issues arising from the project. This meeting is typically held sometime after the Plan Review Meeting but before the Final Project Coordination (FPC) Meeting.

3670 Develop Municipal Utility Plans

Reporting Management Unit:	Design - Municipal Utilities
Task Start:	Receipt of base plans
Task Finish:	Municipal utility approval and receipt of EGLE permit(s)
Date Last Modified:	April 2019

TASK DESCRIPTION:

This procedure outlines the steps for the development and coordination of municipal utility plans, specifications and estimates. This procedure covers the work for water main and sanitary sewer design.

NOTE: Any request for utility betterments by local agencies must have MDOT concurrence before being incorporated into the plans.

The municipal utility plans provide a proposed alignment for the municipal utilities impacted by the job. The types of municipal utilities include water mains and sanitary sewers. The preliminary municipal utility plans may be prepared by the Department's Design Municipal Utilities Unit, consultant, municipality or a combination of these design groups depending on Department or local agency policies or other factors.

The preliminary municipal utility plans typically show:

- current alignments and sizes for existing municipal utilities, and
- proposed alignments and sizes of municipal utilities to be installed or replaced.

The work is initiated with the receipt of the base plans. The Design - Municipal Utilities Unit oversee the design that prepares the plans. The design group collects information from a variety of sources including: the base plans, survey notes, contacts with region and local agencies, and any requests from local agencies. The design group prepares preliminary plans based on the information gathered. The preliminary municipal utility plans are then submitted for incorporation into the preliminary job plans for THE Plan Review.

The final municipal utility plans provide the final alignment and profiles for the municipal utilities to be installed or relocated as part of the job.

The design group preparing the final municipal utility plans receives and reviews the preliminary plan, review comments, utility meeting minutes and comments from the local agency. The group incorporates any agreed-upon changes into the plans. The design group develops the final plans, specifications, special details and a cost estimate. The information required for the agreement is sent to Governmental Coordination and Railroads.

The completed plans and associated documentation are sealed by a Michigan Licensed Professional Engineer, if appropriate, and distributed to the municipal utility owner for review and permit application.

Municipal utility permits are required by state law from the MDEGLE (Michigan Department of Environment, Great Lakes, and Energy) for any work on water and sanitary sewer systems. The municipal utility owner or his agent is responsible for acquiring the required permit from the EGLE with possible assistance from the design group.

The final plans and specifications are also distributed to the Project Manager to be incorporated into the final plans. The final plans and specifications are then reviewed by the Department later as part of the Final Project Coordination Meeting.

If required by the either the MDEGLE or the municipality, changes are made to the municipal utility plans. Coordination with the municipal utility owners, other Department management units and/or state agencies is carried out by the Design - Municipal Utilities Unit and the design group so that all groups are made aware of the changes. The revised plans along with the necessary certification acceptance documents are submitted to the **Project Manager**. This task is complete upon receipt of notification from the municipality of its approval and a copy of the approved permit.

WORK STEPS:

1. This task begins in conjunction with Task 3580 - Develop Preliminary Plans. The MDOT Design - Municipal Utility Unit will oversee any consultant that prepares the plans.

2. Information is collected from a variety of sources including: the base plans, survey notes, contacts with the local agencies and any requests from local agencies.

3. Input actual start date into project management software.

4. Contact municipal utility.

5. Conduct municipal utility relocation study.

6. Prepare the preliminary plans based on the information gathered. The preliminary municipal utility plans typically show:

    a. Current alignments and sizes for existing municipal utilities
    b. Proposed alignments and sizes of municipal utilities to be installed or replaced.

7. Participate in the utility meeting (Task 3660).

8. The preliminary municipal utility plans are incorporated into the preliminary job plans for THE Plan Review.

9. Receive preliminary plan and review comments.

10. Incorporate all municipal utility comments and develop the final municipal utility plans, profiles, special provisions and estimates. Resolve any outstanding issues and/or conflicting comments with the MDOT Project Manager.

    a. *Consultant:* Upon resolution of a conflict, the Consultant must document, in a letter to the MDOT Project Manager, the solution to the conflict and the engineering judgment used by the Consultant in reaching this decision.

11. Submit information for agreements to Governmental Coordination and Railroads.

12. *Consultant:* Submit the final municipal utility plans, profiles, special provisions and estimates for review and acceptance to the municipality and the Design Engineer – Municipal Utilities prior to preparing the Final Project Coordination (FPC) submittal package. A copy of the transmittal letter shall be sent to the MDOT Project Manager.

13. In-House - Distribute copy of plans to Project Manager.

14. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

15. Make necessary changes and resubmit the entire package including a written response to all comments.

    a. *Consultant:* Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

16. Check final municipal utility items in accordance with QA/QC plan.

17. Submit full sized plans and specifications to the municipality with a request that they obtain the appropriate MDEGLE (Michigan Department of Environment,

Great Lakes, and Energy) approvals and/or permit(s). The prints must be signed and sealed by a Professional Engineer. Contact the Design Engineer - Municipal Utilities for the number of prints required.

18. *Consultant:* Incorporate the final municipal utility plans, profiles, special provisions and estimates into the Final Project Coordination (FPC) submittal package.

19. *Consultant:* The Consultant shall incorporate all municipal utility comments from the FPC meeting into the final municipal utility plans, profiles, special provisions and estimates.

20. *Consultant:* Attend any meetings with the municipal utility owners as requested by the Design Engineer - Municipal Utilities.

21. Receive permit and municipality approval and distribute to Project Manager.

22. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION

For more details regarding the preparation final municipal utility plans, special provisions and estimates, refer to the following:

Items to be purchased:

1. AWWA Standards
2. Michigan Design Manual, Road Design (SI), Volume 3, Chapter 9
3. Ten States Standards for Water Works and Wastewater Facilities

3672 Develop Special Drainage Structure Plans

Reporting Management Unit:	Design - Municipal Utilities
Task Start:	Receipt of preliminary plans
Task Finish:	Final Plans turned into Specifications and Estimates Unit
Date Last Modified:	April 2019

TASK DESCRIPTION:

The Design of Special Drainage Structures including storm water pumping stations.

The design of special drainage structures involves the preparation of preliminary plans, final plans, specifications, special provisions and supplemental specifications for various highway drainage structure jobs including, but not limited to, storm water pumping stations, tunnel storm sewers, junction chambers, energy dissipation structures, box/slab culverts connection details and special collar details for various types of structures originating from the bridge and road design sections and special headwall details for various types and shapes of concrete culverts. The special drainage structure plans may be prepared by the Department's Municipal Utilities Design Unit, consultant, or a combination of these design groups depending on the availability of Department personnel or other factors.

The special drainage structure plans typically show:

- Plans, profiles, and details of existing special drainage structures to be modified
- Plans, profiles, and details of proposed special drainage structures.

The work is initiated with the receipt of the preliminary plans. The design group collects information from a variety of sources including: the existing plans, base plans, survey notes, contacts with maintenance, C&T, and regions. The design group prepares plans based on the information gathered. The special drainage structure plans are then submitted for incorporation into the job plans for the Plan Review.

The design group preparing the special drainage structure plans receives and reviews the plan review comments. The group incorporates any agreed-upon changes into the plans. The design group develops the final plans, specifications, special details and a cost estimate.

The plans and specifications are distributed to the Project Manager to be incorporated into the final plans. The final plans and specifications are then reviewed by the Department later as part of the Final Project Coordination (FPC) meeting package.

WORK STEPS:

1. Collect information. Initiate Soil Borings (Task 3530).

2. Input actual start date into project management software.

3. Along with the Project Manager, coordinates and conducts liaison activities with government agencies, private individuals and bureaus, divisions and sections within MDOT to obtain input for design preparation of special drainage structure plans and specifications.

   Note: Design flows to be handled by the drainage structure (i.e. culvert, storm sewer, energy dissipater etc.) must be reviewed and approved by the Design Engineer - Hydraulics/Hydrology (Tasks #3520 & #3522).

4. Prepare special drainage structure plans, profiles and details.

5. Participate in the utility meeting (Task 3660).

6. Submit special drainage structure plans to be incorporated into the road plans for the Plan Review (Task 3590).

7. Receive plan review comments.

8. Complete special drainage structure plans, profiles, specifications, special details and cost estimate.

9. Distribute copy of plans to Project Manager (Task 3840).

10. Input actual finish date into project management software.

11. Participate in Final Project Coordination Meeting (Task 388M)

3675 Develop Electrical Plans

Reporting Management Unit:	Design - Electrical
Task Start:	Receipt of base plans
Task Finish:	Distribution of the final electrical plans
Date Last Modified:	April 2004

TASK DESCRIPTION:

The electrical plans provide a proposed layout for new or existing electrical facilities impacted by the job. The types of electrical facilities may include freeway lighting, municipal street lighting, rest area electrical, weigh station electrical, bascule bridges, pump houses and/or any other electrical systems required for highway construction jobs. The plans may be prepared by Department's Design - Electrical unit, consultant, municipality or a combination of these design groups depending on Department or local agency policies or other factors.

The preliminary electrical plans typically show:

- existing electrical layout
- proposed electrical layout, and
- other utilities.

The work is initiated with the receipt of the base plans. The Design - Electrical Unit oversees the design group that prepares the plans. The design group collects information from a variety of sources including: the base plans, survey notes, contacts with region personnel, local agencies, private and municipal utilities. The design group prepares preliminary plans based on the information gathered. The preliminary electrical plans are then submitted to the Project Manager for incorporation into the plans for THE Plan Review.

The final electrical plans provide the final layout for the electrical facilities to be installed or relocated as a part of the job. The design group preparing the final electrical plans receives and reviews the preliminary plan review comments, utility meeting minutes and comments from the local agency. The design group incorporates any agreed upon changes into the plans. The final plans, specifications, special details and cost estimates are then developed. Information required for any agreement is sent to Governmental Coordination and Railroads.

The completed plans and associated documentation are sealed by a Michigan Licensed Professional Engineer, if appropriate, and distributed to the municipal utility owner for review. The plans and specifications are also distributed to the Project Manager to be incorporated into the final plans. The final plans and specifications are then reviewed by the Department as part of the Final Project Coordination (FPC) meeting.

NOTE: Durations and labor hours for this task must be adjusted in accordance with the current standards listed by the Electrical Unit. Generated durations and labor hours are based on a lighting job.

WORK STEPS: (Consultant)

Any jobs which require freeway lighting should be completed by MDOT's Design Electrical Unit unless their work load will not allow it.

The following scope of work applies to the relocation or installation of new lighting on free access trunkline. The scope is generic and should be reviewed for each particular job to assure it is scoped properly.

The consultant shall be responsible for the following:

1. Contacting the owning agency of the existing lighting system and setting up a meeting involving the consultant, department, the owning agency, the utility company and other parties necessary to up grade the lighting system.
2. Securing any agreements necessary between the department and the agency who will own, operate and maintain the lighting system.
3. Conducting field survey if needed.
4. Contacting the utility company or companies for either a new electrical power feed point and/or relocation of the existing.
5. Contact the owner of the proposed lighting system in conjunction with the department to determine the desired levels of illumination on the proposed roadway.
6. Providing a complete set of preliminary and final plans, including specifications, standard plans and cost estimates. Preliminary and final plans, shall include, but are not limited to the following:

    a. Providing a lighting layout and the necessary calculations to assure that the desired illumination levels are provided.
    b. Plans should include temporary lighting where required.
    c. Where required, the consultant shall obtain any soil boring which may be required for the installation of light standard foundations.
    d. Provide on the plans, all conduit runs, identify conductors in conduit, locate hand holes, light standards, power feeds and control cabinet locations.
    e. Provide a wiring diagram for the proposed lighting system and voltage drop calculations.
    f. Prepare documents and specifications required for maintaining traffic.
    g. Design all electrical components needed for the job, including photo control, lighting control cabinets and all other electrical equipment required to make a complete and operating lighting system.
    h. Provide a complete set of specifications and cost estimate.

7. Coordinating periodic meetings between the owner of the lighting system, the department and the consultant to assure that the design is satisfactory to the owner of the future lighting system.
8. The review and approval of shop drawings.

WORK STEPS: (Both In-House and Consultant)

1. Collect information.

2. Input actual start date into project management software.

3. Contact municipal utility, region, local agencies, and involved Department personnel for their input.

4. Scope of electrical work is required as there are several different types of design possible as described in **TASK DESCRIPTION.** (See **NOTE**)

5. Prepare preliminary electrical plans, specifications and cost estimate.

6. Participate in the utility meeting.

7. Submit preliminary electrical plans for THE Plan Review.

8. Receive comments from THE Plan Review and make the necessary corrections to the plans and specifications.

9. Prepare final electrical plans, profiles, specifications, special details and cost estimate.

10. Submit information for agreements to Governmental Coordination and Railroads.

11. Distribute final plans and related documents to municipal utility owner for review and permit application. If consultant design, the plans and specifications must be signed and sealed by a Michigan Professional Engineer

12. Input actual finish date into project management software.

13. Distribute copy of plans to Project Manager.

3.5 Mitigation/Permits (3700 Series)

3710 Develop Required Mitigation

Reporting Management Unit:	Planning - Compliance and Mitigation
Task Start:	When 1775 form is created
Task Finish:	Submission of mitigation requirements for inclusion in final plans
Date Last Modified:	January 2004

TASK DESCRIPTION:

Mitigation requirements are formulated based on the environment. These requirements will be incorporated into the job plans and specifications. The purpose of these requirements is to minimize the social, economic and environmental impacts and/or replace the environmental resources taken by the job. These mitigation requirements can address such areas as:

- flood plains,
- storm water run off,
- endangered species,
- wetlands,
- historical/archeological sites,
- noise
- migratory birds
- Section 4(f), 6(f) lands
- Act 116 land (farmland),
- coastal zone,
- streams and lakes,
- and navigable waterways
- erosion control
- air quality
- tree removals

For consultants, this procedure begins with the submission of the base plans and ends with the submission of permit applications to the M•DOT Project Manager.

WORK STEPS:

1. Review relevant materials, including studies and reports developed during EPE, and any information received with the scope of design services. Address any questions to the M•DOT Project Manager.

2. Input actual start date into project management software.

3. Conduct a field review verifying job scope.

4. Attend scoping and GI meetings to discuss mitigation measures.

5. Send memos to Project Managers and Region Resource Specialists at the time of GI meetings, when study forms are put in the "Wait" file and when the job is cleared, informing them of current mitigation measures.

6. Review plans.

7. Review 1775 form for specialist's comments on mitigation requirements.

8. Look for mitigation areas to minimize or avoid impacts in association with appropriate units (Design, Environmental, etc.)

9. Contact resource agencies as necessary to coordinate mitigation measures.

10. Review final plans.

11. Input actual finish date into project management software.

12. Prepare appropriate documentation.

3720 Assemble Environmental Permit Application Information

Reporting Management Unit:	Project Manager
Task Start:	Identification of need for permit
Task Finish:	More than 120 days before the approved Final Project Coordination (FPC) Meeting date
Date Last Modified:	April 2019

TASK DESCRIPTION:

Nearly all of this work is performed by the Region Environmental Permit Coordinators. This task should begin early in the project development process, usually after the need for a permit is identified in the environmental classification process. The process is to be completed; i.e., the permit application is to be assembled and submitted, at least 120 days before the Final Project Coordination (FPC) Meeting is to be held in order to allow the issuing regulatory agencies time to process and issue the permit(s).

Permits are generally required when a job requires work in:

- wetlands
- coastal zones
- navigable waterways
- streams, lakes, and county drains, and intermittent stream channels (Tasks 3520 & 3522)
- floodplains (Task 3520)
- endangered species habitat

The permit authorizes the permittee to perform work on a given job within the specific conditions of the permit. Conditions may include monitoring programs, special construction methods, and/or mitigation measures for environmental damage caused by the job.

> NOTE: Additional information regarding Environmental Permits may be found in the MDOT Road Design Manual (Chapter 10) and the MDOT Drainage Manual (Chapter 2). More specific information for consultants may also be found in Attachment A to this task.

Information necessary for completion of the permit application:

A. **All jobs** to include:

1. Job location map indicating approximate locations of each proposed regulated activity. This must have road names readable at a 8 ½ x 11 size. (Example: a USGS quad enlarged with culvert extensions at county drains circled.)
2. County, township, range and section numbers of regulated activities.
3. Estimated job letting date, construction start date, and completion date.
4. Three sets of ½ size plans (11" x 17") and a readable set of 8 ½" x 11"plan sheets, including cross sections of regulated activities.
5. Provide information on soil erosion and sedimentation controls planned in conjunction with the regulated activities (obtain from Region Soils Engineer/Lansing C&T staff).
6. List of names and addresses of riparian owners on the four quadrants of the watercourse if work will be public noticed by MDEGLE. (examples of work requiring public notice are culvert extensions that total more than 24 feet or a replacement of a culvert with a 25 square foot waterway area).
7. Include information on any temporary structures (such as haul roads or access pads) or measures to be used in the regulated area during construction.

B. For **new culverts, culvert repair, or culvert extensions** at regulated streams and drains, plans should show the following:

1. Plan view of the culvert and road.
2. Cross-section and profile view of the culvert (or pipe crossings if streams or county drains are involved) and road. For jobs that have similar treatment for all culvert work, a typical cross-section that applies can be used. Jobs that fall into the Army Corp of Engineers jurisdiction, however, require a cross-section for each regulated culvert including elevations. (See Task 3350).
3. Dimensions of pipe/culvert openings. (See Task 3520 and 3522).
4. Earth excavation and embankment in cubic yards needed to complete the crossing structure job. Volumes should be specific for dredge and fill within stream, dredge and fill within wetland, dredge and fill within floodplain.
5. Volume of riprap in cubic yards needed to complete the crossing structure job. Volumes and dimensions must be specific for riprap above and below the ordinary high water mark.
6. For culvert replacements or new culverts, the MDOT Bridge and Culvert Data Form (Form 4200) must be completed. Information to

be provided includes elevations of the invert, high water, and road grades at the structure and the low point of approach. (Note: Under tasks 3520 and 3522 Design Engineer – Hydraulics provides same data in another form per MDOT Drainage Manual.)

7. A copy of the hydraulic certification and the EGLE approval memo for bridge or culverts with a drainage area of 2 or more square miles are obtained from the Design Engineer – Hydraulics per Task 3520. For culverts with drainage area less than 2 square miles, hydraulic certification may be obtained by a licensed professional engineer (development or consultant engineer) per Task 3522.

C. For **new bridges** or **bridge repair** at regulated streams or drains:

1. Plan view of the bridge and road.
2. Elevation and profile view of the bridge and road to include bridge abutments, piers, riprap and stream.
3. The MDOT Bridge and Culvert Data Form (Form 4200) must be completed. Information to be provided includes elevations of the low steel, high water, and road grades at the structure and the low point of approach. See Task 3520 and the Design Engineer – Hydraulics.
4. Earth excavation and embankment in cubic yards needed to complete the crossing structure. Volumes should be specific for dredge and fill within stream, dredge and fill within wetland, dredge and fill within floodplain.
5. Volume of riprap in cubic yards needed to complete the crossing structure job. Separate volumes and dimensions must be given for riprap above the ordinary high water mark and below the ordinary high water mark.
6. A copy of the hydraulics certification and EGLE approval memo from the Design Engineer – Hydraulics (task 3520).

D. For **fill in wetlands**:

1. A plan view of the road and wetland area for each take.
2. A cross-section of the wetland take area (either one typical or as many as needed).
3. Wetland fill calculations to include wetland fill or excavation limits by station, the square footage and acreage, and cubic yards of fill into wetlands for each take. The wetland take quantities should be calculated from the existing toe of slope to the proposed toe of slope.
4. **If wetland mitigation is needed, a wetland mitigation inventory report should be included with application (to be provided by the Compliance and Mitigation Unit).**

E. For **storm water outlets** into regulated wetlands or waterways:

1. Plan view of the outlet.
2. Cross-section and profile view of the outlet including riprap placement.
3. Earth excavation volume, structure backfill volume and volume of riprap in cubic yards needed at the outlet. Volumes and dimensions should be specific, such as: amount and dimension of rip rap above and below ordinary high water mark, cut and fill within wetland, cut and fill within waterway, cut and fill within floodplain.
4. Description of any treatment of the storm water to be outletted (catch basins, detention basins, vegetated spillways, etc.) from the MDOT Aquatic Resource Manager and MDOT Drainage Specialist (see Task 3522).

F. For **stream** or **county drain relocation**:

1. A plan view of the old and new channels with length and width noted.
2. A cross-section of the new channel.
3. Earth excavation and embankment quantities needed to complete relocation. This is the specific amount and dimension of excavation and fill within waterbody, within wetland, and within floodplain.
4. Placement of soil erosion controls during construction.
5. Method of maintaining flow and stabilizing the new channel before it is opened to flow.
6. Quality and quantity of riprap to be used.
7. Construction sequencing of steps involved in relocation including constructing new channel in the dry, soil erosion controls, and stabilization of the new channel.
8. Copy of the coordination letter from the County Drain Commissioner Office which approves the plan must be sent to and meets approval of the MDOT Drainage Coordinator.

Additional work including, but not limited to, pre-application conferences, verification of wetland boundaries, and notification of property owners may be needed prior to submission of the application.

WORK STEPS:

1. Determine if permit(s) needed (May be determined by Region Environmental Permit Coordinator).

2. Input actual start date into project management software.

3. Determine if job revisions can eliminate the need for permit(s)

4. Negotiate with permitting agencies as necessary.

5. Obtain mitigation and monitoring plan if necessary from Wetland Mitigation Specialist, who will work with the Aquatic Resource Manager and the Design Engineer – Hydraulics.

6. Collect required information from design staff and the Design Engineer - Hydraulics by requesting a completed Permit Information Request form and MDOT Bridge and Culvert Data Form (Form 4200) from the Project Manager.

7. *Consultant:* Anticipate field meeting with MDOT staff. Prepare for the meeting and attend it. It is the Consultant's responsibility to be fully cognizant and prepared to defend the planned measures.

8. *Consultant:* Receive comments from MDOT Project Manager on base plans.

9. *Consultant:* Resolve and respond to review comments. [The review cycle may be repeated until the mitigation measures are approved.]

10. Prepare required permit applications and/or coordination letters.

11. *Consultant:* It is the Consultant's responsibility to check the drawings against agreed comment resolution.

12. *Consultant:* Submit revised plans as part of the preliminary plan submittal for Grade Inspection.

13. Input actual finish date into project management software.

14. Submit completed application(s) to permitting agency(s).

Attachment A – Additional Information for Consultants

Consultants:
Between the base plans submittal and the submittal of preliminary plans, the Consultant has developed the mitigation measures under task 3710 and refined them based on review comments. The revised mitigation plans form the basis for permit applications, most of which will be prepared and submitted by MDOT's Project Planning Division using input from the design Consultant. The Consultant prepares the NPDES (National Pollution Discharge Elimination System) application - the "Notice of Coverage for NPDES Storm Water Construction Permit". The Consultant is reminded to use the most current forms. This procedure covers the preparation of the NPDES application and input to other permits.

This task involves the following types of permits:

- Develop the permit application information to the level and format required by MDOT, based on the scope of design services and review comments. The following permits may be required for M•DOT construction jobs (See also Table of Permits Required for MDOT Construction Jobs following):

  1. Water Mains

     - Act 399 (Safe Drinking Water Act) permit required. Now Part 31, Water Resource Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), aka The Michigan Natural Resources and Environmental Protection Act (MNREPA)

     - Refer to and utilize Task 3670 – Develop Municipal Utility Plans. Coordinate work and/or permit with Design Engineer – Municipal Utilities.

     - Permit application (with plans) to be sent to the Michigan Drinking Water and Radiological Protection Division, Department of Environmental Quality in Lansing.

     - Apply during preliminary planning stage. Changes at final plan stage must be approved by MDEGLE.

  2. Water Wells

     - See previous comment. Part 127 (Groundwater Quality Control Act) permits required.

- Permit applications must be sent to both MDEGLE and to the County Health Department having jurisdiction in the county where the well is located

- Apply during the preliminary planning stage. Changes in location or construction specifications must be approved by both agencies prior to implementation.

- Type 1 wells specifications submitted to MDEGLE by M•DOT design staff. Type II wells specifications assigned by MDEGLE staff.

3. Removal of Contaminated Soil from Site/Hazardous Waste

   - Manifest required. (Obtain form from Materials & Technology Division.

   - Depending upon contaminant involved, up to twelve environmental acts may be involved. Construction & Technology has details on how to proceed.

4. Dredge/Fill in Navigable Waters and Associated Wetlands

   - U.S. Section 404 (Clean Water Act), permits required.

   - Permit application to be submitted to U.S. Army Corps of Engineers and MDEGLE through the M•DOT Environmental Section

   - Plans to be prepared by M•DOT design staff.

   - Due to public notice requirements, submit data to support the application during the preliminary planning phase.

   - Justification why the resource cannot be avoided, measures taken to minimize impacts, brief description of the job purpose and need.

5. Soil Erosion and Sedimentation

   - Part 91 of MNREPA (Soil Erosion and Sedimentation Control Act), no permit required if work is within MDOT R.O.W. or easements. MDOT is designated by MDEGLE as an "authorized public agency" with a soil erosion/sedimentation plan on file at MDEGLE. MDOT is certified to conduct its own SESC program.

- Direct specific questions to Construction and Technology Division.

6. Work in the Floodplain

- Part 31 of MNREPA (Water Resources Protection) permit. Required.

- Act 303 of MNREPA (Wetlands Protection Act).

- See also Tasks 3520 and 3522.

NOTE: This listing is intended to be a series of examples of various work types and the various environmental laws that apply to them. There could be numerous other examples, requiring many combinations of permits. See also the Table of Permits Required for MDOT Construction Jobs that follows.

- Submit these materials to the MDOT Project Manager, who will forward them to the Project Planning Division/Environmental Section.
- Receive a blank form for the NPDES Notice of Coverage with instructions from the MDOT Project Manager. (See Exhibit 1.)
- Perform and check calculations.
- Complete the form and return it with a set of reproducible plans and the checked, original calculations. (Keep copies in the job file with a record of the transmittal.)
- Await approval.

PERMITS REQUIRED FOR M•DOT CONSTRUCTION JOBS

PERMIT NAME	LAW (ACT)	REGULATING AGENCY	ACTIVITIES REGULATED
Wetland	Part 303 of 451, Section 404	MDEGLE, Army Corps of Engineers	Filling wetlands
Stream Crossing	301 of 451, 305 of 451	MDEGLE	Inland lakes/streams, Nat. Rivers (work in)
Coast Guard	Section 9	U.S. Coast Guard	All crossings of navigable waters
Floodplain	Part 31 of 451	MDEGLE, local government	Filling or construction below 100-year floodplain
Endangered Species	16 U.S.C. 1538	MDEGLE, USFWS, EPA	Habitat destruction
Soil Erosion	Part 91 of 451	MDOT, county drain commissions	Disturbance of soil
Development Services (Real Estate)– Hazardous Waste	Variable	MDEGLE, USEPA (contact C&T)	Generation, transport, and disposal of hazardous materials/waste
Mining (soil)	No state or federal statute	Local building/zoning commissions	Excavating soil from a property
Tree Removal ROW	RRR, AASHTO, FHWA-IP-86-17 4F, 24 CFR 800	MDOT, local building/zoning commissions	Removing trees in/out for safety reasons, for historical site impacts
Well	Part 54 of 451	MDEGLE, local H.D.	Installing T-I and II public water wells
Water Mains	399	MDEGLE	Installing Type I water main piping
County Drain	40 (Drain Code)	MDEGLE, county drain commissions	Altering/filling inland lakes, streams or "blue line" designated drains
Piers, Pilings	U.S. Section 404, Part 301 of 451, Section 10	MDEGLE, Army Corps of Engineers	Filling or placement of a structure in a navigable river
Bridge/Crossing	U.S. Section 10	MDEGLE, Army Corps of Engineers	Construction of any structure crossing a navigable river
Dam Repair	Part 315 of 451	MDEGLE	Construction/repair of any portion of an impoundment or dam
Great Lakes Seawall	Part 31 of 451, Part 87, Section 404	MDEGLE, Army Corps of Engineers	Installation of sheet piling and backfill in bottomland of Great Lakes

3730 Obtain Environmental Permit

Reporting Management Unit:	Region Environmental Permit Coordinator
Task Start:	Minimum of 120 days prior to Final Project Coordination (FPC) Meeting
Task Finish:	Issuance of Permits
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task begins with the submittal of a complete application package to the appropriate permitting agencies (MDEGLE, MDNR, U.S. Army Corps of Engineers, U.S. Coast Guard, etc.) a minimum of 120 before the Final Project Coordination (FPC) Meeting is held. This task consists of monitoring its progress through the agency review process, negotiating any changes required by the agencies, and providing supplemental information as necessary. This time frame allows for the processing time required by the issuing agencies. The issued permit will be included in the letting package.

After issuance the permit is distributed to all appropriate parties (include Design Engineer – Hydraulics on distribution). The Project Manager/Project Engineer is responsible for ensuring that the permits remain valid through advertising and construction. This may entail requesting permit revisions for time extensions, permit resubmittals, or other job changes.

WORK STEPS:

1. Submit complete application package to appropriate agency(s) (completion of Task 3720).
2. Input actual start date into project management software.
3. Monitor permit progress through the review process.
4. Obtain and submit supplemental information as necessary.
5. Negotiate changes requested by the issuing agencies; this may require an on-site review with the applicable resource agency(s).
6. Check issued permit for accuracy & correctness. Obtain changes/corrections if necessary
7. Input actual finish date into project management software.
8. Distribute permit and MDEGLE Project Completion Card to Project Manager/Project Engineer. Submit copies of permit to Design Engineer - Hydraulics, Region Resource Specialist, and all other appropriate parties.

3.6 Final Plan Preparation (3800 Series)

3800 Safety and Mobility Peer Team Review

Reporting Management Unit:	Statewide Work Zone Delivery Engineer
Task Start:	Request for Safety and Mobility Peer Team (SMPT) Review
Task Finish:	SMPT Recommendations to Chief Operations Officer
Date Last Modified:	August 2021

TASK DESCRIPTION:

NOTE: This task description is not comprehensive, but is an overview. Further details are found in the Work Zone Safety and Mobility Manual (WZSMM - located here), with particular attention to the Section 'Peer Review Team (PRT) and Appendix K-1 – the Development Peer Review Documentation Checklist. See also Task 3500 – Develop Transportation Management Plan for precursory information.

A project's reviews of the Transportation Management Plan are conducted as needed. When developing a Transportation Management Plan, mitigation measures should be undertaken to minimize delays, especially on significant jobs. Measures expected to exceed or exceeding 25% of project costs will be brought to the attention of the Region Engineer and the Chief Operations Officer for the Safety and Mobility Peer Team (SMPT) review.

This review is most beneficial when all reasonable mitigation has been designed, and should be requested after the Plan Review but prior to the Final Project Coordination (FPC) Meeting. Ideally, this review would be held four to six weeks before the FPC.

The purpose of the PRT is to conduct independent reviews and/or inspections of projects and provide recommendations to the Chief Operations Officer on projects that are subject to their review and approval before implementation.

The PRT will be established to conduct independent reviews of projects and provide recommendations for review and approval before implementation. The team should include personnel independent of the TSC where the project was developed, and may include:

- Region Engineer
- TSC Manager
- Statewide Work Zone Management Unit
- Design Engineer
- Project Manager
- Construction Engineer
- Traffic and Safety Engineer or Operations Engineer

WORK STEPS:

Note: This is intended only as an overview and not a complete guide. Please see the Work Zone Safety and Mobility Manual (WZSMM) here for details.

1. A project's Transportation Management Plan (TMP) is reviewed, and it is discovered that proposed mitigation measures will require a Safety and Mobility Peer Team (SMPT) review.

2. Input actual start date into project management software.

3. The Region/TSC Traffic and Safety Engineer for the project will bring the need for the PRT review to the attention of the Region Development Engineer. This individual will also select the panel for the PRT and schedule the meeting or review session, being certain to include the Work Zone Management Unit on this invitation.

4. The PRT will meet for an independent review and/or inspection of the TMP, ideally after the Plan Review, but before the Final Project Coordination (FPC) Meeting for the best level of detail available.

5. The PRT will provide comments and recommendations to the requestors for review and approval before implementation. Form 0569 will be used to document this review and any deficiencies.

6. Input actual finish date into project management software.

7. If project is rated red status, the Region will contact the Chief Operations Officer for consultation and bring back their comments to the PRT, making changes as necessary.

3810 Conduct Final Geometrics and Roadside Safety Reviews

Reporting Management Unit:	Traffic and Safety - Geometrics
Task Start:	Receipt of Final Plans for Final Project Coordination (FPC) Meeting
Task Finish:	Submission of Certification sheet
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task encompasses the review and evaluation of changes made in the proposed job geometrics and roadside safety features during the development of final plans. This is an ongoing effort throughout the development and evaluation of the preliminary and final plans. It is important that periodic communication be made so that the final plans can be completed and the job geometrics and safety features accepted.

The evaluation made by the Department's Geometrics Unit addresses areas such as:

- sight distances,
- design speeds,
- curve and interchange placement,
- turning radii,
- exit and entrance ramps,
- driveways,
- turn lanes,
- capacity/operation,
- horizontal/vertical alignment
- superelevation
- lane/shoulder width
- grade
- vertical clearance
- crossslope
- bridge width
- horizontal clearance
- ramp acceleration/deceleration lanes
- roadside safety, and
- Intersection design.

WORK STEPS:

1. Evaluate proposed job geometrics and roadside safety features.
2. Input actual start date into project management software
3. Prepare comments.
4. Attend Final Project Coordination (FPC) Meeting, if necessary
5. Meet with designer to review comments, if necessary.
6. Input actual finish date into project management software.
7. Approve job geometrics and roadside safety features by submitting the certification sheet, or return to step 5.

3815 Geotechnical Design Review -- Structures

Reporting Management Unit:	Construction and Technology - Geotechnical Unit
Task Start:	The receipt of all Preliminary Plans, Plan Review Meeting results, and Traffic Control Plan (Task 3540)
Task Finish:	Incorporation of Geotechnical Review recommendations into Final Plans.
Date Last Modified:	August 30, 2012

TASK DESCRIPTION:

Once the plans have been sufficiently developed, with the foundation elements sized and detailed, a geotechnical design review is appropriate by the geotechnical engineer of record. The geotechnical engineer must verify the foundation engineering recommendations (Task 3530) are properly incorporated into the design. The geotechnical engineer also evaluates constructability given the developed construction staging, and recommends temporary earth retention treatments, geotechnical instrumentation and monitoring treatments, etc. as necessary.

WORK STEPS:

1. Receive preliminary structure and road plans, including preliminary maintaining traffic staging and cross sections, and Plan Review Meeting comments.

2. Input actual start date into project management software.

3. Review plans and verify that the foundation elements are designed in accordance with the intent of the Foundation Engineering Recommendations (Task 3530).

4. Interactively with design engineer - determine vertical and horizontal limits of temporary earth retention. Recommend temporary earth retention treatment and provide necessary specifications.

5. Assess the need for geotechnical instrumentation and provide construction specifications as necessary.

6. Review use of standard special provisions, and prepare project specific special provisions, if required.

7. Submit Geotechnical Review Recommendations to Design Engineer.

8. Design Engineer incorporates geotechnical recommendations into Final Plans.

9. Input actual finish date into project management software (MDOT).

3821 Prepare/Review Final Traffic Signal Design Plan

Reporting Management Unit:	Traffic Signals - Design Subunit
Task Start:	Receipt of Preliminary Plans and Final Traffic Signal Operations with Final Geometrics determined
Task Finish:	Distribution of final plans and proposal for the Traffic Signal/Devices Plan to the Project Manager
Date Last Modified:	June 29, 2006

TASK DESCRIPTION:

This task includes preparing or reviewing plans and proposal for traffic signals work to be included with road and/or bridge design plans for the new installation or modernization of existing electronic traffic signal control devices. Design works for other electronic traffic control devices are included in this task as well. Examples of other devices include flashers on signs and electronic speed limit signs.

The location(s) and type of work for each traffic signal is stated in the Scope of Design Services.

NOTE: If the traffic signal falls under the jurisdiction of a local agency, the design and preparation details will be defined in the Scope of Design Services.

WORK STEPS:

1. Receipt of preliminary plans, comments, and/or correspondence from the Plan Review Meeting from the Project Manager with Final Geometrics determined.

2. Input actual start date into project management software.

3. Discuss/review Final Traffic Signal Operations with Region or TSC Traffic and Safety Engineer, including Construction Staging as appropriate.

4. Prepare or review Final Traffic Signal Plan, engineering documents and related work necessary for new installation or modernization of electronic traffic signal control devices, including Construction Staging as appropriate

5. Check right-of-way restrictions, overhead utilities and/or underground utilities to determine if the placement of a supporting structure creates a conflict. If conflicts are found, contact the MDOT Project Manager

6. Prepare or review any special provisions for the proposal package.

7. *Consultant*: Submit final traffic signal plans, special provisions and estimates via ProjectWise for review and approval by the MDOT Project Manager prior to preparing the Final Project Coordination submittal package. Final plans include, but are not limited to:

   a. construction details
   b. condition diagram to nearest half meter (Scale: 1:400)
   c. possible underground and/or overhead utility conflicts
   d. all pertinent operational features; i.e., lane lines, lane usage, street width, etc.
   e. signal phasing diagram(s) if required
   f. traffic signal removal and installation plan sheets
   g. traffic signal removal and proposed wiring diagrams
   h. list of Materials and Quantities.
   i. span calculation diagrams
   j. Appropriate note blocks for contact persons, etc.
   k. soil boring information including depths, soil description, water level, and foundation depths
   l. final special provisions and specifications

8. *Consultant*: Receive any items returned by the MDOT Project Manager as incomplete or deficient.

9. *Consultant*: Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

10. *Consultants:* Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one not received within two weeks of the final traffic signal submittal.

11. Check final traffic signal items in accordance with QA/QC plan.

12. *Consultants:* Incorporate the final traffic signal plans, special provisions and estimates into the Final Plan submittal package.

13. Input actual finish date into project management software.

14. In-House: Submit final traffic signal plans and proposal package to the Project Manager.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of signal plans, estimates and special provisions, refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. National Manual of Uniform Traffic Control Devices
3. MDOT Standard Specifications for Construction – current edition
4. Michigan Vehicle Code
5. Local and National Electrical Codes
6. IMDOT - Pay Item Code Book
7. MDOT Typical Signal Construction Detail Sheets
8. MDOT Typical Signal Information Note Sheet
9. MDOT Typical Signal Legend Sheet
10. Cell library
11. Blank standard plan sheet with borders and title block
12. MDOT Supplemental Specifications

3822 Complete Permanent Pavement Marking Plan

Reporting Management Unit:	Region/TSC Traffic and Safety
Task Start:	Receipt of Preliminary Plans Review Comments (GI) and preliminary plans
Task Finish:	Distribution of final plans and quantities for the Pavement Marking Plan
Date Last Modified:	April 2019

TASK DESCRIPTION:

This includes developing plans, quantities and specifications, or the review thereof, for pavement markings. Most jobs will typically only require pay items and quantities to be included on the note sheet. Detailed drawings will be required for non-typical areas, such as interchanges, complex intersections and individual locations where the pavement marking layout needs to be detailed.

WORK STEPS:

1. Receive comments and/or correspondence from the Plan Review Meeting from the MDOT Project Manager.

2. Input actual start date into project management software.

3. Prepare final design for the Pavement Marking Plan and estimate, incorporating comments from the Preliminary Plan Review.

4. Determine final quantities for the Pavement Marking Plan.

5. Prepare any special provisions.

6. *Consultant:* Incorporate the final pavement marking plans and estimates into the Final Project Coordination submittal package.

7. In-House: Submit the plans, quantities and special provisions via ProjectWise to the Project Manager for review and comments at the Final Project Coordination (FPC) Meeting.

8. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of pavement marking traffic plans refer to the MDOT Traffic and Safety Site:

Items to be purchased:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. MDOT Standard Specifications for Construction – current edition
3. Michigan Design Manual, Road Design (SI), Volume 3 (Chapter 7)
4. Pavement Marking Typical Plans
5. MDOT Pavement Marking Policy

3823 Complete Non-Freeway Signing Plan

Reporting Management Unit:	Region/TSC Traffic and Safety
Task Start:	Receipt of Preliminary Plans Review Comments (GI) and preliminary plans
Task Finish:	Distribution of final plans and quantities for the Non-Freeway Signing Plan
Date Last Modified:	June 2021

TASK DESCRIPTION:

This task entails developing final quantities, plans and special provisions for non-freeway signing, including delineators, on Michigan Department of Transportation (MDOT) design jobs.

WORK STEPS:

1. Receive comments and/or correspondence from the Plan Review Meeting from the MDOT Project Manager.

2. Input actual start date into project management software.

3. Produce final signing plans.
    a. Incorporate comments from the Preliminary Plan Review.
    b. The final non-freeway signing plans shall show the existing signs, proposed signs, all supporting structures, and signs to be removed. Existing signs shall be shown either as removed, retained, or replaced. This may also include delineators.
    c. Include fabrication details for unique signs. Sign designs for non-standard signs will be shown on separate detail sheets. Standard signs may be referred to by the appropriate sign code (for example, R5-6).
    d. The selection of signs, location, letter size, color, etc. shall be according to the current version of the Michigan Standard Highway Signs (SHS) manual.
    e. Prepare special provisions.
    f. Determine quantities.

4. Submit the final non-freeway signing plans, special provisions and estimates via ProjectWise for review and comments/approval to the MDOT Project Manager prior to preparing the Final Project Plan submittal package.

5. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

6. *Consultant:* Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

7. Check final signing items in accordance with QA/QC plan.

8. *Consultant:* Incorporate the final non-freeway signing plans, special provisions and estimates into the Final Plan submittal package.

9. After the final non-freeway signing plans are complete, create the final non-freeway signing inventory in the Michigan Traffic Sign Inventory System (MTSIS)
    a. The final signing inventory shall show only the proposed and retained signs using MTSIS. *Consultant:* This information shall be provided electronically.

10. Submit to the MDOT Project Manager the final electronic signing inventory.

11. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of signing plans and special provisions, refer to the following:

Items to be purchased:

1. Microstation
2. SignCAD

Current versions of the following items are available through the MDOT Traffic and Safety Website:

3. Signing plan note sheets
4. Cell library
5. Blank standard plan sheet with borders and title block
6. MDOT Supplemental Specification
7. MDOT Special Provision
8. SignCAD Templates
9. Traffic Sign Design, Placement, and Application Guidelines (TSDPAG)
10. TSDPAG Appendix
11. Michigan SHS Manual
12. Any other pertinent guidelines

3824 Complete Freeway Signing Plan

Reporting Management Unit:	Traffic Signs & Delineation - Reflective Systems Design
Task Start:	Receipt of Preliminary Plans Review Comments (GI) and preliminary plans
Task Finish:	Distribution of final plans and quantities for the Non-Freeway Signing Plan
Date Last Modified:	June 2021

TASK DESCRIPTION:

This task entails developing final quantities, plans and special provisions for signing, including delineators, on MDOT design jobs for controlled access roads, or freeways.

WORK STEPS:

1. Receive comments and/or correspondence from the Plan Review Meeting from the MDOT Project Manager.

2. Input actual start date into project management software.

3. Request a meeting with the Region Materials/Testing Engineer or Soils Engineer through the MDOT Project Manager to discuss the geotechnical requirements for this job. All proposed cantilever and truss locations will require soil borings.

    a. *Consultant:* If TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION is a Consultant task, then obtain the required soil borings, complete the related analysis, identify any suspected contamination of the boring site, and prepare foundation design, if required. Depending on the type of soil the Consultant will recommend the type of foundation for each structure. If the nature of the soil is such that standard foundation design cannot be recommended, the Consultant shall be responsible for either relocating the proposed overhead structure or revising the standard foundation design to meet the specific soil needs. The Consultant shall submit the geotechnical investigation to the Region Materials/Testing Engineer or Soils Engineer for review, approval, and recommendations.
    b. *Consultant:* If TASK 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION is **NOT** a Consultant task, then send a request for the geotechnical investigation to the MDOT Project Manager

4. Produce final signing plans.

    a. Incorporate comments from the Preliminary Plan Review.
    b. The final signing plans shall show the existing signs, proposed signs, all supporting structures, and signs to be removed. Existing signs shall be shown either as removed, retained, or replaced. This may also include delineators.
    c. Include fabrication details for unique signs. Sign designs for non-standard signs will be shown on separate detail sheets. Standard signs may be referred to by the appropriate sign code (for example, R5-6).
    d. The selection of signs, location, letter size, color, etc. shall be according to the current version of the Michigan Standard Highway Signs (SHS) manual.
    e. Prepare special provisions.
    f. Determine quantities.

5. Submit the final signing plans, special provisions and estimates via ProjectWise for review and comments/approval to the MDOT Project Manager prior to preparing the Final Project Plan submittal package.

6. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

7. *Consultant:* Make necessary changes and resubmit the entire package including a written response to all comments. Keep copies of the MDOT comments, the marked-up prints (if they were included), and the revised materials for the job record.

8. Check final signing items in accordance with QA/QC plan.

9. *Consultant:* Incorporate the final signing plans, special provisions and estimates into the Final Plan submittal package.

10. After the final signing plans are complete, create the final signing inventory in the Michigan Traffic Sign Inventory System (MTSIS).

    a. The final signing inventory shall show only the proposed and retained signs using MTSIS. *Consultant:* This information shall be provided electronically.

11. Submit to the MDOT Project Manager the final electronic signing inventory.

12. Input actual finish date into project management software.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of signing plans and special provisions, refer to the following:

Items to be purchased:

1. Microstation
2. SignCAD

Current versions of the following items are available through the MDOT Traffic and Safety Website:

1. Signing plan note sheets
2. Cell library
3. Blank standard plan sheet with borders and title block
4. MDOT Supplemental Specification
5. MDOT Special Provisions
6. SignCAD Templates
7. Traffic Sign Design, Placement, and Application Guidelines (TSDPAG)
8. TSDPAG Appendix
9. Michigan SHS Manual
10. Any other pertinent guidelines

3825 Prepare/Review Final Traffic Signal Operations

Reporting Management Unit:	Traffic Signal Operations/Analysis Subunit
Task Start:	Receipt of request for review of Preliminary Plans from Region/TSC Traffic and Safety or Project Manager
Task Finish:	Distribution of the Traffic Signal Operations Recommendations to the Traffic Signal Design Subunit
Date Last Modified:	June 29, 2006

TASK DESCRIPTION:

This task includes the work effort required to review the Preliminary Plans and verify that the operations are consistent with the recommendations from the preliminary review and to develop the traffic signal timing if appropriate.

WORK STEPS:

1. Receive request for review of Preliminary Plans from the Project Manager.
2. Input actual start date into project management software.
3. Review the plans for consistency with the recommendations made during the preliminary traffic signal operations plan.
4. Create updated timing permits if signals are impacted by the project.
5. Input actual finish date into project management software.
6. Distribute traffic signal operational recommendations to the Traffic Signal Design Subunit, who will perform a design review and forward all recommendations to the Project Manager. See start of Task # 3821.

3830 Complete the Maintaining Traffic Plan

Reporting Management Unit:	Region/TSC - Traffic and Safety
Task Start:	Receipt of THE Plan Review Meeting comments
Task Finish:	Submission of final Construction Zone Traffic Control Plan package
Date Last Modified:	August 2021

TASK DESCRIPTION:

Based on the proposed preliminary construction plans and THE Plan Review Meeting comments, the final Maintaining Traffic Plan is further refined and completed. During this task the plan is detailed to include:

- signals,
- signing treatments,
- pavement markings,
- barriers and channelizing devices,
- lane closures,
- quantities,
- traffic restrictions,
- construction influence area, and
- special provisions.

Plans showing the placement of traffic control devices are prepared as required.

WORK STEPS:

1. Receive THE Plan Review Meeting comments.

2. Input actual start date into project management software.

3. Evaluate The Plan Review Meeting comments, i.e. resolve and prepare written responses to the comments.

   If Scope of Design Services includes traffic signal modifications, then follow the procedures and requirements (including Consultant prequalification) detailed in TASK 3821 – PREPARE/REVIEW FINAL TRAFFIC SIGNAL DESIGN PLAN.

4. Finalize the appropriate traffic control device method(s). Refer to the Decision Tree in the Work Zone Safety Mobility Manual (WZSMM) to best balance safety and mobility when selecting traffic control methods.

5. Prepare the final Work Zone Traffic Control package, including:
   a. Special Provision for Maintaining Traffic, adding any special paragraphs or signing sequences for unique situations
   b. Maintaining traffic quantities
   c. Maintaining traffic diagrams and typical plans
   d. Signing details, temporary pavement markings, traffic signal modifications, etc.
   e. Staging plans as required
   f. Special sign fabrication details
   g. CPM network (arrow diagram) for the construction of this job as applicable with the guidance found here: MDOT - Construction Scheduling - Contract Time Determination (CTD) and Critical Path Method (CPM) (michigan.gov).

6. Submit final Work Zone Traffic Control Plan package to MDOT Project Manager. Include a cover letter stating readiness for the second maintaining traffic coordination meeting. The cover letter shall state that the submittal was prepared and checked by the procedures described in the QA/QC plan.

7. Receive confirmation of the date, time and location of the meeting.

8. Attend the second maintaining traffic coordination meeting, record the meeting minutes, and send a copy of the meeting minutes to all attendees.

9. Finalize the Work Zone Traffic Control Plan package to reflect the recommendations made at the second maintaining traffic coordination meeting.

10. *Consultant:* The Consultant shall provide, via dated memorandum, copies of the Special Provisions for Maintaining Traffic, including all details and quantity calculations, to the Project Manager and the Region Traffic and Safety Engineer for review. Any subsequent revisions shall also be transmitted to all of the above parties. The Consultant shall incorporate requested revisions and corrections resulting from Departmental review prior to Final Plan submittal.

11. The final approved Work Zone Traffic Control Plan package shall be submitted as directed in TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS.

12. Input actual finish date into project management software.

13. Submit final Maintaining Traffic Plan package to the Project Manager for inclusion in the Final Project Coordination (FPC) Meeting review.

SUPPLEMENTAL INFORMATION

For more information regarding preparation of maintaining traffic plans and special provisions, refer to the MDOT Traffic and Safety Site:

Items:

1. Michigan Manual of Uniform Traffic Control Devices (MMUTCD) – current edition
2. MDOT Standard Specifications for Construction – current edition
3. MDOT Road and Bridge Standard Plans
4. Standard Highway Signs Manual
5. A Policy on Geometric Design of Highways and Streets (AASHTO) – current edition
6. MDOT Road Design Manual, Chapter 8
7. Maintaining Traffic Typical Diagrams
8. Typical Maintaining Traffic Special Provision
9. Blank forms for developing special sign fabrication details
10. Work Zone Safety Mobility Manual

3840 Develop Final Plans and Specification

Reporting Management Unit:	Designer/Design - Road/Design - Consultant Coordination
Task Start:	Receipt of the comments from The Plan Review Meeting. *(For Road CPM Jobs – Approval of job's scope, cost, and schedule)*
Task Finish:	Submission of the final plan/proposal package to the Project Manager for the Final Project Coordination (FPC) Meeting review. *(For Road CPM Jobs – Submission of final plan/proposal package to Quality Assurance for Final Review)*
Date Last Modified:	April 2019

TASK DESCRIPTION:

The work of this task includes the effort to bring the final plan/proposal package to 90-95% completion. The final package consists of a complete set of plans, final quantities, all proposal material, and all Reference Information Documents (RID). The package is submitted to the Project Manager for consolidation with other related set(s) of plans (bridge, electrical, signal, etc.).

NOTE: With the move to electronic plans and proposals, it is preferred that the Designer/Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package.

MDOT and Consultant Project Managers and employees alike must utilize and familiarize themselves with E-Proposal for packaging and submitting project documents. Consultants and others unfamiliar with electronic plans and proposals should refer to the E-Proposal Training Document and other E-Proposal Information under Design Services as a starting point. **Electronic plans and documents should be referenced throughout the submittal process.**

This task includes numerous discussions and/or meetings with other divisions in order to complete a final set of plans and specifications acceptable to all the disciplines involved.

WORK STEPS:

1. Receive marked up prints with comments and/or correspondence from Preliminary Plan Review via the MDOT Project Manager. The MDOT Project Manager shall review and compile the comments for each item into one file to reconcile any discrepancies. *(Does not apply to Road CPM jobs)*

2. Input actual start date into project management software.

3. Prepare and submit to the MDOT Project Manager an updated job quantity and construction cost estimate reflecting Preliminary Plan Review comments. The estimate should have quantities and unit prices for all items of work. The estimate shall also include participation breakdowns (local agencies, PA 51 participations, storm sewer participation, etc.).

4. Incorporate Preliminary Plan Review comments and develop the final plans, specifications and estimates. Resolve any outstanding issues and/or conflicting comments with the MDOT Project Manager. *Consultants:* Upon resolution of a conflict, the Consultant must document, in correspondence to the MDOT Project Manager, the solution to the conflict and the engineering judgment used by the Consultant in reaching this decision. *(Does not apply to Road CPM jobs)*

5. Within **two weeks** after receiving of the Preliminary Plan Review meeting minutes, submit to the MDOT Project Manager the job specific Special Provisions. *Consultants:* All Special Provisions shall be submitted electronically in Microsoft Word format. Each Special Provision shall have its own Word file. The MDOT Project Manager will forward the special provisions to the Construction and Technology Division for approval.

6. *Consultant:* If TASK 3830 - COMPLETE THE MAINTAINING TRAFFIC PLAN is **NOT** a Design Consultant task, then coordinate construction staging plans and Special Provisions for Maintaining Traffic through the MDOT Project Manager.

7. Review the Preliminary Plan Review meeting minutes and verify that comments have been addressed.

8. Submit final plans for geometric concurrence.

9. Calculate final construction quantities.

10. *Consultant:* Prepare Final Project Coordination (FPC) Meeting submittal package. Check the submittal package in accordance with Consultant's QA/QC plan. Contact the MDOT Project Manager if you have questions regarding submittal requirements.

    The submittal package shall include the following:

a. A cover letter/email stating readiness for the Final Project Coordination (FPC) Meeting. The cover letter/email shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

b. Electronic set of plans (11X17 PDF) including all areas of work; e.g., final bridge plans, traffic signal plans, etc.

c. Approved job specific Special Provisions for items not covered by MDOT Standard Specifications, or same items submitted for approval.

d. A marked-up list of frequently-used Special Provisions and Supplemental Specifications. The Consultant shall request an unmarked list from the MDOT Project Manager just prior to submittal.

e. Approved Special Provisions for Maintaining Traffic and final staging plans.

f. A CPM network for the construction of this job. The CPM network shall be submitted electronically). See the "Scope of Design Services" for details.

g. Additional proposal items (coordination clauses, notice to bidders, etc.). All proposal items shall be submitted electronically in Microsoft Word format and shall include a pdf copy in the proposal.

h. Consultant provided .xml of their project quantities.

    i. File must be generated in .xml format and submitted electronically. This computer file must meet formatting requirements for data entry into AASHTOWare Project Preconstruction.

    ii. Verify that all the work item descriptions, units and quantities on the estimate output, plans and specifications match.

    iii. MDOT will prepare the quantity summary sheets.

i. NPDES Permit Application

j. Final version of Design Exceptions

k. Written responses to Preliminary Plan Review comments. Responses to the RID_Preliminary documents shall be provided using the review levels in the respective dgn file or in the RID Review Checklist.xlsm.

l. All files required for RID per the Project Data Requirements Table. Files named in accordance with the Standard Naming Conventions.

11. *Consultant:* Send the Final Project Coordination (FPC) Meeting submittal package to the MDOT Project Manager.

12. In-House: Gather final proposal material, including special provisions. Assemble and submit final plan/proposal package material to the Project Manager for consolidation with other plans and FPC review. *(CPM jobs go to Quality Assurance)*

13. Prepare final AASHTOWare Project Preconstruction estimate.

14. Receive any items returned by the MDOT Project Manager as incomplete or deficient. Make necessary changes and resubmit the revised materials with written responses to the comments. *Consultant:* Keep copies of the MDOT's comments, the marked up prints (if included), and the revised materials for the job record.

15. Input actual finish date into project management software.

16. *Consultant:* Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the Final Plan package submittal.

SUPPLEMENTAL INFORMATION

The following items should be included on plans submitted for the Final Project Coordination (FPC) Meeting. This list is not intended to be all inclusive. See Road Design Manual Section 14.54 for additional requirements. Some sheets may be supplied by MDOT.

A. FINAL PROJECT CORRDINATION MEETING

1. Plans 90-95% Complete. All major quantities have been checked.

2. Proposal-Including information required on Design Plan Submittal Form 0303.

3. Additional items that should have been addressed/resolved
   i. Design Exceptions
   ii. Agreements
   iii. Utility Issues/Conflicts

4. Critical Path Network

5. Reference Information Documents

* MDOT will insert these items into the proposal

3850 Develop Structure Final Plans and Specifications

Reporting Management Unit:	Design - Bridge/Consultant Coordination
Task Start:	Receipt of comments from Preliminary Plan review (GI). *(For Bridge CPM Jobs – Scope Verification (Task 3130))*
Task Finish:	Submission of the final structure plans and specifications to Project Manager
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task is usually included in bridge jobs and is coordinated with other structure related tasks. The Task 3570 - PREPARE PRELIMINARY STRUCTURE PLANS must be approved before starting this task. The final structural plans provide a detailed description of the structural design and geometric layout of the structures. The final design documents should include all items listed in the appropriate section of the Bridge Design Manual.

Once the final structural drawings and documents are reviewed and revised, the designer submits the final structure plans package for final review.

NOTE: With the move to electronic plans and proposals, it is preferred that the Designer/Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package.

MDOT and Consultant Project Managers and employees alike must utilize and familiarize themselves with E-Proposal for packaging and submitting project documents. Consultants and others unfamiliar with electronic plans and proposals should refer to the E-Proposal Training Document and other E-Proposal Information under Design Services as a starting point. **Electronic plans and documents should be referenced throughout the submittal process.**

WORK STEPS:

1. Receive and review job data, including the Preliminary Structure Plans and Preliminary Plan Inspection (GI) Review comments. *(Does not apply to Bridge CPM jobs)*

2. Input actual start date into project management software.

3. Incorporate THE Plan Review Meeting comments into the structure plans, as appropriate.
   (Does not apply to Bridge CPM jobs)

4. Prepare Final Structure Plans and Estimate of Probable Cost as defined in the Michigan Design Manual, Bridge Design, Section 3.03. The MDOT Project Manager is to be contacted any time the cost estimate varies significantly from the programmed construction cost estimate.

5. Document decisions made while developing Final Structure Plans.

6. Submit final structure plans for geometric concurrence.

7. Calculate final construction quantities.

8. *Consultant:* Prepare the completed Final Structure Submittal Package. The Submittal Package shall include the following:

    a. Final Structure Plans in ProjectWise.
    b. Design Calculations (Checked and Initialed)
    c. Job Specific Special Provisions. All Special Provisions shall be in Microsoft Word format. Each Special Provision shall have its own Microsoft Word file.
    d. Additional Proposal Items (coordination clauses, notice to bidders, etc.). All proposal items shall be in Microsoft Word format.
    e. A marked-up list of frequently used Special Provisions and Supplemental Specifications. The CONSULTANT shall request an unmarked list from the MDOT Project Manager just prior to submittal.
    f. Consultant provided .xml of their project quantities.

        i. File must be generated in .xml format and submitted electronically. This computer file must meet formatting requirements for data entry into AASHTOWare Project Preconstruction.

        ii. Verify that all the work item descriptions, units and quantities on the estimate output, plans and specifications match.

        iii. MDOT will prepare the quantity summary sheets.

9. *Consultant:* Prepare a cover letter stating that this is the Final Structure Plan Submittal. The cover letter shall also state that the submittal was prepared and checked by the procedures specified in the Consultant's QA/QC Plan. Include the names of those who did the QA/QC check.

10. In-House: Gather final structure proposal material, including special provisions.

11. In-House: Prepare final AASHTOWare Project (Preconstruction) estimate.

12. *Consultant:* Submit the Final Structure Plan Submittal to the MDOT Project Manager.

13. In-House: Assemble and submit final structure plan/proposal package material to the Project Manager for consolidation with other plans and FPC review. *(Bridge CPM jobs may go to Quality Assurance)*

14. Receive any items returned by the MDOT Project Manager as incomplete or deficient. Make necessary changes and resubmit the revised materials with written responses to the comments. *Consultant:* Keep copies of MDOT's comments, the marked up prints (if included), and the revised materials for the job record.

15. Input actual finish date into project management software.

16. *Consultant:* Receive the MDOT Submittal Evaluation Form. Contact the MDOT Project Manager if one is not received within two weeks of the Final Structure Plan Submittal

SUPPLEMENTAL INFORMATION

For more information refer to the following:

Items to be purchased:

1. Michigan Design Manual, Bridge Design

3860 Final Constructability Review

Reporting Management Unit:	Project Manager
Task Start:	End of Preliminary Plans/Start of Plan Review
Task Finish:	Submittal of the Progress Clause, and signing of Title Sheet and Certification Acceptance Form at the Final Project Coordination (FPC) Meeting
Date Last Modified:	April 2019

TASK DESCRIPTION:
This task is intended to ensure review and evaluation of the constructability of project items in the plan/proposal package during the plan development process, and specifically regards the Preliminary Plan Review, Final Plans, and Final Project Cordination Review and Meeting. This task should be performed in conjunction with the Constructability Review Checklist for the Project Development/Design Phase.

On small projects this task may consist of only the transmittal of plans to the Construction Engineer for comment. On large projects with complex staging, one or more meetings with the Construction Engineer and Region/TSC Traffic and Safety Engineer may be required throughout this task.

Preliminary Plans will be distributed and reviewed. Once the revisions from THE Plan Review Meeting have been incorporated into the plans, Final Plans begin. After the final maintaining traffic special provision has been received, and staging typicals and/or plan sheets have been completed, this information plus any unique special provisions should be sent to the Construction Engineer for review. Discussions concerning a Construction Critical Path Network, if applicable, should also occur at this stage.

In conjunction with the Constructability Review Checklist, the following items must be addressed prior to distribution of the final plan/proposal package for the FPC Meeting:

1. Biddability
    - **A.** Agreements and coordination in place?
    - **B.** Permits executed & all requirements identified on plans & addressed?
2. Buildability
    - **A.** Site Investigation
    - **B.** Right of Way
    - **C.** Construction Staging
    - **D.** Maintenance of Traffic
    - **E.** Schedule
    - **F.** Special Materials/Conditions
    - **G.** Soil Erosion and Sedimentation Control (SESC)

Please see the Constructability Review Checklist for the Project Development/Design Phase for more details.

WORK STEPS:

1. Review plans prior to, attend, and provide input at THE Plan Review Meeting.

2. Input actual start date into project management software.

3. Receipt of comments from THE Plan Review Meeting.

4. Incorporation of comments/begin Final Plan Development.

5. Make plans available to Construction Engineer and Region/TSC Traffic and Safety Engineer.

6. Set up meeting with Construction Engineer and Region/TSC Traffic and Safety Engineer.

7. Review Constructability Review Checklist with participants.

8. Incorporate notes and comments and develop Final Plans (see Task 3830, 3840, 3850, etc).

9. Repeat steps 5 through 8 as necessary throughout Final Plan Development.

10. Receive final Maintaining Traffic Special Provision from Traffic and Safety.

11. [*Construction Engineer develops a Construction Critical Path Network, if applicable*.]

12. Repeat steps 6 and 7.

13. Incorporate any notes/comments/changes into Final Plans and Proposal Package and distribute for FPC Review.

14. [*Construction Engineer develops Progress Clause*.]

15. Attend FPC Meeting.

16. Representatives from Development and Construction areas sign off on the Constructability Review Checklist for the Project Development/Design Phase.

17. Receive Draft Progress Clause

18. Input actual finish date into project management software.

3865 Region Project Plan Quality Assurance Review

Reporting Management Unit:	Project Manager
Task Start:	Submittal of Plan Package to System Manager
Task Finish:	System Manager sign-off
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task consists of the various work steps required to perform a quality assurance analysis before the Final Project Coordination (FPC) Meeting. The System Manager will verify that the FPC Package is 90-95% complete. This helps to ensure not only that the plans are 100% complete at Plan Completion (which is very important for MDOT and to the FHWA), but is also necessary for proper accomplishment of Environmental Certification.

The task begins when the Project Manager assembles and submits a complete set (package) of plans, specs, and estimates for the job to the appropriate System Manager and to the Environmental Review Section in Planning for additional review. The plan set should include all involved disciplines and design considerations. This set should also include the Construction Progress Clause and all relevant specifications (sign-offs not withstanding). The major exceptions would be required permits, ROW Certification, and Environmental Certification. For more details, reference Task 3870.

The System Manager reviews the QA package for completeness of content required, including quantities. The Environmental Review Section also begins/continues their evaluation for Certification, and the two proceed simultaneously.

If the System Manager discovers any discrepancies or inconsistencies in the package, they send any revisions and/or comments to the Project Manager. The Project Manager will make the necessary corrections and send the package back to the System Manager, as well as notifying the Environmental Review Section of the changes made.

The System Manager provides approvals to proceed to schedule the FPC Meeting.

WORK STEPS:

1. The Project Manager will incorporate the plans and specifications of all involved disciplines into the final plan/proposal package, including: road, structures, traffic staging, traffic control, utilities, and railroads. Other design considerations may also be incorporated into the final plan/proposal package. See Task 3870 for more details.

2. The Project Manager submits the plan package to the System Manager for review, and should also submit a package to the Environmental Review Section in Planning.

3. Input actual start date into project management software.

4. The System Manager reviews the plan package for completeness and quality assurance.

5. Any revisions or comments noted by the System Manager are reported to the Project Manager.

6. The Project Manager makes corrections and resubmits the plan package to the System Manager and the Environmental Review Section.

7. The System Manager approves that the plan package is 90-95% complete, and notifies the Project Manager to proceed to schedule the FPC meeting.

8. Input actual finish date into the project management software.

3870 Final Project Coordination Review

Reporting Management Unit:	Project Manager
Task Start:	System Manager Sign-Off For FPC Scheduling. *Consultants:* Receipt of FPC Meeting Notice from Project Manager.
Task Finish:	Incorporation of Recommendations into Final Plan/Proposal Package
Date Last Modified:	April 2019

TASK DESCRIPTION:

Final Project Coordination Review is the last opportunity for the various disciplines to review the plan/proposal package and submit changes. The participants ensure all the necessary items are included in the package, with special attention being given to compatibility of any staging plans and the Special Provision for Maintaining Traffic. It is the responsibility of the participants to make sure their recommendations are marked on the plans. **Changes or additions to the job scope or limits will not be considered**.

Note: Design Consultants shall refer all contractors inquiries to the MDOT Contact Person listed in the proposal.

MDOT Form 0303 – Design Plan Submittal Form and the Milestone Checklist details all materials that should be submitted as part of the Final Plan/proposal package. Additional details follow herein.

MDOT and Consultant Project Managers alike must utilize and familiarize themselves with E-Proposal for packaging and submitting project documents. Consultants and others unfamiliar with electronic plans and proposals should refer to the E-Proposal Training Document and other E-Proposal Information under Design Services as a starting point. **Electronic plans and documents should be referenced throughout the FPC and submittal process.**

Every effort should be made to submit the project for FPC with approved design exceptions or variances, as well as any submitted/approved Unique Special Provisions.

The following material must (if applicable) be included in the files/distribution. See also **Road Design Manual Chapter 14 Section 54** for more information and project Milestone Checklist for other submittal requirements:

NOTE: All Standard Plans (Typicals) and Special Details listed here must have their respective lists updated on the Note Sheet page(s) for the FPC Plan Review, while the actual drawings/sheets must be included in the plans or proposal as applicable, after the FPC Meeting.

Plans-90-95% complete

- Final quantities (miscellaneous quantities may not be)
- Special details (detail grade sheets may not be)

Proposal-90-95% complete

- Maintaining traffic special provisions and applicable standard Maintaining Traffic Typicals (special details to be shown on note sheet)
- All coordination clauses
- All Traffic & Safety checklists for special provisions (copies of the checklist only)
- All frequently used special provisions (copies of the checklist only)
- All frequently used supplemental specifications (copies of the checklist only)
- All unique special provisions at least submitted
- All notices to bidder (Unique NTB and Frequently Used NTB – checklist only)
- Utility relocation status report

Others (all jobs)

- AASHTOware – Project Preconstruction estimates
- Draft Progress Clause (Final progress clause to be supplied by the Region/TSC /Construction Engineer at Final Turn-In)
- Environmental Classification and Certification related items (e.g. Form 1775, FONSI, ROD with green sheets)
- All permits may not be finalized
- Site contamination results (PACS (ISA) for all projects. If projects have earth excavation or underground construction work within the contaminated site areas, then submit the PSI summary results and reflect those results on the plans.)
- Safety Review. If Design Exceptions, then need Crash Analysis.
- Copy of Plan Review letter
- Certification & Acceptance form (filled out except FHWA portion as applicable)
- Project Cost Estimating Checklist (Form 0268)

Others (if applicable)

- All RR special provisions and insurance clauses
- All Traffic & Safety permanent signing Standard Plans and Special Details
- All Traffic & Safety pavement marking Standard Plans and Special Details
- All Road/Bridge Standard Plans and Special Details
- Design Exceptions completed and signed
- Local agreements
- Bridge Lump Sum Worksheet
- Public findings completed for force account, proprietary, and public provided materials. This also includes work plans for experimental products.
- Innovative contracting work plans, if applicable (e.g. No Excuse Bonuses and Design/Build, which are less than $25.0 million)
- 20 year capacity analysis on 4R work
- Incentive/Disincentive specification(s) (e.g. Lane Rental, A+B etc), if applicable, and user delay costs completed
- Warranties: Performance or Materials & workmanship
- On approved STIP and within 25% of programmed cost
- Value Engineering on NHS > $25 million, completed, and a letter summarizing all recommendations incorporated into the project
- Copy of FHWA's letter approving the Access Justification for interstate modifications, if applicable
- Copy of MDOT's letter confirming ITS consistent with regional architecture for new ITS installations only. Not required for maintenance and rehabilitation ITS work.
- Critical path network (if required)
- ROW Certification
- If EOC approval of a Life Cycle Cost Analysis was required, ensure that it has been completed in accordance with the Pavement Design and Selection Manual, including re-analysis for changes such as scope or scheduling delays.

WORK STEPS:

1. The Project Manager will incorporate the plans and specifications of all involved disciplines into the final plan/proposal package, including: road, structures, traffic staging, traffic control, utilities, and railroads. Other design considerations may also be incorporated into the final plan/proposal package.

2. Input actual start date into project management software.

3. The Project Manager updates the Design Plan Submittal (Form 0303) and the Certification Acceptance (CA) Form.

4. The Project Manager verifies that Projectwise is current in format.

5. In-House: The Systems Manager reviews the plan/proposal package to ensure sufficiency for a productive FPC Meeting.

6. In-House: Identify people to be included at the FPC meeting.

7. Schedule FPC Meeting 3 weeks from submittal.

8. *Consultants:* Receive notice from the MDOT Project Manager stating the location, date and time of the FPC Meeting.

9. Project Manager refers involved parties to file locations in ProjectWise, or else distributes plan/proposal package (minimum 15 work days for review by disciplines)

10. *Consultants:* Receive the FPC plan/proposal file notification or distribution. Included is the AASHTOWare Project Preconstruction, Project Level, and Project Verification Report from the MDOT Project Manager. Retain this report for future editing after the FPC Meeting.

11. Participants review material prior to meeting. Participants will use a real-time collaborative milestone review process (such as Bluebeam – see the MDOT Wiki for more details) or pdf commenting tools to make comments prior to the review meeting.

12. Participants notify Project Manager of completion of their review prior to the FPC Meeting. The Project Manager visits the appropriate file locations in ProjectWise or otherwise views files for the plan/proposal package.

13. Project Manager acknowledges receipt of commented plans.

14. Input actual finish date into project management software.

3875 Final Load Rating Evaluation

Reporting Management Unit:	Load Rating Engineer
Task Start:	Assembly of Final Plan/Proposal Package
Task Finish:	Plan Completion
Date Last Modified:	April 2019

TASK DESCRIPTION:

At this time the P.M. should contact the Load Rating Engineer in the Bridge Operations Unit of the Construction and Technology Division with the final plans. Depending on the type of work a load rating may be required.

The load rating should be based upon the best available data that has been obtained at this time. The data may include:

- Final Plans
- Most recent Bridge Safety Inspection Report
- Existing bridge plans
- ADTT

The load rating is to be performed in accordance with the current AASHTO Manual for Bridge Evaluation, the Michigan Structure Inventory and Appraisal Guide the MDOT Bridge Analysis Guide and in accordance with Federal Highway Administration (FHWA) FHWA Memorandum titled Bridge Load Ratings for the National Bridge Inventory and dated October 30, 2006. The load rating should be performed using the current version AASHTO BRIDGEWare® Virtis software when possible. Possible modifications may arise during the Final Project Coordination phase.

WORK STEPS:

1. Identify scope of work.

2. Determine if scope of work requires load rating. Any work that replaces the superstructure, increases dead load or changes live load effects should be analyzed.

3. If load rating was performed under a previous task, review Final Plans for consistency with load rating.

4. Obtain existing plans.

5. Obtain existing Bridge Safety Inspection Report and Structural Inventory and Appraisal Form.

6. Perform load rating in accordance with the current AASHTO Manual for Bridge Evaluation, the Michigan Structure Inventory and Appraisal Guide the MDOT Bridge Analysis Guide and in accordance with Federal Highway Administration (FHWA) FHWA Memorandum titled Bridge Load Ratings for the National Bridge Inventory and dated October 30, 2006. The load rating should be performed using the current version AASHTO BRIDGEWare® Virtis software when possible.

7. Notify PM of load rating results.

3880 CPM or Pavement Markings Quality Assurance Review

Reporting Management Unit:	Quality Assurance and Lettings or Project Manager
Task Start:	Receipt of Final CPM Package or PM Notified of Pav't Mark. Plans in ProjectWise
Task Finish:	Submission of the Final CPM Plan/Proposal Package to Technical Unit in Quality Assurance and Lettings
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task includes a final review of the CPM or Pavement Marking plan/proposal package prior to submittal to the Technical Unit in Quality Assurance and Lettings. The review ensures the required components such as the job submittal form, certification acceptance, Transport, special provisions, supplemental specifications, quantities, pay items, etc. are included. The reviewer notifies the Project Manager of any missing or erroneous material in the package. Once concurrence is reached on the revisions that are needed to be made, small corrections are made by the reviewer while substantial revisions are the responsibility of the Project Manager. After the package is corrected and updated, the job is forwarded to the Technical Unit in Quality Assurance and Lettings for advertising and letting.

WORK STEPS:

1. The Project Manager submits the job package to Quality Assurance and Lettings for review (via ProjectWise). For Pavement Marking jobs, the Designer notifies the Project Manager of ProjectWise readiness.

2. Input actual start date into project management software.

3. The job package is reviewed and missing or erroneous material is identified and forwarded to the Project Manager, or Designer for Pavement Marking jobs.

4. The reviewer and the Project Manager reach agreement on the corrections that are required.

5. Minor corrections are performed by the reviewer and the remaining corrections are performed by the Project Manager. For Pavement Markings, the Designer makes any corrections.

6. Input actual finish date into project management software.

7. The reviewer forwards the job package to the Technical Unit in Quality Assurance and Lettings for advertising and letting.

3885 Finalize Plans

Reporting Management Unit:	Project Manager
Task Start:	Receipt of FPC Review comments
Task Finish:	Incorporation of Recommendations into Final Plan/Proposal Package
Date Last Modified:	April 2019

TASK DESCRIPTION:

The Project Manager receives all review comments for the FPC package. Any revisions, additions, and/or deletions discovered are marked on the plans or proposal in red by the Project Manager. It is the responsibility of the participants to make sure their recommendations are marked on the plans. The Project Manager is responsible for incorporating applicable comments into the plan/proposal package. Any comments need to be incorporated into the design package as quickly as possible so that the construction letting is not delayed.

These comments are documented by the Project Manager, and reviewed at least one week prior to the FPC meeting.

Changes or additions to the job scope or limits will not be considered at the meeting. The intent of the FPC meeting is to discuss and resolve all final conflicts, contradictions, etc. The Project Manager arranges the meeting. With the move to electronic plans and proposals, it is preferred that the Project Manager refer people to the appropriate location in ProjectWise. Otherwise they may distribute copies of the plan/proposal package.

The following people should be invited to the FPC Meeting:

Project Manager/Unit Leader
Construction Engineer (Region/TSC Construction)
*Author of the Maintaining Traffic Special Provision
Quality Assurance representative
Geometrics (Lansing Traffic & Safety) representative

*If the Maintaining Traffic Special Provision was written by a Consultant, a Region/TSC Traffic & Safety representative must be invited.

A notice should also be sent to the Specs and Estimates Unit that the plan/proposal package is in ProjectWise and ready for cost estimate review.

The following representatives should be invited only if involved with a portion of the plan/proposal package. Invitation of these persons should be kept to a minimum for each of the following categories:

Consultant Coordinator/Consultant Electrical Unit Hydraulics/Hydrology Unit Signals (Lansing Traffic & Safety) Region Real Estate Lansing Construction	FHWA (non-exempt projects) Municipal Utilities Unit Roadside Development Unit Signs and Pavement Markings (Lansing T&S) Region Utilities/Permits
NOTE: The Project Manager will obtain all of the required signatures on the Certification Acceptance form from those units that are not represented at the FPC Meeting.	

The Construction Engineer is responsible for developing and supplying the draft progress clause prior to the meeting and for inclusion in the package.

NOTE: Consultant work within this task description will be superseded by the scope of the consultant contract as applicable. See also Supplemental Information following.

At the end of the meeting, the design team will respond to the review comments and modify the plans, package, proposal, and supporting documents appropriately.

WORK STEPS:

1. Project Manager receives commented plans.

2. Input actual start date into project management software.

3. The PM reviews the combined comments prior to the meeting.

4. The PM should notify all meeting participants of the combined file in ProjectWise, or send a set of plans for their review, at least one week prior to the meeting.

5. In-House: Hold FPC Meeting. Mark any further recommendations on plans and proposal in red, or record electronically in Adobe file in ProjectWise.

6. *Consultants:* Attend the FPC meeting. The title sheet shall be brought to the FPC meeting by the Consultant (see the Guidelines for Plan Preparation for seal location). Try to hold the number of Consultant participants to only essential (two or three at most) personnel. The Consultant will take notes at the meeting.

    a. **Work Steps to be completed immediately following the FPC Meeting:**

    b. Receive and review comments from the FPC Meeting.

    c. Revise plans and/or specifications to address comments.

    d. Prepare the final plan submittal package. Check the submittal package in accordance with the Consultant's QA/QC plan. The submittal package shall include the following:

        i. A cover letter stating that all FPC meeting comments have been incorporated into the plans and the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

        ii. Plan sheets including all areas of work; eg., bridge plans, traffic signal plans, etc.

        iii. Consultant shall prepare and compile both the proposal.pdf file and the planhalf.pdf file as described in the e-proposal instructions under Design Services.

        iv. Approved job specific special provisions for items not covered by MDOT standard specifications.

v. Consultant provided .xml of their project quantities.

1) File must be generated in .xml format and submitted electronically. This computer file must meet formatting requirements for data entry into AASHTOWare Project Preconstruction, including breakdown ID information.

2) Verify that all the work item descriptions, units and quantities on the estimate output, plans and specifications match.

vi. Marked up index of Frequently Used Notice to Bidders.
vii. Marked up Index of Frequently Used Special Provisions.
viii. Marked up Index of Supplemental Specifications.

ix. Traffic & Safety special provisions for Pavement Markings, Signals, and Permanent Signs as applicable.

x. Maintaining Traffic special provision, with applicable maintaining traffic typicals.

xi. Additional proposal items (coordination clauses, notice to bidders, etc.). All proposal items shall be submitted on a cd, through ProjectWise (include submittal date on the label), or otherwise submitted electronically in Microsoft Word or Adobe Acrobat format.

xii. Marked up FPC plans (if provided by the MDOT Project Manager). **The final plan submittal will be considered incomplete if the marked up FPC plans are not included.**

xiii. Written responses to the FPC meeting comments.

xiv. Final Progress Clause provided by Region/TSC Construction Engineer.

e. Send the final plan submittal package electronically to the MDOT Project Manager.

f. Receive any items returned by the MDOT Project Manager as incomplete or deficient. Make necessary changes and resubmit the revised materials with written responses to the comments. Keep copies of the MDOT's comments, the marked up prints (if included), and the revised materials for the job record.

7. In-House: The design team incorporates all accepted review comments and completes the final plans and proposal package in Projectwise.

8. In-House: Project Manager ensures recommendations are incorporated into plan/proposal package.

9. In-House: After all comments are incorporated after the FPC Review , the Project Manager acknowledges the plan/proposal package is complete and ready for submittal, and retains the completed Plan/Proposal Package until submittal to the Specs and Estimates Unit is appropriate. This may be as long as 4 months (6 months before letting) for jobs funded in the Big 3 of the 5 Major Programs (Road, Bridge, & IE). *See Road Design Manual Sections 14.59 ("Shelf Jobs") and 14.60 (Submission of Completed Plans), esp. 14.60.01, for details.*

10. In-House: The marked up plan/proposal package is placed in job files until the construction is finalled out.

11. Input actual finish date into project management software.

388M Final Project Coordination Meeting Milestone

Reporting Unit: Project Manager

The team is selected to review the Final Plan & Proposal Package and ensure its completeness as part of Task 3885. The meeting is held after Task 3870.

380M Plan Completion Milestone

Reporting Unit: Project Manager

Indicates completion of Final Plans and Proposal Package in preparation for the Omission/Errors Check Review and Certification Acceptance. This milestone ends Task 3885.

3.7 Letting (3900 Series)

3900 Omission and Errors Check (OEC) Review

Reporting Management Unit:	Project Manager
Task Start:	Plan Completion
Task Finish:	Turn-In to Specs and Estimates
Date Last Modified:	April 2019

TASK DESCRIPTION:

This task is the final checks and reviews to ensure the plans and proposal are complete, and that all requirements are met. The majority of this process is review and completion of the Certification Acceptance Form by all involved divisions and sections within the Bureau of Highways. Once the form is complete, it is submitted to the Specifications and Estimates Unit.

WORK STEPS:

1. The marked up final plan/proposal package exists in the proper job files locations in Projectwise.

2. Input actual start date into project management software.

3. All FPC reviewers and others required to sign the Certification Acceptance Form are notified of plan and form readiness.

4. Reviewers and signers verify that all their concerns have been resolved within the final plans and proposal package.

5. Project Manager verifies that the Certification Acceptance Form is completed and signed by all parties.

6. Project Manager submits completed plans to Specifications and Estimates.

7. Receive Progress Clause, and sign the Title Sheet.

8. Input actual finish date into project management software.

391M Certification Acceptance Milestone

Reporting Unit: Design - Project Estimating and Letting

This completes Task 3900 with approval and sign-off on the Certification Acceptance Checklist. This indicates that all letting and Federal requirements have been met, and that Design has cleared the project for advertising.

389M Plan Turn-In

Reporting Unit: Design – Quality Assurance

After all comments are incorporated after the FPC Review and Certification Acceptance, the Project Manager turns in the completed Plans & Proposal Package to Quality Assurance.

3910 Prepare Final Project Package and Obtain Authorization

Reporting Management Unit:	Design – Quality Assurance and Lettings
Task Start:	Receipt of the final plans, specifications and estimates from Project Manager
Task Finish:	Approval of Design Support Area to advertise
Date Last Modified:	April 2004

TASK DESCRIPTION:

As part of this task, the job plan specifications and estimates are compiled and the necessary approvals obtained.

WORK STEPS:

1. Quality Assurance and Lettings receives final plans, specs, and estimates from Project Manager. This coincides with the Plan Turn-In Milestone.
2. Input actual start date into project management software.
3. Check that Certification Checklist is complete and that all sign-offs are done.
4. Prepare draft job proposal.
5. Finalize the construction cost estimate.
6. Obtain necessary signatures on title sheet.
7. Prepare advertisement for bid announcement.
8. Receive FHWA authorization.
9. Distribute Final Plans and Proposal to appropriate MDOT staff.
10. Review and approve Certification Acceptance Checklist.
11. Input actual finish date into project management software.
12. Release for Advertisement by Design Support Area

3920 Advertise and Let Job

Reporting Management Unit:	Contract Services Division – Construction Contracts – Bid Letting
Task Start:	Receipt of Letting Folder
Task Finish:	Announcement of low bidder
Date Last Modified:	March 2012

TASK DESCRIPTION:

This task includes the work effort to advertise the job, receive bids, evaluate bids and determine the low bidder. This is often referred to as the letting process.

Upon receipt of the Letting Folder an advertisement is developed. The advertisement is to inform contractors of the proposed letting and availability of the proposal. The advertisement provides general job information such as:

- description of job,
- job completion date, and
- category and level of prequalification.

The final proposal is assembled. The plans and proposal are posted on the Bid Letting website. If appropriate, a pre-bid meeting is held to answer questions of the potential bidders which are conducted by the originating group.

During the advertisement period, but prior to the bid letting, all projects with an engineer's estimate greater than $500,000 are reviewed by the State Transportation Commission and the Ad Board for approval. These projects must go back for re-approval if there is a 10% overbid issue or only one bidder.

The bidders prepare and submit their sealed bids electronically. At a predetermined time the bids are received from the eligible bidders. The total bid amount is posted on the website for each bid received.

The as-received bid amounts are unofficial. The bids are examined for proper completion of bid item pages and any special requirements. The totals are computer verified using the pay items and quantities. An internal review committee reviews all bids and all bidding irregularities or bids recommended for rejection. A determination is then made of the low bidder. The as-checked results are then posted to the website.

Arrangements are made to resolve letting related problems. Problems that may arise are the justification of bids when all bids are 10% over the engineer's estimate or when the low bidder withdraws from the job.

An appeal can be made by a rejected low bidder within 5 calendar days of the official determination of the low bidder. Appeals are handled through a pre-established appeals process.

WORK STEPS:

1. Prepare and post bid announcement advertisement.
2. Complete the assembly of the final job proposal.
3. Post plans and proposals.
4. Send project to State Transportation Commission and Ad Board for approval.
5. Receive electronic bids (Bid Letting).
6. Verify and check bids.
7. Resolve any letting-related problems.
8. Determine low bidder.
9. Post official as-checked bid results.

392M Project Let Milestone

Reporting Unit: Financial Services - Bid Letting

The project is let when it has been advertised, bids have been received and evaluated, and the low bidder selected. This occurs as part of Task 3920.

3930 Award Job Construction Contract

Reporting Management Unit:	Contract Services Division – Construction Contracts – Contract Awards
Task Start:	Announcement of the low bidder
Task Finish:	Signature by MDOT Director
Date Last Modified:	March 2012

TASK DESCRIPTION:

Once the official low bidder has been confirmed, the low bidder is sent a contract and bond forms. The contractor signs and returns the contract and provides proof of insurance and bonding.

If the job carries a local funding agreement, the contract cannot be awarded until the local agency agreement is received and approved.

If there is a 10% overbid issue, or there is one bidder on contracts over $500,000, the contract must go to the Michigan Transportation Commission for reapproval. A justification memo is required on 10% overbid issues. The contract is then submitted to the Michigan State Administrative Board for reapproval. After the State Transportation Commission reapproves the contract, the low bidder is sent the contract documents. If there is a 10% overbid issue on contracts less than $500,000, a justification letter must be prepared and received before the contract documents can be sent to the low bidder.

WORK STEPS:

1. Send contract and bond forms to the official low bidder.

2. Input data into CAST for website availability.

3. Receive signed contract, progress schedule from Engineer's and DBE sheets, warranty bonds, and proof of insurance and bonding, as applicable.

4. Send information to Attorney General for review and approval of contracts and bonds.

5. Assure that local agency funding is in place, if required.

6. Obtain signature of MDOT Director and award contract.

393M Project Awarded Milestone

Reporting Unit: Financial Services - Contract Awards

After selection of the low bidder, a contract is drawn up, bonding and funding are arranged, and various levels of approval are obtained. Signing by the Director of the Department signifies that the project has been awarded. The steps all occur as part of Task 3930.

4. Right of Way (4000 Series)

4.1 Early ROW Work (4100)

4100 Real Estate Pre-Technical Work

Reporting Management Unit:	Region - Real Estate
Task Start:	Assignment of B phase for ROW
Task Finish:	Final assembly/receipt of Preliminary Title Commitment Package
Date Last Modified:	January 2015

TASK DESCRIPTION:

This task combines all those tasks required to complete the Pre-technical work/portion of the pre-acquisition right of way tasks. Within the description of this task are the description and work steps for the following tasks:

Milestone 411M – Obtain ROW Obligation
4115 Obtain Right Of Way Turnkey Consultant
4120 Obtain Preliminary Title Commitments

NOTE: The Development Services (Real Estate) Division has enacted a Quality Assurance Process and Quality Control Program that may require participation on a review team or panel. The performance and implementation of <u>any task</u> may also be utilized in a review setting as part of identifying compliance with proper ROW procedures, identifying and sharing best practices, and providing continuous process improvement. For more details, see the Development Services (Real Estate) Division Quality Assurance/Quality Control Process Document.

411M Obtain ROW Obligation

Reporting Unit: Region Real Estate Agent

Prior to any other Right-of-Way work, the necessary approvals and coding must be made to enable charges to be made to the right of way (ROW) work phase. This milestone is the final step in the authorization process required to enable that for a job. It may also include additional tasks that are required to obligate Federal funds.

<u>Task 4115 - Obtain Right Of Way Turnkey Consultant</u>

Reporting Management Unit: Development Services (Real Estate) - Administration
Task Start: Assignment of B phase for ROW
Task Finish: Date of an executed contract agreement signed by all parties

This task deals with all the tasks necessary to obtain consultant services for Development Services (Real Estate) activities.

The turnkey contract includes right of way technical, appraisal, relocation assistance, acquisition and property management activities. The individual contract is specific to the job. The contract describes scope, cost & schedule as agreed to by both the turnkey consultant and the Department.

This task is considered complete when an actual executed agreement is signed by all parties.

WORK STEPS:

1. Prepare scope of work in sufficient detail to determine in-house and consultant costs.
2. Input actual start date into project management software.
3. Establish selection committee.
4. Prepare and distribute Request for Proposals (RFP).
5. Conduct pre-bid meeting.
6. Receive and review proposals and interview consultants, if appropriate
7. Recommend consultant as top candidate(s).
8. Select lowest bid based on price proposal.
9. Negotiate proposal with top candidate.
10. Submit request for contract to Finance to proceed with contracting effort/process.
11. Verify availability of funding with Program Administration.
12. Prepare final contract document
13. Obtain necessary approvals.
14. Circulate document for signature.
15. Input actual finish date into project management software.
16. Hold briefing meeting and give notice to proceed.

Task 4120 - Obtain Preliminary Title Commitments

Reporting Management Unit: Real Estate - Region
Task Start: Letter from Design Control along with preliminary ROW plans (buy order) and ROW authorization
Task Finish: Final assembly/receipt of Preliminary Title Commitment Package

The purpose of the preliminary title search is to determine ownership and boundaries of ownership for the right of way impacted by the job. The title search also tries to identify if there are any encumbrances on the property. A legal description of property is the primary deliverable of this task.

Upon receiving the preliminary ROW plans, the Development Services (Real Estate) - Project Development Section, or Consultant, identifies the right of way properties to be investigated. The Department/Consultant contracts with private title companies to conduct the preliminary title search. The Consultant shall use a title company that has an existing contract with MDOT to provide services. Contact the MDOT Development Services (Real Estate) Division to acquire a list of firms.

Depending upon the type of proposed Right Of Way to be acquired the following general requirements can be followed:

For Parcels containing only Grading Permits and/or Drive Permits: Tax Rolls
For Fee Right of way: Tax Rolls and Title

The number of parcels estimated for this job is stated in the Scope of Design Services. The Consultant shall use this number in the proposal and provide a unit cost for each parcel.

The title company is sent a set of plans, a work authorization, and a due date. The title company provides:

- a legal property description;
- owner of record which is a verified deed;
- address of owner;
- other contiguous properties;
- zoning or deed restrictions; and
- copies of all encumbrances (land contracts, mortgages and private easements

WORK STEPS:

1. Receive right of way authorization from Finance and preliminary right of way plans from the Design Division, or *(Consultant)* prepare PROW plans if TASK 3361 - SUBMITTAL OF PRELIMINARY RIGHT-OF-WAY PLANS is part of the contract.

2. Input actual start date into project management software.

3. Review the PROW plans. If errors, discrepancies or omissions are discovered in the PROW plans during the title commitment preparation process, the Region/Consultant shall immediately contact the MDOT Project Manager. Title commitment activities on the affected parcel or parcels will cease until corrected information or further instruction is provided by the MDOT Project Manager.

4. Distribute plans and authorizations.

5. Obtain tax descriptions and tax maps covering lands affected by the job.

6. For fee or easement properties, order and receive preliminary title commitments from a title company. The following is a list of information required to be included either on, or with, each title commitment ordered:

    a. Legal description of the tract of land of which the parcel to be acquired is a part.

    b. Name and last known address of owner disclosed by the public records.

    c. Indicate the title vesting deed with grantor, date of conveyance, recording date, and the Liber and page. (Include a copy of the deed.)

    d. Note any mortgages, land contracts, liens, easements, or other encumbrances and furnish copies.

    e. Name and address to whom taxes are assessed, and status of tax payment (include computer tax code).

    f. Description of contiguous property of same ownership, or reference to the deed that does describe contiguous property (include a copy), if any, or a written statement that your search disclosed none.

    g. Copies of any plat restrictions which might affect the parcel.

    h. Control Section number and Job number on the first page of the title commitment and on the invoice.

    i. A copy of boundary survey if one is found.

    j. A copy of any land contracts, leases, or easements if any are found.

7. Review building and plat restrictions to determine if the construction of the job will violate these restrictions.

8. Prepare the Preliminary Title Commitment submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include the following:

    a. A cover letter stating this is the Preliminary Title Commitment submittal package. When prepared by consultant, the cover letter shall state that the submittal was prepared and checked by the procedures described in the consultant's QA/QC plan.

    b. Tax descriptions, tax maps, and sub-division plats.

    c. Preliminary title commitments.

    d. Building and plat restrictions and a list of the restrictions that may be violated by the proposed construction.

    e. List of outstanding questions and/or considerations with feasible solutions and alternatives for each.

9. *Consultant:* Check the submittal package in accordance with the consultant's QA/QC plan.

10. *Consultant:* Submit the original Preliminary Title Commitment package to the MDOT Region Real Estate Agent and send a copy of the transmittal letter to the MDOT Project Manager.

11. Receive any items returned by MDOT Project Manager as incomplete or deficient.

12. Make necessary changes. Resubmit the entire package including a written response to all comments.

13. *Consultant:* Receive the MDOT Submittal Evaluation form from MDOT Region Real Estate Agent. They may contact the MDOT Project Manager if one is not received within two weeks of the package submittal.

14. Input actual finish date into project management software.

15. If necessary, obtain updated title information as needed.

4.2 ROW Technical Work (4150)

4150 Real Estate Technical Work

Reporting Management Unit:	Region - Real Estate
Task Start:	Receipt of final ROW plans, or consultant begins FROW plans
Task Finish:	Posting of last legal instrument
Date Last Modified:	January 2015

TASK DESCRIPTION:

This task combines all those tasks required to complete the technical work/portion of the pre-acquisition right of way tasks. Within the description of this task are the description and work steps for the following tasks:

4130 Prepare Marked Final Right Of Way Plans
4140 Prepare Property Legal Instruments
Milestone 413M – Approved Marked Final ROW Plans

NOTE: The Development Services (Real Estate) Division has enacted a Quality Assurance Process and Quality Control Program that may require participation on a review team or panel. The performance and implementation of <u>any task</u> may also be utilized in a review setting as part of identifying compliance with proper ROW procedures, identifying and sharing best practices, and providing continuous process improvement. For more details, see the Development Services (Real Estate) Division Quality Assurance/Quality Control Process Document.

<u>Task 4130 – Prepare Marked Final ROW Plans</u>

Reporting Management Unit: Development Services (Real Estate) - Technical Unit
Task Start: Receipt of final ROW plans, or consultant begins FROW plans
Task Finish: Distribution of the Marked Final ROW plans

The marked final ROW plans provide information regarding right of way properties impacted by the proposed job. In developing the marked final ROW plans the Project Development Section/Consultant uses the final ROW plans to plot and calculate:

- the total ownership of each parcel with ROW (fee/easement),
- the area to be acquired,
- the area of the existing right of way, and
- the area of all remainders.

The marked final ROW plans are then distributed by MDOT to the appropriate groups. The plans serve as the basis for appraising and acquiring the ROW parcels, writing legal descriptions, and for obtaining a master demolition contract and preparing relocation assistance plan.

This task also includes the necessary steps involved to make revisions to the marked FROW plans as may be necessary after THE Plan Review.

WORK STEPS (In House):

1. Receive final right of way plans from Design Division.

2. Input actual start date into project management software.

3. Receive and review preliminary title commitment package. If errors, discrepancies or omissions are discovered in the preliminary title commitment package during the MFROW plan preparation process, immediately contact the MDOT Project Manager. MFROW plan development activities on the affected parcel or parcels will cease until corrected information or further instruction is provided by the MDOT Project Manager.

4. Determine and plot the boundaries of each parcel affected and assign the necessary parcel numbers. Contact the Region Real Estate Agent to obtain the initial parcel number for this job. Make sure the parcel information is placed on all affected sheets.

5. Compute total ownership area of each parcel from which land is to be taken in fee or easement. **Areas shall be computed using the property descriptions**. Include owner names and areas on the Ownership Sheet which can be found in the Cell Library.

6. Compute and check all areas (takes and remainders) of each parcel from which land is to be taken. **Areas shall be computed using the property descriptions**.

7. If a post decision meeting is necessary, prepare a list of names and addresses of all owners of property affected by the job.

8. Perform ROW revisions, as necessary.

    a. Prepare ROW Revision submittal package. Consultants: Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

        i. (Consultants)A cover letter stating that this is a ROW Revision submittal. The cover letter shall state that the submittal was

prepared and checked by the procedures described in the Consultant's QA/QC plan.

ii. (Consultants) CDs of all affected drawings utilizing the Intergraph Micro Station system format.

iii. Reproducible, standard-size (cut size 36" x 24" (914.4 mm x 609.6 mm)) plan sheets created from electronic files contained on CD of affected sheets.

iv. Marked up prints of the affected sheets highlighting the ROW revisions.

v. Written description of each individual ROW revision.

b. When performed by consultant, check the submittal package in accordance with the Consultant's QA/QC plan.

c. Submit the ROW Revision package to the MDOT Project Manager.

d. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

e. Make necessary changes. Resubmit the entire ROW Revision package including a written response to all comments.

f. Receive a half-size print of the ROW Revision plan sheets from the MDOT Project Manager. These prints are for the Consultant's files. These plans will have the signed MDOT ROW approval block in the upper right-hand corner.

g. If necessary, acquire additional title information. When performed by consultant, if Task 4120- Obtain Preliminary Title Commitments is a Consultant task, they obtain required title information. If that task is not, the consultant contacts the MDOT Project Manager.

h. Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the ROW Revision package submittal.

9. Submit marked final ROW plans to the Project Manager.

10. Project Manager submits marked final ROW plans to the FHWA.

11. Receive FHWA approval.

12. Input actual finish date into project management software.

13. Distribute marked final ROW plans and associated documentation to the appropriate groups.

WORK STEPS (Consultant):

1. Receive and review preliminary title commitment package or prepare the package if TASK 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS is part of this contract. If errors, discrepancies or omissions are discovered in the preliminary title commitment package during the MFROW plan preparation process, the Consultant shall immediately contact the MDOT Project Manager. MFROW plan development activities on the affected parcel or parcels will cease until corrected information or further instruction is provided to the Consultant by the MDOT Project Manager.

2. Send actual start date to PM for entry into project management software.

3. Prepare the MFROW plans; which consist of FROW plans with parcel lines, parcel numbers and ownership arrows shown on plan sheets; ownership sheet(s); and vicinity map sheet(s).

4. Determine and plot the boundaries of each parcel affected and assign the necessary parcel numbers. Contact the Region Real Estate Agent to obtain the initial parcel number for this job. Make sure the parcel information is placed on all affected sheets.

5. Compute total ownership area of each parcel from which land is to be taken in fee or easement. **Areas shall be computed using the property descriptions**. Include owner names and areas on the Ownership Sheet which can be found in the cell Library.

6. Compute and check all areas (takes and remainders) of each parcel from which land is to be taken. **Areas shall be computed using the property descriptions**.

7. Prepare a list of names and addresses of all owners of property affected by the job.

8. Prepare MFROW submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

    a. A cover letter stating that this is the MFROW submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

b. CD of all drawings utilizing the Intergraph Micro Station system format.

c. Reproducible, standard-size (cut size 36" x 24" (914.4 mm x 609.6 mm)) plan sheets created from construction plan tracings.

d. CDs and a hard copy of list of names and addresses utilizing Microsoft Word version 8.0 or better.

9. Check the submittal package in accordance with the Consultant's QA/QC plan.

10. Submit the MFROW package to the MDOT Project Manager.

11. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

12. Make necessary changes. Resubmit the entire MFROW package including a written response to all comments.

13. Receive a half-size set of the MFROW plans from the MDOT Project Manager. These prints are for the Consultant's files. These plans will have the signed MDOT ROW approval block in the upper right-hand corner.

14. Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the MFROW package submittal.

15. Send actual finish date to PM for entry into project management software.

16. Perform ROW revisions, as necessary. See additional items following.

RIGHT OF WAY REVISIONS

1. Prepare ROW Revision submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

   a. A cover letter stating that this is a ROW Revision submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

   b. CDs of all affected drawings utilizing the Intergraph MicroStation system format.

   c. Reproducible, standard-size (cut size 914.4 mm x 609.6 mm (36" x 24")) plan sheets created from electronic files contained on CD of affected sheets.

d. Marked up prints of the affected sheets highlighting the ROW revisions.

e. Written description of each individual ROW revision.

2. Check the submittal package in accordance with the Consultant's QA/QC plan.

3. Submit the ROW Revision package to the MDOT Project Manager.

4. Receive any items returned by the MDOT Project Manager as incomplete or deficient.

5. Make necessary changes. Resubmit the entire ROW Revision package including a written response to all comments.

6. Receive a half-size print of the ROW Revision plan sheets from the MDOT Project Manager. These prints are for the Consultant's files. These plans will have the signed MDOT ROW approval block in the upper right-hand corner.

7. If necessary acquire additional title information.

   a. If Task 4120- Obtain Preliminary Title Commitments is a Consultant task, then obtain required title information.

   b. If Task 4120- Obtain Preliminary Title Commitments is not a Consultant task then contact the MDOT Project Manager.

8. Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of the ROW Revision package submittal.

SUPPLEMENTAL INFORMATION

For more details regarding the preparation of ROW plans refer to the following:

1. Michigan Design Manual, Road Design (SI), Volume 3, Chapter 5.

2. Michigan Design Manual, Road Design (SI), Volume 3, Chapter 1, Appendix A - Guidelines for Plan Preparation (Metric Version), May 1996.

3. The following is additional information relating to CADD levels and ROW information:

50	Parcel lines, parcel numbers, ownership arrows.
51	Lot lines and numbers.
52	Property Corner Information.
53	Parcel Boxes in the Vicinity Map

54 English units in parentheses.
55 Special ROW notes and Dimensions.

Level 54 shall contain the equivalent English units to all metric ROW references to aid the MDOT Development Services (Real Estate) Division in their communication with the public.

The above-mentioned levels shall not contain unrelated items such as curve data, drainage, utilities, design notes or other text unrelated to ROW plan sheet preparation. Any changes required by MDOT to ensure the final product is within requirements shall be the responsibility of the Consultant.

413M Approved Marked Final ROW Milestone

Reporting Unit: Project Manager

A team consisting of the Project Manager, Quality Assurances ROW Engineer, Region Real Estate Agent, and Lansing Development Services (Real Estate) Manager, all agrees that the plans are acceptable, meet MDOT's guidelines, and are ready to move to the next step. This milestone signifies the end task 4130.

4140 Prepare Property Legal Instruments

Reporting Management Unit: Region - Real Estate
Task Start: Receipt of marked final ROW plans
Task Finish: Posting of last legal instrument

The purpose of this task is to develop legal and recordable instruments which describe rights to be acquired for each parcel required by the job. The types include:

- warranty deeds,
- total or partial takes,
- easements, and
- permits (grading, relocation).

With receipt of the marked final ROW plans, Region Real Estate reviews the plans and title commitments. From this review, a determination is made as to the rights to be acquired for each parcel. A legal description is then prepared. The legal description is posted when it is transmitted to the Region Real Estate Agent.

For Consultants: **This task must be completed by a consultant on Real Estate Division's approved consultant list.**

WORK STEPS:

1. Receive and evaluate preliminary title commitment package or *(Consultants)* prepare the package if TASK 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS is part of the contract.

2. Input actual start date into project management software.

3. Receive and review MFROW package or *(Consultants)* prepare the package if TASK 4130 - PREPARE MARKED FINAL R.O.W. PLANS is part of the contract.

4. Evaluate preliminary title commitments. *Consultants:* If errors, discrepancies or omissions are discovered in the preliminary title commitment or MFROW package during the preparation of the Property Legal Instruments, the Consultant shall immediately contact the MDOT Project Manager. Legal description activities on the affected parcel or parcels will cease until corrected information or further instruction is provided to the Consultant by the MDOT Project Manager.

5. Determine the rights to be acquired for each parcel.

6. Prepare legal instruments. Legal descriptions shall be described according to MFROW plans. All line descriptions shall be tied to a legal government survey corner or monument within one mile of the described property. *Consultants:* The descriptions shall follow the MDOT examples. Contact the MDOT Survey Area for the ROW Survey Template, which includes info on legal descriptions. All descriptions shall be in Microsoft Word format. Each description shall have its own Word file. The records shall become the property of MDOT.

7. Prepare Property Legal Instruments submittal package. *Consultants:* Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include:

    a. A cover letter stating that this is the Property Legal Instruments submittal. The cover letter shall state that the submittal was prepared and checked by the procedures described in the Consultant's QA/QC plan.

    b. CD(s) of all documents utilizing Microsoft Word format.

    c. Hard copies of each Legal Description.

8. *Consultants:* Check the submittal package in accordance with the Consultant's QA/QC plan.

9. *Consultants:* Submit the Property Legal Instruments package to the MDOT Regional Real Estate Agent and send a copy of the transmittal letter to the MDOT Project Manager.

10. *Consultants:* Receive any items returned by the MDOT Project Manager as incomplete or deficient.

11. *Consultants:* Make necessary changes. Resubmit the entire Property Legal Instruments package including a written response to all comments to the MDOT Regional Real Estate Agent and send a copy of the transmittal letter to the MDOT Project Manager.

12. *Consultants:* Receive the MDOT Submittal Evaluation form from MDOT Regional Real Estate Agent. Contact the MDOT Project Manager if one is not received within two weeks of the Property Legal Instruments package submittal.

13. ROW plan revisions typically occur when a design change or negotiation alters ROW requirements on any part of the job. When requested by the MDOT Project Manager, the Consultant will be required to submit a Property Legal Instruments package for the ROW revision.

14. Input actual finish date into project management software.

15. Post legal instruments.

4.3 ROW Appraisal Work (4350)

4350 Real Estate Appraisal Work

Reporting Management Unit:	Region - Real Estate
Task Start:	Receipt of marked final right of way plans
Task Finish:	Date the last approved compensation is posted for the last parcel
Date Last Modified:	January 2015

TASK DESCRIPTION:

This task combines all those tasks required to complete the appraisal work/portion of the pre-acquisition right of way tasks. Within the description of this task are the description and work steps for the following tasks:

4411 Preliminary Interviews
4412 Assignment Proposal and Fee Estimate for Appraisal Work Authorization
4413 Appraisal Reports
4420 Appraisal Review Reports

NOTE: The Development Services (Real Estate) Division has enacted a Quality Assurance Process and Quality Control Program that may require participation on a review team or panel. The performance and implementation of <u>any task</u> may also be utilized in a review setting as part of identifying compliance with proper ROW procedures, identifying and sharing best practices, and providing continuous process improvement. For more details, see the Development Services (Real Estate) Division Quality Assurance/Quality Control Process Document.

<u>Task 4411 – Preliminary Interviews</u>

Reporting Management Unit: Region Real Estate
Task Start: Receipt of marked final right of way plans
Task Finish: Date last Preliminary Interview is completed

After receipt of marked final right of way plans and authorization to begin right of way activities, the Region Real Estate Agent coordinates the interview of property owners impacted by the job.

All property owners will be interviewed who are affected by the job except those property owners who agree to waive their rights to appraisal.

The purpose of the preliminary interview is twofold. One purpose is to inform the property owner on how the public job impacts their property, and give them a general time frame for the right of way acquisition and construction schedules for the job. The

second purpose is to obtain information from the property owner that will aid in the acquisition of their property. Information typically obtained includes names, phone numbers, and addresses of interested parties (property owners and tenants), verification of title evidence, verification of improvements, environmental data, and information needed for relocation plans.

WORK STEPS:

1. Review marked final right of way plans.
2. Input actual start date into project management software.
3. Contact the property owner.
4. Conduct a preliminary interview obtaining all relevant information required.
5. Show the property owner marked final right of way plans, explaining how the job affects their property and answer any questions the property owner has.
6. Input actual finish date into project management software.
7. Transmit completed Preliminary Interview to Region Agent.

Task 4412 – Assignment Proposal & Fee Est. for Appraisal Work Authorization

Reporting Management Unit: Region Real Estate
Task Start: Receipt of completed Preliminary Interview
Task Finish: Date last 633ES is completed

After receipt of the preliminary interview and work authorization, the Region RE agent coordinates the preparation of Real Estate Services Assignment Proposal and Fee Estimate for Appraisal Work Authorization (Form 633ES) for each parcel requiring a fee appraisal on the job. Preparation of the 633ES requires a complete review of the right of way plans, title commitment(s), preliminary interview(s), and inspection of the subject property. The 633ES is a scope of work document describing the characteristics of the subject parcel and the taking, the type of appraisal needed, the time frame for completing the appraisal, any special instructions or studies that will be needed or supplied to resolve the appraisal problem, and any guidelines or standards that must be followed in the preparation of the appraisal.

The purpose of the 633ES is to describe the scope of the appraisal assignment. The fee appraisers will use this description as a basis for the fee they will charge to complete the appraisal assignment. Many other appraisal related forms follow – see MDOT's Forms Repository under Form 633.

WORK STEPS:

1. Assignment of the 633ES to staff or consultant.

2. Input actual start date into project management software.

3. The individual reviews and becomes completely familiar with the marked final right of way plans, title commitment(s), preliminary interview(s), and inspects the subject parcel.

4. A "Real Estate Services Assignment Proposal and Fee Estimate for Appraisal Work Authorization" (Form 633ES) is prepared, including an In-House Appraisal Fee Estimate.

5. A Request for Real Estate Service Work Authorization is prepared and sent to the contract administrator for response. Each bid proposal is sent to a minimum of five appraisal consultants for their fee estimate, to be returned to the contract administrator for processing. Other appraisal related forms may follow.

6. Input actual finish date into project management software.

Task 4413 - Appraisal Reports

Reporting Management Unit: Region Real Estate
Task Start: Date first 633ES completed
Task Finish: Last completed Appraisal Reports are received from the staff or fee appraiser

After receipt of the approved Work Authorization to Appraise, the Region RE agent either prepares in-house appraisals or contracts the appraisal work for parcels impacted by the job. The appraiser completes an appraisal of the property in accordance with MDOT's guidelines and accepted appraisal standards, indicating fair market value for the subject property.

The purpose of the appraisal is to estimate just compensation to the property owner for the property rights acquired and any loss in value to the remaining property. There are many appraisal related forms – see MDOT's Forms Repository under Form 633.

WORK STEPS:

1. Assign a staff appraiser to perform the appraisal or receive contract authorization documents for a fee appraiser to commence work.

2. Input actual start date into project management software.

3. Staff or a fee appraiser performs appraisal process and prepares an appraisal report.

4. Input actual finish date into project management software.

5. The finished appraisal product is transmitted to the Region Appraiser for review.

Task 4420 - Appraisal Review Reports

Reporting Management Unit: Region Real Estate
Task Start: Receipt of the first completed appraisal for review
Task Finish: Date the last approved compensation is posted for the last parcel

Upon completion of an appraisal, the Region RE/Project Team or an authorized representative prepares a written narrative appraisal review report for each appraisal. The appraisal review ensures that:

- the appraisal report is in accordance with the appraisal scope of work and the MDOT "Requirements for Appraisal Reports";
- the appraisal contains no mathematical errors;
- there were no additional sales or other factors which were overlooked;
- the appraisal was prepared using the most accurate information and follows all state and Federal regulations;
- the value is fair, reasonable and well documented; and
- that there are no non-compensable items included.

The review establishes the just compensation to be offered to the property owner.

WORK STEPS:

1. Perform office and field review of the appraisal to ensure completeness, accuracy and compliance with all state and Federal regulations and the appraisal scope of work.

2. Input actual start date into project management software.

3. Request supplemental information from appraiser, if necessary.

4. Prepare reviewer's statement of approved compensation.

5. Register the approved compensation.

6. Input actual finish date into project management software.

7. Transmit approved and reviewed compensation to Region Real Estate Agent.

4.4 ROW Acquisition/Relocation (4450)

4450 Real Estate Acquisition Work

Reporting Management Unit:	Region - Real Estate
Task Start:	Receipt of the first reviewed appraisal
Task Finish:	Submission of the last parcel for condemnation or closing, **or** verification that last unit is vacated, **or** issuance of certification to build.
Date Last Modified:	January 2015

This task combines all those tasks required to complete the acquisition work/portion of the right of way tasks. Within the description of this task are the description and work steps for the following tasks:

4430 Acquire ROW Parcels
4710 Relocation Assistance
4720 Prepare Improvement Removal Plan

NOTE: The Development Services (Real Estate) Division has enacted a Quality Assurance Process and Quality Control Program that may require participation on a review team or panel. The performance and implementation of <u>any task</u> may also be utilized in a review setting as part of identifying compliance with proper ROW procedures, identifying and sharing best practices, and providing continuous process improvement. For more details, see the Development Services (Real Estate) Division Quality Assurance/Quality Control Process Document.

<u>Task 4430 – Acquire ROW Parcels</u>

Reporting Management Unit: Region Real Estate
Task Start: Receipt of the first reviewed appraisal
Task Finish: Submission of the last parcel for condemnation or closing

In acquiring the property, the negotiator makes an offer to the property owner based on the reviewed fair market value and, as appropriate, offers an owner's housing supplement. If the owner accepts the offer, an option is obtained. If a settlement cannot be achieved condemnation proceedings are initiated.

WORK STEPS:

1. Prepare and present written good faith offer to the property owner and other parties of interest.

2. Input actual start date into project management software.

3. Negotiate with property owner to understand the offer and to reach a mutually acceptable agreement. If the offer is not accepted by the parties of interest, recommend condemnation of the unsecured parcel.

4. Prepare a closing package or an unsecured package.

5. Submit the closing package to the title escrow company.

6. If unsecured, send unsecured package to Lansing Development Services (Real Estate) for processing.

7. Input actual finish date into project management software.

8. Lansing Development Services (Real Estate) forwards any unsecured packages with statement of necessity and declaration of taking to the Attorney General's Office for filing in Circuit Court.

Task 4710 – Relocation Assistance

Reporting Management Unit: Region Real Estate
Task Start: Receipt of preliminary interviews
Task Finish: Verification that the last unit is vacated

The purpose of MDOT's Relocation Assistance Program is to implement the Transportation Commission's authorization of benefits on all jobs of MDOT, and to allow for full compliance with state and Federal policies, regulations and guidelines.

The objective of the program is to provide decent, safe and sanitary replacement housing to individuals and families displaced by the job. Relocation assistance is also provided to businesses, farms and non-profit organizations being displaced.

WORK STEPS:

1. Review completed preliminary interview forms.

2. Input actual start date into project management software.

3. Prepare relocation plan. Do additional studies as necessary, and enter data in REMIS.

4. Prepare replacement housing or rental determinations.

5. Identify and conduct field evaluation of available housing or rental units.

6. Identify available, comparable, decent, safe, and sanitary housing or rental units for each relocatee.

7. Document and verify income of tenants.

8. Revise replacement housing or replacement rental determinations; if necessary, after receipt of appraisals and income verification.

9. Prepare relocation determination.

10. Review relocation determination.

11. Present the relocation determination to displacee and explain benefits and entitlements.

12. Assist displacee in locating replacement properties and with other related needs.

13. Assist displacee in preparing relocation claims.

14. Verify occupancy at replacement property.

15. Process claims, make payments via MAIN, and enter data in REMIS.

16. Input actual finish date into project management software.

17. Close relocation file.

Task 4720 – Prepare Improvement Removal Plan

Reporting Management Unit: Region Real Estate
Task Start: Receipt of marked final ROW plans
Task Finish: Issuance of building certification

This task involves the removal of improvements within the right of way required for a job. Improvements can include:

- buildings;
- site improvements such as lights, signs, underground tanks, parking surfaces, wells and septic systems; and
- fixtures and machines such as office equipment, inventory, and any tools or animals used in the business.

A variety of methods are available for removal of the right of way improvements, which may include:

- auction,
- removal by owner (such as house moving),
- sealed bid for acquiring fixtures or structure, and/or
- demolition or master demolition contract.

Upon receipt of the marked final ROW plans, the staff begins coordination for a master demolition contract. This involves the letting of a contract to perform the necessary work, using AASHTOWare Project Preconstruction Software. After closing of property sale, the staff issues a "notice to quit" for the occupants to vacate the property by a specified date. After the vacation, any fixtures are contracted for disposal. Authorization is then given for the removal of structures or fixtures.

Asbestos inspections are contracted for all buildings. Inspections are completed upon vacation. The demolition contract typically includes removal of asbestos when identified.

WORK STEPS:

1. Receive marked final ROW plans.

2. Input actual start date into project management software.

3. Prepare Property Disposition Report (PDR). Enter data in REMIS.

4. Identify parcels that need clearance. Arrange an asbestos inspection contract.

5. After receipt of appraisal, prepare salvage value determination for parcels with improvements.

6. After completion of negotiations, review parcel package in regards to occupancy, improvements, excess property fixtures, and prepare water letters. Prepare a contract to have the possession, inventory, sale and disposal of the fixtures handled by a consultant.

7. If unsecured, work with the Attorney General regarding possession. Send notices to quit where appropriate. If optioned, receive copy of deed and send notices to quit.

    - Arrange for extended occupancy of property where necessary (rental determination and agreement).

    - Meet with occupants with fixtures and arrange for inventory, sale, and disposal, if contract for same has not been arranged.

    - Arrange for asbestos inspection and boarding for vacated structures. Arrange for mowing, snow removal, etc. on all parcels.

8. Prepare a "Notice to Public" and advertise the "sale". Hold and coordinate the "sale". Prepare bonds and contracts for the successful bidder.

9. Sell individual improvements as possession is gained, if not "sold" in "Master Demolition" sale.

10. Input actual finish date into project management software.

11. Prepare certification prior to advertising. Submit copy of ROW Certification to the Project Manager, Region Engineer, and appropriate individuals.

442M ROW Certification Milestone

Reporting Unit: Development Services (Real Estate) – Program Mgt.

This finishes Task 4720 and certifies that the project's ROW portion is complete. A copy of the ROW Certification should be submitted to the Project Manager.

4.5 ROW Surveys (4500 Series)

4510 Conduct Right of Way Survey & Staking

Reporting Management Unit:	Region-Survey/Design-Survey
Task Start:	Survey and staking of area requested
Task Finish:	Transmittal of survey data and/or notification of completion
Date Last Modified:	June 2016

TASK DESCRIPTION:

This task is used to provide appraisers and/or buyers with the area of properties to be purchased as part of a job or to stake an area to determine new right of way lines. The survey provides the right of way lines for both the main line and side streets. this information is used to make comparisons between new and existing right of ways.

This task can also include:

- location of building or other structures, and
- determination of encroachments on existing right of way.

NOTE: The Development Services (Real Estate) Division has enacted a Quality Assurance Process and Quality Control Program that may require participation on a review team or panel. The performance and implementation of this task may also be utilized in a review setting as part of identifying compliance with proper ROW procedures, identifying and sharing best practices, and providing continuous process improvement. For more details, see the Development Services (Real Estate) Division Quality Assurance/Quality Control Process Document.

WORK STEPS:

1. Receive staking request.project management software
2. Develop survey order and assign to appropriate group.
3. Gather existing plans, control points, old survey notes, right of way information and other available information.
4. Input actual start date into project management software.
5. Stake area requested.
6. Prepare field notes and/or job report.
7. Notify appropriate unit of completion.
8. Input actual finish date into project management software.
9. Transmit results to the appropriate unit, if needed.

5. Intelligent Transportation Systems

6.1. Special Tasks for Intelligent Transportation Systems

2570 ITS Concept of Operations

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Onset thought of the Project
Task Finish:	Document to provide direction for the project
Date Last Modified:	August 2008

TASK DESCRIPTION:

The document should result from a stakeholder view of the operations of the system being developed. This document will present each of the multiple views of the system corresponding to the various stakeholders. These stakeholders include operators, users, owners, developers, maintenance, and management. This document can easily be reviewed by the stakeholders to get their agreement on the system description. It also provides the basis for user requirements.

The concept of operations process should include the following characteristics: Constraints, Inputs, Activities, and Enablers with the outcome of the outputs (concept of operations).

WORK STEPS:

1. Define project vision, goals and objectives
    a. Expand and elaborate on them to capture the multiple views

2. Explore project concepts
    a. Review the high level system architecture

3. Develop operational scenarios
    a. Describes how the system will be operated under various conditions.
    b. Scenarios should describe the activities from the viewpoint of each of the participants.
    c. May use flow diagrams, use cases etc.

4. Develop and document concept of operations
    a. Document should be a recording of findings and system characteristics for each of the multiple viewpoints of the various stakeholders.

    b. Document should include but not be limited to: vision, goals and objectives, operational philosophies, operational environment, support environment, operational system characteristics, system constraints and limitations, institutional issues, external interfaces, stakeholder functions, roles and responsibilities, and capabilities.

3365 Pre-Conceptual ITS Design and Meeting

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Approval of the design scope of work or authorization to proceed
Task Finish:	Distribution of completed base plans to appropriate work centers
Date Last Modified:	May 2008

TASK DESCRIPTION:

The plans should show existing device locations and communication paths for the current system where they exist. The plans shall show the beginning and ending limit of the project. The plans should show all known right of way, communication towers and other existing applicable field conditions.

The work associated with the existing device locations and communications path will vary from project to project varying from a device upgrade project to a full blown communications and device installation.

WORK STEPS:

1. Review existing plans and other available information for device and communication path determination.

2. Input actual start date into project management software.

3. If necessary, request additional field survey and/or aerial mapping.
   a. If surveying is a consultant task, then obtain required survey information.
   b. If surveying is NOT a consultant task, then send a request and reason for additional survey information to the MDOT Project Manager.

4. Develop proposed job design based on the type of project. For device upgrade projects spot location plan sheets may be used. For any project that involves underground work the length of the project full set of plan sheets shall be developed.

5. Review the ROW information obtained and determine if additional ROW information is necessary for the project plans. If additional information is necessary notify the MDOT Project Manager.

6. Develop title sheet, note sheet, system overview sheet and plan sheets based on need for project.

7. Prepare a list of questions for the pre conceptual meeting of things that need to be determined, addressed, explored etc. Examples are: coordination with other agencies for communication needs/sharing, additional soils investigation, utility involvement, operations center needs and concern with existing devices in question. Explore future desires and links to coincide with the ITS Concept of Operations for Michigan.

8. Submit base plans and materials to the MDOT Project Manager

9. Make necessary changes and resubmit the revised materials. Keep copies of marked up plans and comments in the project files.

3585 Final ITS Concept Design and Meeting

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Approval of the pre conceptual plan or authorization to proceed
Task Finish:	Distribution of completed preliminary plans to appropriate work centers, utility correspondence copies to project manager, soil boring request documentation, copy of document for ROW review.
Date Last Modified:	June 2008

TASK DESCRIPTION:

The plans should show existing device locations and communication paths for the current system where they exist. The plans shall show the beginning and ending limit of the project. The plans should show all known right of way, communication towers and other existing applicable field conditions.

The plans should not incorporate the conceptual concepts, evaluation of new device locations, new device locations shown on the drawings. A write up shall be included that shows the criteria utilized in the placement of the devices. This document shall provide information not limited to location selection, placement criteria is met, any potential issues with location, and if the device is replacing an existing location or if this is a new installation.

The work associated with this task will vary from project to project varying from a device upgrade project to a full blown communications and device installation.

WORK STEPS:

1. Take conceptual plans and transform those to proposed device locations on the map.

2. Input actual start date into project management software.

3. If necessary, request additional field survey and/or aerial mapping.
    a. If surveying is a consultant task, then obtain required survey information.
    b. If surveying is NOT a consultant task, then send a request and reason for additional survey information to the MDOT Project Manager.

4. Review device locations and determine the locations necessary to order soil borings. Submit plan sheet showing location and request for soil borings to MDOT Project Manager if the soil borings are to be done by MDOT. If the soil

borings are to be done per the contract, schedule with the sub consultant to perform the soil borings.

5. Review the ROW information obtained and determine if additional ROW information is necessary for the project plans based on the proposed device locations. If additional information is necessary notify the MDOT Project Manager.

6. Prepare the utility request based on the type of project. The MDOT utility manager shall be involved in this process. The Consultant shall be responsible for transmitting the plans and cover sheet to the utilities and copy the Project manager and MDOT utility engineer(s) (based on TSC location for the project),

7. Determine with the Project Manager if any stakeholder meetings are necessary. If so the design consultant is responsible for setting up this meeting. The consultant shall set up the meeting and invite the stakeholders in coordination with the project manager. The correspondence shall be in writing and documented. MDOT will facilitate the meeting.

8. Submit final conceptual materials and prints to the MDOT Project Manager.

3595 Conduct ITS Structure Foundation Investigation

Reporting Management Unit:	Project Manager or Construction and Technology – Geotechnical Unit
Task Start:	The receipt of a request for a foundation investigation, or written into consultant contract
Task Finish:	The distribution of the final Geotechnical Report to Project Manager, or receipt of final Geotechnical Report by Project Manager from consultant
Date Last Modified:	August 2008

TASK DESCRIPTION:

A foundation investigation is necessary for all new structures, and those existing structures which are to be modified or where the proposed substructure loads will increase. The investigation typically begins with the receipt of a request for a foundation investigation, which includes the designer's vision of the structure type, size, and location. In the case the project is under consultant contract, the need must be determined in the scoping process and written into the consultant contract. The foundation investigation shall be in accordance with MDOT control document "Geotechnical Investigation and Analysis Requirements for Structures" as found in the MDOT BBS.

Based on the information received, any existing soil borings are gathered and a determination is made as to the adequacy of the existing information and the need for additional soils information. Soil borings are normally required and access to private property must be obtained. Survey control points are required to identify the location of the borings. A boring pattern is established and utility clearances are obtained.

Once the pattern has been established, soil borings are performed with in-situ testing and laboratory analysis to determine the engineering behavior of the soils within the influence of the proposed substructure. The appropriate foundation treatment is selected, and a Geotechnical Report is sent to the Project Manager.

In the case of a consultant contract, the consultant often subcontracts an engineering firm to perform the above testing and distributes the results back to the Project Manager. This procedure covers a geotechnical investigation that must meet the requirements presented in the Michigan Design Manual. This investigation is necessary for all new structures and those existing structures that are to be modified or subjected to increased loads. The product of this task is a Geotechnical Report.

WORK STEPS:

1. Receive a request for a foundation investigation, or need is written into consultant contract. The foundation investigation shall be in accordance with MDOT control document "Geotechnical Investigation and Analysis Requirements for Structures" as found in the MDOT BBS.

2. Input actual start date into project management software.

3. Research, review, and evaluate existing information such as existing borings, existing recommendations, etc., if available.

4. Obtain property access and request utility clearance.

5. Consultants must obtain all necessary permits, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section, required to perform this survey on any public and/or private property.

    a. For protection of underground utilities and according to Public Act 53, 1974, the Consultant shall dial Miss Dig 1-800-482-7171 a minimum of three full working days, excluding Saturday, Sunday, and holidays, before beginning each excavation in areas where public utilities have not been previously located. Utility members will thus be routinely notified. This does not relieve the Consultant of the responsibility of notifying utility owners who may not be a part of the Miss Dig alert system.

    b. The Department's freeway lighting system, the IVHS, and other miscellaneous electrical systems are not a part of Miss Dig. Contractors working in the Metro District shall call:

        Freeway Lighting
        i. Freeway Lighting Contract Manager (810) 569-3993

        IVHS and Freeway Operations
        ii. MITSC (Michigan Intelligent
        iii. Transportation Systems Center) (313) 256-9800

        Lighting and Traffic
        iv. Public Lighting Department (313) 224-0500

    c. Contractors working outside the Metro District should contact the maintenance representative at the MDOT District Office to have lighting systems staked.

6. Take soil borings, perform in-situ testing and collect soil samples.

7. Perform laboratory analyses.

8. Prepare the Geotechnical Report submittal package. Contact the MDOT Project Manager if you have questions regarding submittal requirements. The submittal package shall include the following:

    a. A cover letter stating conformance to MDOT's control document "Geotechnical Investigation and Analysis Requirements for Structures" as found in the MDOT BBS dated June, 1990, and updated in March 2004.

    b. List of outstanding questions and/or considerations.

9. Input actual finish date into project management software.

10. Prepare and submit Geotechnical Report to the Project Manager.

11. Receive any items returned by the MDOT Project Manager as incomplete deficient.

12. Make necessary changes and resubmit the revised materials. Keep copies of the MDOT Project Manager's comments and the revised materials for the job record.

13. Receive the MDOT Submittal Evaluation form. Contact the MDOT Project Manager if one is not received within two weeks of submitting the Geotechnical Report.

Supplemental Information:

For more information, refer to the following:

Items to be purchased:
Michigan Design Manual

Items available through Construction and Technology Website:
MDOT's control document **"Geotechnical Investigation and Analysis Requirements for Structures"**, dated June, 1990, and updated in March 2004.

3615 Compile ITS Utility Information

Reporting Management Unit:	Project Manager
Task Start:	Completion of Pre-Conceptual Meeting
Task Finish:	Inclusion of Utility Information on Preliminary Plans
Date Last Modified:	August 2008

TASK DESCRIPTION:

The objective of this task is to gather information to determine the location of all utilities which could be impacted by the installation of new devices, communication paths, and any other type of work associated with the expansion of the system. The types of utilities include private and governmental utilities such as:

- Electrical,
- Water,
- Cable,
- Sewer,
- Gas,
- Communication, and
- County drains.

Once the scope has been verified and the Pre-Conceptual Meeting complete, the Project Manager distributes plans to the utilities (companies and governmental) requesting preliminary input and information. Information required from the utility includes location of utilities on a marked-up set of plans. A preliminary utility meeting is conducted, if necessary. Formal responses are received from all utilities by the Project Manager.

WORK STEPS:

1. Transmit Pre-Conceptual Meeting plans to utilities.

2. Input actual start date into project management software.

3. Hold/attend preliminary utility meeting, if beneficial.

4. Receive utility information.

5. Input actual finish date into project management software.

6. Plot utility information on preliminary plans.

3680 Preliminary ITS Communication Analysis

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Approval of the final conceptual plan or authorization to proceed
Task Finish:	Communication plan alternatives
Date Last Modified:	August 2008

TASK DESCRIPTION:

The consultant should take the final conceptual plan and begin a communication layout for the devices to be integrated with the ITS system. This preliminary communication analysis should include and not be limited to communication alternatives. This should include all types of communication possible (wireless, fiber, cellular etc). The consultant shall layout a pros and cons list for the types of communications and how they fit with the subject system architecture.

Upon determination of the communications system the consultant shall look at potential conflicts with underground or above ground objects to make a determination of the impacts.

WORK STEPS:

1. Review the final conceptual plan to determine the possible methods of communications.

2. Provide analysis of communication options to show pros and cons of each option. This should include the approx costs associated and evaluation with long term architecture.

3. Review the communications options and review for potential conflicts both underground and above ground. Make a determination it the conflicts are overcome able or not. This will provide direction to move forth to final communications analysis and selection.

3690 Power Design (Power Drop in Field)

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Upon completion of Final Concept Meeting
Task Finish:	Power drops are processed and approved with power company
Date Last Modified:	August 2008

TASK DESCRIPTION:

The consultant should review the final conceptual plan set to determine exact device locations. Once those locations are noted the consultant shall review the utility information to determine where the power sources are if needed for the subject equipment. If there is power the consultant shall ensure the power supply is adequate for the existing and proposed loads. If there is no current power then the consultant shall take the necessary steps for a power drop installation.

WORK STEPS:

1. Review the final conceptual plan to determine the location of the existing and proposed devices.

2. Review the utilities to determine the current location of power supply for the devices.

3. Determine the existing and proposed power needs for those locations with existing power to ensure they meet the requirements.

4. Gather information for those devices that do not have a current power supply to utilize and begin the process for a new power drop.

    a. Determine the location the power drop needs to be.

    b. Determine the size of power necessary.

    c. Contact the local agency for that subject area (may be many throughout a project) and request an address for that location. Even though it may be on a highway or in the ROW an address is needed for the power company. Typically, MDOT does not have to pay a fee for this address.

    d. Complete the power company's form to request a power drop and submit to Power Company.

e. Once the Power Company has received the form, contact them to schedule an on site visit of the location(s) with the utility company.

f. After the on site visit it should become an active project in the utility companies system.

g. Continue to follow up with utility company until such time as the service is installed.

3890 Final ITS Communications Analysis

Reporting Management Unit:	Designer/Design – Consultant Coordination
Task Start:	Approval of the preliminary communication analysis or authorization to proceed
Task Finish:	Communication Analysis approval
Date Last Modified:	August 2008

TASK DESCRIPTION:

Once the communication alternatives are defined and conflicts identified the consultant shall provide that information to the Project Manager for review. A preliminary approval of the communications analysis will be given and the consultant will move forth to final communications determination.

If the selection for the communications is wireless the consultant shall move forth to determine based on field verification that the line of sight is clear and physically walk the path to make a clear determination if there will be any conflicts for radio communications. If there is conflict an alternative path must be pursued or an alternate communication option will need to be selected.

The bandwidth shall be confirmed to be of such nature to not derogate the system functionality.

If fiber design is selected the consultant shall design a large enough fiber bandwidth for future use and expansion. The Consultant shall also look at where the fiber should be accessible for future projects and/or future partnerships with other agencies etc.

WORK STEPS:

1. Meet with Project Manager to look at the communication options to make a preliminary approval.

2. Once preliminary approval is given the consultant shall determine if a field verification is necessary based on communication type selection.

3. If wireless communication is selected, a field verification must be completed, and it shall be all inclusive and physically walked to ensure open path.

4. If a blockage is discovered the Consultant shall determine a new wireless path or look at other communications options.

5. Confirmation of available bandwidth for all communications paths

6. If a fiber design is selected a determination of how much fiber and where the stubs should be put for future expansion or partnerships.

6. Design-Build Tasks

6.1. Special Tasks for Design-Build Jobs

6000 Initial Discussion/Scope

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6050 General Engineering Consultant Development Contract

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6080 Establish Dates for ENV and ROW Clearance

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6100 Develop Request for Qualifications

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6140 Advertise Request for Qualifications

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6200 Shortlist for CRT Approval

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6300 Develop Request for Proposals

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6150 Design-Build Environmental Classification

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6155 Design-Build Environmental Certification

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6650 Design-Build Coordination of RR Involvement for Grade Separations

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6655 Design-Build Coordination of RR Involvement for At-Grade Xings

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6110 Design-Build Real Estate Pre-Technical Work

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS: Add 611M – DB Obtain ROW Obligation

6160 Design-Build Real Estate Technical Work

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS: Add 613M – DB Approved Marked FROW Plans

6350 Design-Build Real Estate Appraisal Work

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6450 Design-Build Real Estate Acquisition Work

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS: **Add 642M – DB ROW Certification**

6510 Design-Build Conduct ROW Survey and Staking

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS:

6520 Design-Build Certified Surveys for Acquisitions

Reporting Management Unit:	Designer/Design – Project Manager
Task Start:	
Task Finish:	
Date Last Modified:	May 2009

TASK DESCRIPTION:

WORK STEPS

IV. Appendices

Appendix A- Index to Tasks by Responsible Unit

Each task in the Global Network is associated with a reporting unit. This is the organizational unit charged with the responsibility of reporting actual start and finish dates for the task. The table below provides a list of possible tasks arranged by the reporting unit(s), showing Division-Section-Unit where applicable.
Contact Dennis Kelley (517-373-4614) or Scott Habetler (517-335-3278) for updated info.

Task
Number Task Description

CONSTRUCTION FIELD SERVICES - GEOTECHNICAL SERVICES
3325 – Geotechnical Site Characterization - Structures
3530 - Geotechnical Foundation Engineering Report
3595 – Conduct ITS Structure Foundation Investigation
3815 – Geotechnical Design Review - Structures

DESIGN – BRIDGE DEVELOPMENT AND DESIGN
3360 - Prepare Base Plans (as Road Design)
3361 - Review and Submit Preliminary ROW Plans (as Road Design)
3370 - Prepare Structure Study
3522 - Conduct Drain Study, Sewer Design, and Str. Best Mgt (as Road Design)
3570 - Prepare Preliminary Structure Plans
3580 - Develop Preliminary Plans (as Road Design)
3581 - Review and Submit Final ROW Plans (as Road Design)
3840 - Develop Road Final Plans and Specifications (as Road Design)
3850 - Develop Structure Final Plans and Specifications

DESIGN - PROJECT DEVELOPMENT
1220 - Scope Verification and Initiation of EPE Activities

DESIGN - PROJECT MANAGER (may be one of many units)
1110 - Obtain Study Consultant
2100 - Scope Verification and Initiation of EPE Activities
2110 - Obtain EPE Consultant
2130 - Prepare Purpose and Need for Project
2140 - Develop and Review Illustrative Alternatives
2340 - Develop and Review Practical Alternatives
2510 - Determine and Review Recommended Alternative
2525 - Prepare and Review Engineering Report
2570 - ITS Concept of Operations
3130 - Verify Design Scope of Work and Cost
3360 - Prepare Base Plans
3365 - Pre-Concept ITS Design and Meeting
3370 - Prepare Structure Study

3380 - Review Base Plans
3565 - Preliminary Constructability Review
3570 - Prepare Preliminary Structure Plans
3580 - Develop Preliminary Plans
3585 - Final ITS Concept Design and Meeting
3595 - Conduct ITS Structure Foundation Investigation
3610 - Compile Utility Information
3680 - Preliminary ITS Communication Analysis
3680 - Preliminary ITS Communication Analysis
3720 - Assemble Environmental Permit Application Information
3840 - Develop Road Final Plans and Specifications
3850 - Develop Structure Final Plans and Specifications
3860 Final Constructability Review
3900 - Omission/Errors Check (OEC) Review
3890 - Final ITS Communications Analysis

DESIGN - QUALITY & INNOVATION – ESTIMATES & LETTING
3910 Prepare Final Project Package and Obtain Authorization

DESIGN - QUALITY & INNOVATION – GEOMETRICS
1125 - Traffic Capacity Analysis for Studies
2125 – Traffic Capacity Analysis for EPE/Design
3560 - Conduct Preliminary Geometrics and Roadside Safety Reviews
3810 - Conduct Final Geometrics and Roadside Safety Reviews

DESIGN - QUALITY & INNOVATION – PLAN AND FIELD REVIEW
3361 - Review and Submit Preliminary ROW Plans
3581 - Review and Submit Final ROW Plans
3590 - Review Preliminary Plans (Hold THE Plan Review Meeting)

DESIGN - QUALITY & INNOVATION – STANDARDS/CERTIFICATION
3880 - CPM Quality Assurance Review

DESIGN - ROAD
2570 - ITS Concept of Operations
3360 - Prepare Base Plans
3361 - Review and Submit Preliminary ROW Plans
3365 - Pre-Concept ITS Design and Meeting
3522 - Conduct Drain. Study, Storm Sewer Design, & Str. Best Management Practices
3580 - Develop Preliminary Plans
3581 - Review and Submit Final ROW Plans
3585 - Final ITS Concept Design and Meeting
3680 - Preliminary ITS Communication Analysis
3680 - Preliminary ITS Communication Analysis
3840 - Develop Road Final Plans and Specifications
3890 - Final ITS Communications Analysis

DESIGN - ROADSIDE DEVELOPMENT
3535 - Conduct Structural Review for Architectural and Aesthetic Improvements

DESIGN – SPECIAL STRUCTURES
3672 - Develop Special Drainage Structures Plans

DESIGN - SURVEY
3160 - Obtain Design Survey Consultant3330 - Conduct Design Survey
3340 - Conduct Structure Survey
3350 - Conduct Hydraulics Survey
4510 - Conduct Right Of Way Survey and Staking

DESIGN – SURVEY TECH SUPPORT
2321 - Prepare for Aerial Photography
2322 - Finish/Print Aerial Photography
2361 - Obtain Photogrammetry Consultant
3310 - Prepare Aerial Topographic Mapping
3320 - Conduct Photogrammetric Control Survey
3321 – Set Aerial Photo Targets

DESIGN - UTILITIES
3670 - Develop Municipal Utility Plan
3675 - Develop Electrical Plans

DEVELOPMENT - ENVIRONMENTAL SERVICES SECTION ADMIN (for assignment)
1700 – Other Miscellaneous Studies
2160 - Prepare and Review EIS Scoping Documentation
2360 - Prepare and Review Environmental Assessment (EA)
2370 - Prepare and Review DEIS
2380 - Distribute Environmental Assessment (EA)
2390 - Distribute DEIS
2530 - Prepare and Review Request for FONSI
2540 - Prepare and Review FEIS
2550 - Obtain ROD
2810 – Conduct Project Area Contamination Survey (PACS)/Initial Site Assessment (ISA) for Contamination
2820 - Conduct Preliminary Site Investigation (PSI) for Contamination

DEVELOPMENT - ENVIRONMENTAL SERVICES – ENV. COMPLIANCE AND MITIGATION
2313 - Endangered Species Survey
2314 - Wetland Assessment
2315 - Wetland Mitigation
3710 - Develop Required Mitigation

DEVELOPMENT - ENVIRONMENTAL SERVICES - PROJECT CLEARANCE & CULTURAL RESOURCES COORDINATION (formerly Evaluation & Classification)
2311 - Cultural Resources Survey
2312 - Recreational Survey-Section 4(f)/6(f)3150 - Categorical Exclusion Environmental Classification
3155 – Categorical Exclusion Environmental Certification

DEVELOPMENT – HYDRAULICS
3375 - Conduct Value Engineering Study
3520 - Conduct Hydraulic/Hydrology and Scour Analysis

DEVELOPMENT SERVICES – COORDINATION & PERMITS – GOV'T & RR COORD.
3630 - Prepare and Process Participation/Special Operational Agreements

DEVELOPMENT SERVICES (REAL ESTATE) - PROGRAM & PROPERTY MANAGEMENT SERVICES
4110 - Obtain Right of Way Authorization

FINANCE & ADMIN – CONTRACTS DIVISION
3140 - Obtain Design Consultant
3920 - Advertise and Let Job
3930 - Award Job Construction Contract

OFFICE OF RAIL – TRUNKLINE CROSSINGS AND COORDINATION
3650 - Coordinate Railroad Involvement for Grade Separations
3655 - Coordinate Railroad Involvement for At-Grade Crossings

PLANNING – ASSET MAANGEMENT – TRAFFIC ANALYSIS & SYSTEM STUDIES
1120 - Prepare Traffic Analysis Report for Studies
1300 – Traffic Impact Study
1350 – Determine Need for Interstate Access Change Request
1400 – Feasibility Study
1500 – Corridor Study
1555 - Interstate Access Change Request
1600 – Access Management Study Plan
2120 - Prepare Traffic Analysis Report for EPE/Design

REGION/TSC - CONSTRUCTION AND TECHNOLOGY
2330 - Collect EPE Geotechnical Data
3505 - Preliminary Pavement Design and Selection
3510 - Perform Roadway Geotechnical Investigation

REGION/TSC – DEVELOPMENT/DESIGN
3730 - Obtain Environmental Permits
See also Design - Project Manager

REGION - REAL ESTATE
4115 - Obtain Right of Way Turnkey Consultant
4120 - Obtain Preliminary Title Commitments
4130 - Prepare Marked Final Right of Way Plans
4140 - Prepare Property Legal Instruments
4411 - Preliminary Interviews
4412 - Appraisal Assignment Proposal and Fee Estimate
4413 - Appraisals
4420 - Review Right of Way Parcel Appraisals
4430 - Acquire Right Of Way Parcels
4710 - Prepare Relocation Assistance
4720 - Prepare Improvement Removal Plan

REGION - SURVEY
3160 - Obtain Design Survey Consultant
3330 - Conduct Design Survey
3340 - Conduct Structure Survey
3350 - Conduct Hydraulics Survey
4510 - Conduct Right Of Way Survey and Staking

REGION/TSC - TRAFFIC AND SAFETY
1155 - Request/Perform Safety Analysis for Studies
2155 - Request/Perform Safety Analysis for EPE/Design
2570 - ITS Concept of Operations
3365 - Pre-Conceptual ITS Design and Meeting
3390 - Develop Maintaining Traffic Concepts
3500 Develop Transportation Management Plan
3540 - Develop the Maintaining Traffic Plan
3552 - Develop Preliminary Permanent Pavement Marking Plan
3553 - Develop Preliminary Non-Freeway Signing Plan
3585 - Final ITS Concept Design and Meeting
3595 - Conduct ITS Structure Foundation Investigation
3615 - Compile ITS Utility Information
3680 - Preliminary ITS Communication Analysis
3690 - Power Design (Power Drop in Field)3822 - Complete Permanent Pavement Marking Plan
3823 - Complete Non-Freeway Signing Plan
3830 - Complete the Maintaining Traffic Plan
3890 - Final ITS Communication Analysis

REGION/TSC UTILITIES AND PERMITS
3660 - Resolve Utility Issues

Appendix B- Index to Tasks by Organizational Unit

Although there are over 100 tasks in the Global Network, most employees will typically report their time using a few of these tasks. This appendix is arranged to provide a list of tasks that each unit is likely/able to report to. Tasks which units may spend less than 5 percent of that task's labor hours on are typically not reported to, and thus not listed. **Usage of Index Codes has changed to Department Codes. Contact Dennis Kelley (517-373-4614) or Scott Habetler (517-335-3278) for updated info.**

PROJECT MANAGERS (DEVELOPMENT AND REGIONS)

1110 Obtain Study Consultant
1155 Request/Perform Safety Analysis for Studies
2100 EPE Scope Verification and Initiation of EPE Activities
2110 Obtain EPE Consultant
2155 Request/Perform Safety Analysis for EPE/Design
2311 Cultural Resources Survey
2312 Recreational Survey-Section 4(f)/6(f)
2313 Endangered Species Survey
2314 Wetland Assessment
2315 Wetland Mitigation
2340 Develop and Review Practical Alternatives
2360 Prepare and Review Environmental Assessment
2370 Prepare and Review Draft Environmental Impact Statement
2380 Circulate EA or DEIS
2390 Distribute DEIS
2525 Prepare and Review Engineering Report
2540 Prepare & Review FEIS
2810 Conduct Project Area Contamination Survey (PACS)/Initial Site Assessment (ISA)
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3325 Geotech Site Characterization for Structures
3360 Prepare Base Plans
3375 Conduct Value Engineering Study
3380 Review Base Plans
3500 Develop Transportation Management Plan
3565 Preliminary Constructability Review
3580 Develop Preliminary Plans
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3610 Compile Utility Information
3615 Compile ITS Utility Information
3672 Develop Special Drainage Structure Plans
3710 Develop Required Mitigation
3720 Assemble Environmental Permit Application Information
3730 Obtain Environmental Permits
3840 Develop Road Final Plans and Specifications

3860 Final Constructability Review
3900 Omission/Errors Check (OEC) Review
3880 CPM Quality Assurance Review
3910 Prepare Final Project Package and Obtain Authorization

BUREAU OF FIELD SERVICES

41800 C & T - Geotechnical

2820 Conduct Preliminary Site Investigation (PSI) for Contamination
3325 Geotechnical Site Characterization - Structures
3530 Geotechnical Foundation Engineering Report
3720 Assemble Environmental Permit Application
3815 Geotechnical Design Review - Structures
3595 Conduct ITS Structure Foundation Investigation

46000 System Operations Section

3540 Develop Maintaining Traffic Plan
3551 Prepare/Review Preliminary Traffic Signal Operations
3555 Prepare/Review Preliminary Traffic Signal Operations
3800 Safety and Mobility Peer Review
3821 Prepare/Review Final Traffic Signal Plan
3825 Prepare/Review Preliminary Traffic Signal Operations
3830 Complete the Maintaining Traffic Plan

BUREAU OF FINANCE AND ADMINISTRATION – CONTRACTS DIVISION

22900

1110 Obtain Study Consultant
2110 Obtain EPE Consultant
2361 Obtain Photogrammetry Consultant
3140 Obtain Design Consultant
3160 Obtain Design Survey Consultant
3920 Advertise and Let Project
3930 Award Project Construction Contract

BUREAU OF HIGHWAYS

311xx-9xx Region Utilities and Permits

3610 Compile Utility Information
3615 Compile ITS Utility Information
3660 Resolve Utility Issues
3670 Develop Municipal Utility Plan

331xx-9xx Region Development/Design

All Project Manager Tasks

1110 Obtain Study Consultant
1220 Scope Verification and Initiation of EPE Activities
1220 Scope Verification and Initiation of EPE Activities
2100 EPE Scope Verification and Initiation of EPE Activities
2140 Develop and Review Illustrative Alternatives
2160 Prepare and Review EIS Scoping Document
2340 Develop and Review Practical Alternatives
2360 Prepare and Review EA or DEIS
2340 Develop and Review Practical Alternatives
2380 Circulate EA or DEIS
2390 Distribute DEIS
2510 Determine and Review Recommended Alternative
2570 ITS Concept of Operations
3130 Verify Design Scope of Work and Cost
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3360 Prepare Base Plans
3361 Review and Submit Preliminary ROW Plans
3365 Pre-Conceptual ITS Design and Meeting
3380 Review Base Plans
3380 Review Base Plans
3522 Conduct Drainage Study, Storm Sewer Des., and Str. Best Mgt.
3580 Develop Preliminary Plans
3581 Review and Submit Final ROW Plans
3585 Final ITS Concept Design and Meeting
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3680 Preliminary ITS Communication Analysis
3690 Power Design (Power Drop in Field)
3720 Assemble Environmental Permit Application
3730 Obtain Environmental Permits
3840 Develop Road Final Plans and Specifications
3900 Omission/Errors Check (OEC) Review
3890 Final ITS Communication Analysis
Practices

35000 Design Services - Quality Assurance – Specs and Estimates

3910 Prepare Final Project Package and Obtain Authorization

35200 Environmental Services - Administration

1700 Other Miscellaneous Studies
2160 Prepare and Review EIS Scoping Documentation
2310 Conduct Technical SEE Studies
2316 Other Technical Reports

2360 Prepare and Review Environmental Assessment (EA)
2370 Prepare and Review DEIS
2380 Distribute Environmental Assessment (EA)
2390 Distribute DEIS
2530 Prepare and Review Request for FONSI
2540 Prepare and Review FEIS
2550 Obtain ROD
2810 Conduct Project Area Contamination Survey(PACS)/Initial Site Assessment (ISA) for Contamination
2820 Conduct Preliminary Site Investigation (PSI) for Contamination

35210 Environmental Services - Environmental Analysis

1110 Obtain Study Consultant
1220 Scope Verification and Initiation of EPE Activities
1400 Feasibility Study
1500 Corridor Study
1600 Access Management Study/Plan
1700 Other Miscellaneous Studies
2100 EPE Scope Verification and Initiation of EPE Activities
2110 Obtain EPE Consultant
2316 Other Technical Reports
2340 Develop and Review Practical Alternatives
2360 Prepare and Review EA or DEIS
2370 Prepare and Review Draft Environmental Impact Statement
2510 Determine and Review Recommended Alternative
2525 Prepare and Review Engineering Report
2530 Prepare and Review Request for FONSI or FEIS
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3150 Categorical Exclusion Environmental Clearance Coordination
3155 Categorical Exclusion Environmental Clearance Certification

35220 Environmental Services - Project Coordination

1110 Obtain Study Consultant
1400 Feasibility Study
1500 Corridor Study
1600 Access Management Study/Plan
1700 Other Miscellaneous Studies
2110 Obtain EPE Consultant
2310 Conduct Technical SEE Studies
2311 Cultural Resources Survey
2312 Recreational Survey-Section 4(f)/6(f)
2316 Other Technical Reports
2360 Prepare and Review Environmental Assessment
2370 Prepare and Review Draft Environmental Impact Statement
2530 Prepare and Review Request for FONSI

2540 Prepare & Review FEIS
3150 Categorical Exclusion Environmental Clearance Classification
3155 Categorical Exclusion Environmental Clearance Certification
3380 Review Base Plans
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3710 Develop Required Mitigation
3865 Project Plan Quality Assurance Review

35230 Environmental Services - Compliance and Mitigation
1110 Obtain Study Consultant
1400 Feasibility Study
1500 Corridor Study
1600 Access Management Study/Plan
1700 Other Miscellaneous Studies
2110 Obtain EPE Consultant
2310 Conduct Technical SEE Studies
2311 Cultural Resources Survey
2312 Recreational Survey-Section 4(f)/6(f)
2313 Endangered Species Survey
2314 Wetland Assessment
2315 Wetland Mitigation
2316 Other Technical Reports
2360 Prepare and Review Environmental Assessment
2370 Prepare and Review Draft Environmental Impact Statement
2530 Prepare and Review Request for FONSI
2540 Prepare & Review FEIS
3710 Develop Required Mitigation
3720 Assemble Environmental Permit Application
3865 Project Plan Quality Assurance Review

35240 Environmental Services - Hydraulics
3375 Conduct Value Engineering Study
3520 Conduct Hydraulic/Hydrologic and Scour Analysis
3522 Conduct Drainage Study, Storm Sewer Des., and Str. Best Mgt. Practices

35300 Design Services – Consultant Survey Tech Support
3160 Obtain Design Survey Consultant
3330 Conduct Design Survey
3340 Conduct Structure Survey
3350 Conduct Hydraulics Survey
4510 Conduct Right Of Way Survey and Staking

35800 Design Services - Survey - Administration
2321 Prepare for Aerial Photography
2322 Finish/Print Aerial Photography
2361 Obtain Photogrammetry Consultant

3160 Obtain Design Survey Consultant
3310 Prepare Aerial Topographic Mapping
3320 Conduct Photogrammetric Control Survey
3321 Set Aerial Photo Targets

35920 Design Programs – Traffic & Safety – Signs
3130 Verify Design Scope of Work and Cost
3554 Develop Preliminary Freeway Signing Plan
3824 Complete Freeway Signing Plan

361xx-9xx Design Services - Region Survey
3320 Conduct Photogrammetric Control Survey
3330 Conduct Design Survey
3340 Conduct Structure Survey
3350 Conduct Hydraulics Survey
4510 Conduct Right Of Way Survey and Staking

37300 Design – Quality & Innovative Design - Geometrics
1125 Traffic Capacity Analysis for Studies
2125 Traffic Capacity Analysis for EPE/Design
2130 Prepare Project Justification
2340 Develop and Review Practical Alternatives
2510 Determine and Review Recommended Alternative
2525 Prepare and Review Engineering Report
2540 Prepare & Review FEIS
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3380 Review Base Plans
3560 Conduct Preliminary Geometrics and Roadside Safety Reviews
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3810 Conduct Final Geometrics and Roadside Safety Reviews
3900 Omission/Errors Check (OEC) Review

37700 Design - Roadside Development
All Project Manager Tasks
1220 Scope Verification and Initiation of EPE Activities
2100 EPE Scope Verification and Initiation of EPE Activities
2340 Develop and Review Practical Alternatives
2380 Circulate EA or DEIS
2390 Distribute DEIS
2510 Determine and Review Recommended Alternative
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3380 Review Base Plans
3535 Conduct Structure Architectural & Aesthetic Review
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)

3710 Develop Required Mitigation
3840 Develop Road Final Plans and Specifications
3900 Omission/Errors Check (OEC) Review

37900 Design - Quality Assurance –Standards & CPM Review
3880 CPM Quality Assurance Review

38000 Design - Quality Assurance – Plans and Field Review
3130 Verify Design Scope of Work and Cost
3361 Review and Submit Preliminary ROW Plans
3380 Review Base Plans
3581 Review and Submit Final ROW Plans
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3900 Omission/Errors Check (OEC) Review

38500 Design – Bridge Development – Bridge Operations
3385 Preliminary Load Rating
3875 Final Load Rating

38700 Design - Special Assignment-Structures
All Project Manager Tasks
3672 Develop Special Drainage Structures Plans

38900-9400 Design - Bridge
All Project Manager Tasks
1220 Scope Verification and Initiation of EPE Activities
2100 EPE Scope Verification and Initiation of EPE Activities
2340 Develop and Review Practical Alternatives
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3370 Prepare Structure Study
3380 Review Base Plans
3570 Prepare Preliminary Structure Plans
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3850 Develop Structure Final Plans and Specifications
3900 Omission/Errors Check (OEC) Review

39600 Design - Utilities
Project Manager Tasks
3140 Obtain Design Consultant
3670 Develop Municipal Utility Plan
3675 Develop Electrical Plans

401xx-13xx Region M & T
2330 Collect EPE Geotechnical Data
3505 Preliminary Pavement Design and Selection

3510 Perform Roadway Geotechnical Investigation

43100-900 Region Real Estate

2100 EPE Scope Verification and Initiation of EPE Activities
2140 Develop and Review Illustrative Alternatives
2340 Develop and Review Practical Alternatives
2510 Determine and Review Recommended Alternative
2525 Prepare and Review Engineering Report
3130 Verify Design Scope of Work and Cost
3380 Review Base Plans
4115 Obtain Right Of Way Turnkey Consultant
4120 Obtain Preliminary Title Commitments
4130 Prepare Marked Final Right Of Way Plans
4140 Prepare Property Legal Instruments
4411 Preliminary Interviews
4412 Appraisal Assignment Proposal and Fee Estimate (Form 633ES)
4413 Appraisals
4420 Review Right Of Way Parcel Appraisals
4430 Acquire Right Of Way Parcels
4710 Provide Relocation Assistance
4720 Prepare Improvement Removal Plan

44000 Development Services (Real Estate) - Utility Coord. & Permits

3610 Compile Utility Information
3615 Compile ITS Utility Information
3660 Resolve Utility Issues

44700 Development Services (Real Estate) - Project Devel - Technical Unit

4120 Obtain Preliminary Title Commitments
4130 Prepare Marked Final Right Of Way Plans
4140 Prepare Property Legal Instruments

44800 Development Services (Real Estate) - Acquisition/Appraisal Support (Parcel & LPA Review)

2316 Other Technical Reports
2340 Develop and Review Practical Alternatives
2380 Circulate EA or DEIS
2390 Distribute DEIS
2540 Prepare & Review FEIS
4115 Obtain Right Of Way Turnkey Consultant
4411 Preliminary Interviews
4412 Appraisal Assignment Proposal and Fee Estimate (Form 633ES)
4413 Appraisals
4420 Review Right Of Way Parcel Appraisals
4430 Acquire Right Of Way Parcels
4710 Provide Relocation Assistance
4720 Prepare Improvement Removal Plan

481xx-9xx Region Traffic & Safety

1155 Request/Perform Safety Analysis for Studies
2115 Traffic Data Collection for EPE/Design
2155 Request/Perform Safety Analysis for EPE/Design
2525 Prepare and Review Engineering Report
2570 ITS Concept of Operations
3130 Verify Design Scope of Work and Cost
3140 Obtain Design Consultant
3365 Pre-Conceptual ITS Design and Meeting
3380 Review Base Plans
3390 Develop Maintaining Traffic Concepts
3500 Develop Transportation Management Plan
3540 Develop Maintaining Traffic Plan
3552 Develop Preliminary Permanent Pavement Marking Plan
3553 Develop Preliminary Non-Freeway Signing Plan
3560 Conduct Preliminary Geometrics and Roadside Safety Reviews
3565 Preliminary Constructability Review
3585 Final ITS Concept Design and Meeting
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3680 Preliminary ITS Communication Analysis
3690 Power Design (Power Drop in Field)
3810 Conduct Final Geometrics and Roadside Safety Reviews
3822 Complete Permanent Pavement Marking Plan
3823 Complete Non-Freeway Signing Plan
3830 Complete Maintaining Traffic Plan
3860 Final Constructability Review
3900 Omission/Errors Check (OEC) Review
3880 Pav't Marking and CPM Quality Assurance Review
3890 Final ITS Communication Analysis

505xx-550xx Region Maintenance

3590 Review Preliminary Plans (Hold THE Plan Review Meeting)

611xx-9xx Region Construction

3130 Verify Design Scope of Work and Cost
3330 Conduct Design Survey
3380 Review Base Plans
3500 Develop Transportation Management Plan
3565 Preliminary Constructability Review
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3860 Final Constructability Review
3900 Omission/Errors Check (OEC) Review

621xx-9xx Region Administration + Resource Analysts

2380 Circulate EA or DEIS

2390 Distribute DEIS
2810 Conduct Project Area Contamination (PACS)/Initial Site Assessment (ISA) Survey
2820 Conduct Preliminary Site Investigation (PSI) for Contamination
3590 Review Preliminary Plans (Hold THE Plan Review Meeting)
3710 Develop Required Mitigation
3720 Submit Environmental Permit Applications
3730 Obtain Environmental Permits
3900 Omission/Errors Check (OEC) Review

BUREAU OF TRANSPORTATION PLANNING

68700 Data Collection and Analysis

1110 Obtain Study Consultant
1115 Traffic Data Collection for Studies
1350 Determine Need for Interstate Access Change Request
1555 Interstate Access Change Request
2115 Traffic Data Collection for EPE/Design
2110 Obtain EPE Consultant

68730 Traffic Analysis and System Studies

1110 Obtain Study Consultant
1120 Prepare Traffic Analysis Report for Studies
1300 Traffic Impact Study
1400 Feasibility Study
1500 Corridor Study
1600 Access Management Study/Plan
1700 Other Miscellaneous Studies
2110 Obtain EPE Consultant
2120 Prepare Traffic Analysis Report for EPE/Design

OFFICE OF RAIL

3650 Coordinate Railroad Involvement for Grade Separations
3655 Coordinate Railroad Involvement for At-Grade Crossings

Appendix C - Acronyms, Abbreviations & Glossary

AASHTO	American Association of State Highway Transportation Officials
ADT	Average Daily Traffic
CE	Categorical Exclusion
CRF	Contract Request Form
CPM	Critical Path Method
DEIS	Draft Environmental Impact Statement
DHV	Design Hour Volumes
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPE	Early Preliminary Engineering
FEIS	Final Environment Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPC	Final Project Coordination
ISA	Initial Site Assessment
LOS	Level of Service
C&T	Construction and Technology
MAP	Michigan Architectural Project
MDNR	Michigan Department of Natural Resources
MPO	Metropolitan Planning Organization
MDOT	Michigan Department of Transportation
OBS	Organizational Breakdown Structure
OEC	Omission/Errors Check Review
P/PMS	Program/Project Management System (former software)
PDR	Property Disposition Report
PE	Preliminary Engineering
PPS	Preliminary Project Statement
PS&E	Plans, Specifications, and Estimates
PSI	Preliminary Site Investigation
RAP	Remedial Action Plan
RED	Real Estate Division
RFP	Request for Proposal
RI	Remedial Investigation
ROD	Record of Decision
ROW	Right of Way
SEE	Social, Economic, and Environmental
TAR	Traffic Analysis Report
WBS	Work Breakdown Structure

ABANDONED JOB – A job which has been discontinued and removed from the MDOT Master Program and is not expected to be restarted.

ACTIVE JOB – A job in the MDOT Master Program that is actively being worked on. Access to key job data is limited to read-only since changes could impact the highway program.

ACTUAL FINISH DATE (AF) - The actual point in time that work is finished on a task. (Note: in some cases, the task is considered “finished” when work is “substantially complete”).

ACTUAL START DATE (AS) - The actual point in time that work started on a task.

ANNUAL CALL-FOR-PROJECTS – The annual call-for-projects is the mechanism by which Project Concept Statements are forwarded annually to the Screening Committee for job selection and assignment to construction years. The Screening Committee reviews each Region's jobs and priorities and how they relate to the statewide strategy with the respective Region Engineer. This is done before the selected jobs are placed in the MDOT Master Program.

APPROVED FINISH DATE – The planned point in time that work should finish on a task in order for the job to meet its targeted plan completion date.

APPROVED START DATE - The planned point in time that work should start on a task in order for the job to meet its targeted plan completion date.

APPROVED JOB – A job officially included in the MDOT Master Program, but no work has been performed yet. When a job's status is first set to Active, the latest start and completion dates for on-time delivery are saved and used as the approved start and finish dates for comparison purposes. These first approved dates are also set as the original dates.

APPROVED DATES – The planned start and finish dates for the tasks within a job.

ARCHIVED JOB – A job that has been completed, suspended, or abandoned and is removed from the Statewide Master Program.

AWARDED JOB – A job that has been awarded in JobNet and will be removed form the Statewide Master Program and archived.

BENCHMARK – A standard by which something can be measured or judged.

CHARACTERISTICS - Items in the scope of a job that make it unique, including work type, region, road class, FHWA involvement, subgrade work or work outside existing shoulders, and many more. Specifically, these items of scope determine what tasks are in job networks, their durations, and resources.

COMPLETED JOB – A job in the MDOT Master Program that has one or more phases designated as completed in JobNet. All work on the job is physically completed.

CONCEPT JOB – A job being considered for inclusion into the MDOT Master Program.

CONSTRAINTS – Defines the sequence of tasks and determines how they relate to each other in a network. Four possible types of constraints exist in a Precedence Diagram; start-to-start, start-to-finish, finish-to-start, and finish-to-finish.

CONSTRUCTION COST – The obligated CON phase (A-phase) amount retrieved from the MAP database and shown on the JobNet Phase Tab.

CRITICAL PATH - The series of tasks determining the duration of the job. The critical path is usually defined as those activities with float less than or equal to a specified value, often zero. It is the longest path through the job. The critical path will generally change from time to time as tasks are completed ahead of or behind schedule.

CRITICAL PATH METHOD (CPM) – A method of analyzing networks to determine early and late start and finish dates, durations, float and critical path.

CRITICAL RESOURCE – A resource that is overloaded with more work than they can accomplish is the given time frame.

CRITICAL TASK – A task that must finish on time for the entire project to finish on time. If a critical task is delayed, the project completion date is also delayed. A critical task has zero float. A series of critical tasks make up the projects critical path.

DURATION - Number of work days (not including holidays/other non-working days) required to complete a task.

EARNED VALUE - The Budgeted Cost of Work Performed for an activity or group of activities.

EXCEPTION REPORT - Report giving information about thresholds exceeded, eg., tasks ahead or behind schedule by more than a designated amount of time.

FLOAT - The amount of time, in days, that a task may be delayed from its approved dates without delaying the job finish date. Float is a mathematical calculation and can change as the project progresses and changes are made to the job. Also called slack time, total float, and path float.

GANTT CHART – Horizontal bar charts depicting progress in relation to time of projects, tasks, schedules, etc.

GENERIC JOB - A job containing all of the tasks, milestones, and constraints necessary to constitute a network, but missing the necessary Management Units to finish assigning all resources to tasks.

HISTOGRAM – a bar chart representing a frequency distribution; heights of the bars represent observed frequencies.

HISTORICAL – Based on data from past jobs/projects entered into the Statewide Master Program.

IMPROVE/EXPAND JOB – "Improve" jobs increase the capacity of a road or facility and may require additional right of way. The threshold for an "Improve" job is a road widening of one lane's width or longer than a half mile, or greater than $500,000. An "Expand" job builds a new facility where none currently exists, relocates a current facility, or adds a road currently under local jurisdiction to the trunk line system.

INACTIVE JOB - A status assigned to a job that was once funded and in the MDOT Master Program, but is no longer in either category. Inactive jobs have a Job Status of "4".

JOB – A series of tasks grouped into phases that lead to the accomplishment of an objective(s).

JOB DETAILS – In project management software, Job Details are loaded from MAP and include:

- Control Section and Job Number
- Route
- Location Description
- Project Manager
- Construction Cost
- JobNet Status

JOB STATUS – Current standing of a job within the Master Program. Possible values are:

1. ABANDONED
2. ACTIVE
3. APPROVED
4. COMPLETED
5. CONCEPT
6. PROGRAMMED
7. RESEARCH
8. SUSPENDED

See the entry for each individual status code in this appendix for further explanation.

JOB TYPE- A job classification that utilizes four categories: Preserve, Improve, Expand, and Highway Preservation (Maintenance). Of these, the Preserve and Expand categories are further broken down into three sub-categories each. All are used to select a network template and to calculate duration and labor hours required on a job.

LABOR HOURS - The amount of actual "hands-on" time a resource spends performing a task or group of tasks.

LETTING DATE - The date that a job is put up for bid by contractors.

JOBNET – The project creation and management program used to manage scope of work, template categorization, fix type, location, and funding portions of MDOT projects.

MANAGEMENT UNIT – An established group of employees responsible for completing a unique set of job tasks.

MAP - **M**ichigan **A**rchitectural **P**roject. The MDOT corporate database.

MILESTONE - A significant event in the job, usually the completion of a major deliverable. These are designated by a task number that ends in "M" and have duration of zero.

NETWORK – A work flow plan consisting of all tasks and constraints that must be completed to reach job objectives showing their planned sequence of accomplishment and logical relationships.

NETWORK ANALYSIS - The process of identifying early and late start and finish dates for the uncompleted portions of job tasks.

NETWORK GENERATOR – The computerized subsystem within project management software that generates job schedules. As input, it uses certain information from the scoping checklist, as well as a standard template of task's and constraints. By applying a precisely designed algorithm, it is able to compute durations and resource requirements for all tasks within a network.

NEW JOB - A valid job whose basic data has been loaded from MAP and needs a network created. Valid jobs include:

- Concepts with valid work types, region codes greater than 0, and which will be let by MDOT during or after the current fiscal year.
- Approved or active trunk line jobs, valid work types, region codes greater than 0, and which will be let by MDOT during or after the current fiscal year (or Study jobs).

ORGANIZATIONAL BREAKDOWN STRUCTURE (OBS) – A hierarchical organizational matrix, which defines the relationships of all MDOT resources involved in

a job. This data is used primarily for summarizing labor data and producing customized reports.

ORGANIZATIONAL UNIT - Any organizational function within the Department which is responsible for completing work included in a job, e.g., district, section, squad, or unit. Corresponds to an organizational code

PLAN COMPLETION DATE - The date at which all plans are complete, and the job is turned in to Specifications and Estimates for packaging to be advertised and let.

P/PMS - The Program/Project Management System. This is the former MDOT Project Management software, replaced by Planisware in January 2017.

PREDECESSOR - The tasks that affect the beginning of a given task/milestone.

PRESERVE JOB – A job that is geared toward correcting deficiencies along an existing road and usually does not require right of way acquisition. Resurfacing, recycling, and safety jobs are examples of preservation work types. Replacement "in-kind" is considered preservation. The addition of passing lanes is also considered preservation because they improve traffic flow and safety, but do not increase the overall capacity of the road.

PRODUCTION SCHEDULE - The proposed plan of the Michigan Department of Transportation for developing and constructing highway improvement jobs for a specific multi-year period of time, e.g., five-year program. It is the schedule of the Master Program. The Annual Program and the Bi-Monthly Work Schedule are subsets of it.

PROGRAM – A group of jobs oriented toward a common objective, usually to be carried out in a specified time frame.

PROGRAMMED JOB - A status describing a job that has been approved by the Screening Committee (Preserve Job) or the Steering Committee (Improve/Expand Job) and a detailed network has been developed for the job, which has been approved and added to the Statewide Master Program. These jobs require updating and monitoring for progress. The job is in the current MDOT Master Program, but has not yet been funded.

PROGRAM REVISION CHANGE REQUEST FORM – formally known as a 2604 Form. A Program Revision Change Request in JobNet is used to obtain authorization for such changes to a job such as adding or deleting phases, splitting a job, job costs, major work type, location, financial cost divisions, and major milestone dates. This form is usually submitted after creating a corresponding project management software version of that job. The process of this form is now electronic.

PROJECT – Two or more jobs to be designed, let, and constructed together.

PROJECT MANAGEMENT - The application of knowledge, skills, tools, and techniques to job tasks in order to meet or exceed stakeholder needs and expectations from a job.

PROJECT MANAGER – The Project Manager plays a leadership role in project development and is responsible for coordinating the tasks of participants on the project team and for keeping the job on schedule and within budget. The Project Manager works cooperatively with team members to set priorities with each person contributing to project development by obtaining an estimate of the time and dollars needed for each major project development function (design, right of way, traffic control plans, traffic estimation and environmental classification/certification). Project Managers coordinate job tasks to assure that the job remains consistent with the job concept statement and is within the estimated cost reflected in the long-range program. It is also the Project Manager's responsibility to make sure that all team members are informed of changes that will influence their participation in the job.

PROJECT STATUS - Current standing of a job within the Master Program. Possible values are:

1. Proposed
2. Programmed
3. Active
4. Inactive
5. Completed/Archived

See the entry for each individual status code in this appendix for further explanation.

REFINED JOB - A job that has a version waiting to be included in the Statewide Master Program. The version must have satisfactory dates and/or coincide with an approved Program Revision Change Request (for changes in major dates, work type, etc.) before it can be “programmed” in project management software.

RESEARCH JOB – A Job currently under study only.

RESPONSIBLE UNIT - the resource responsible for reporting the actual start and actual finish for a task. This is often the resource with the most work to perform on a task.

RESOURCE – A unit that performs at least some of the work on the task or tasks they’re involved with.

RESOURCE LEVELING – The adjustment of job schedules to balance the job workload based on the available labor hours for each resource assigned.

ROLL -UP – The summarizing or "rolling-up" of job-related data along OBS or WBS lines.

SCENARIO – An alternative to the Statewide Master Program which demonstrates the affect on the schedule of running a different mix of jobs (Program "what-if").

SCHEDULE - The set of expected start and finish dates for the tasks within a job based on resource requirements and availability.

SCHEDULE DATES – The current start and finish dates for the tasks within a job.

SCHEDULED FINISH DATE – The current point in time that work will be finished on a task.

SCHEDULED START DATE - The current point in time that work will be started on a task.

SCHEDULER – The computerized subsystem within project management software which generates the Master Program Schedule. It takes in the schedule's output from the Network Generator, other data from the Payroll and other sub-systems and balances resource load requirements against resource availability and desired priorities to produce the Master Schedule.

SCHEDULING SPECIALIST - The “right-hand” of a project manager, whose duty with regards to project management is to perform the ground work necessary to create and update the network for a job.

STATEWIDE MASTER PROGRAM – The proposed plan of the Michigan Department of Transportation for developing and constructing highway improvement jobs for a specific multi-year period of time (e.g., five-year program).

SUCCESSOR – The tasks/milestones that are dependant on the finish of a given task

SUSPENDED JOB – A job which was at one time included in the MDOT Master Program, but has been temporarily removed. It is anticipated that the job will be returned to "Approved" or “Active” status sometime in the future.

TARGET DATE - An imposed date which constrains or otherwise modifies the network analysis. Target dates are set approved dates from which the network approved dates are calculated. These include the Target Start (Task 0000), Target Plan Completion (380M), Target Letting (392M) and Target Finish (Task 9999).

TASK – A specific work responsibility performed by one or more resources. Tasks include both resource labor hour and duration commitments. A task is usually composed of several work steps.

UNGENERATED JOB - A job that has been opened in project management software, but does not yet have a network generated.

UNREFINED JOB - A job containing all of the tasks, milestones, constraints, and resources necessary to constitute a network, but that needs to be checked, updated, and verified to ensure the network correctly reflects all work to be done.

VERSION - A copy of a job network which is used to make changes to the tasks, constraints or resources.

WORK GROUP - A classification of jobs including Landscaping, Rest Areas, Roadway, Safety, Structures, and Traffic that is used to select a network template and to generate durations and resources required on a job.

WORK BREAKDOWN STRUCTURE (WBS) – A hierarchical job matrix which defines relationships of Tasks, Phases, etc., within a job. This data is used primarily for summarizing task data and producing customized reports.

WORK STEPS – One or more specific actions which are performed to complete a task

Appendix D- Task Addition/Change/Review Process

1. Idea or perceived need discovered.
    - Often in response to previous existing process change.
    - If new, should involve appropriate management personnel for initiative.

2. Requestor contacts project management office personnel.

3. Project management personnel evaluate frequency of need/usefulness of task with requestor.
    - **Units requiring involvement in the task may be identified here at the earliest**.

4. Requestor, with the assistance of project management personnel, identifies the responsible reporting unit.
    - The requesting unit is often the responsible reporting unit.
    - If the requesting unit is not the responsible reporting unit, then the responsible reporting unit should be identified.
    - **Units requiring task involvement may also be identified here**.

5. The responsible reporting unit writes up the title and task description for the task, which may be based on information from existing tasks, and should follow the format of existing task descriptions.
    - **If possible, include any other involved units and their task interaction in the task description and/or work steps**.

6. Project management personnel review the submitted task description to ensure it fits within the project management software framework. Project management personnel will assign the proper task number to each, fitting with existing Work Breakdown Structure levels and conventions as best possible.
    - Task start and task finish in description should be able to be correlated and connected to existing project management tasks.

7. Project management personnel **contact all involved units and hold the <u>Task Review Meeting</u> to obtain and verify** standards data. Use 'Standards Questions' worksheet from ProjectWise for help with:
    - Duration
    - Labor Hours
    - Matrix application (Types of jobs, Construction Length multipliers, Structure multipliers, others)
    - Involved units and their % of work/labor hours involved
    - Additives
    - Switches
    - Location/application in Global Network and Templates

i. It is desirable to have a task, if possible, that can have some governing influence via one or more Job Characteristics or via work type, funding template, or some other data already present in JobNet at the Concept Statement.

8. Project management personnel input new task and data into the Development Area for testing and scheduling impacts.
    - Add task to WBS, using appropriate task number for task type and location.
    - Add task and proper constraints to Global network, ensuring a row and column fit into the network within the project management software (this may require moving others around).
    - Add task and proper constraints to all applicable templates based on applicable work types.
    - Add task standards into the Standards Tables based on Task Standards Data collected (see 'Standards Questions' worksheet).
    - Choose a set of applicable jobs to test on.
    - Test on new jobs first for generation. Evaluate schedule impacts, durations, labor hours, resources & other standards.
    - Test on existing jobs through job versions. Evaluate schedule impacts, durations, labor hours, resources & other standards.

9. **Project management personnel report any adverse affect on schedules to the responsible reporting unit and all involved units for: a) acceptance of impact, b) revisal of task standards, or c) placement in Global Network/templates**.

10. **If revisions are made, modify standards and/or templates until all parties find the results acceptable**.

11. Upon acceptance, task and data are added into the Production Area as in Step 8.
    - NOTE: Some instances might require many existing jobs to be modified to reflect changes.

12. **Project management personnel notify users, responsible & involved units of new task via Outlook, Issues Team, or Newsletter**.

13. Project management personnel notifies appropriate personnel to add tasks to SIGMA and/or JobNet.