



Minnesota Department of Transportation

Schedule Creation and Baseline Process

Prepared by: Project Management Unit, Office of Project Management & Technical Support
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Minnesota Department of Transportation
395 John Ireland Boulevard, MS 680
Saint Paul, Minnesota 55155

Phone: 800-657-3774
800-627-3529 (TTY, Voice, ASCII)
www.mndot.gov

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1.0 GENERAL INFORMATION

MnDOT project schedules are developed using seven modules that mimic the lifecycle of a project. For additional information on the modules see [Appendix 4.7](#).

The purpose of this document is to delineate the process to take the project schedule from initiation to recording the schedule baseline.

The document includes guidance for Project Managers, SSC and Admin that are involved in creating and baselining a project schedule.

The Project Manager (PM) has the primary responsibility for creation and baselining of the project schedule. The PM will coordinate with Activity Owners, SSC, Admin and Functional Groups as the project progresses through the creation and baselining process.

During the schedule creation and baselining process, the schedule will progress through the following stages:

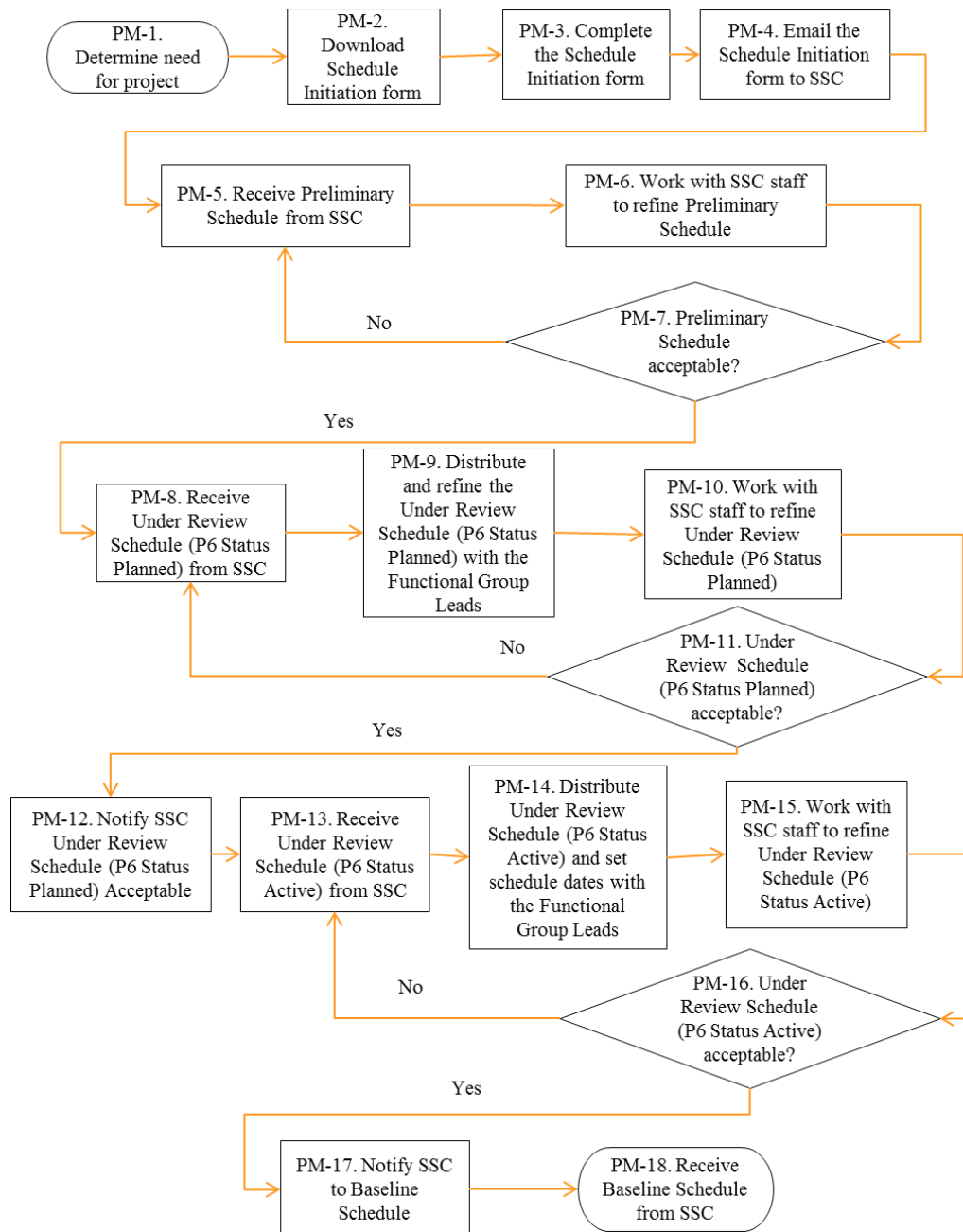
Undeveloped	P6 Admin team has created the schedule shell. A schedule shell is a project which does not contain any activities.
Preliminary	Initial schedule set up by SSC staff based on the schedule initiation form prepared by the project manager. Note the authoritative work packages are inserted by SSC for editing by the Project Manager.
Under Review	(P6 Status Planned) Preliminary schedule that has been updated by SSC staff based on project manager comments and input from the functional groups participating on the project team. The project manager will distribute the under review schedule to functional groups participating on the project team for approval of work packages, activities, relationships (logic), durations, roles, role hours, and activity owners. Dates are not reviewed at this time. (P6 Status Active) Schedule has buy-in from the functional groups participating on the project team.
Baselined*	Schedule with late completion dates that have been accepted by the district and functional groups participating on project team. SSC staff will record the baseline schedule in P6.
Recovery	A Baselined schedule goes into Recovery when it has more than 10 days of negative float following a data date move. SSC will update the baseline status to Recovery; The P6 Status will remain Active. The baseline status will remain Recovery until a recovery plan has been accepted by the district and functional groups. After acceptance of the recovery plan, the status will be updated to baselined. Recovery schedules are addressed in Schedule Maintenance Process

*Schedule baselining may occur multiple times during the lifecycle of a project. Baselining the bridge and right-of-way modules will occur simultaneously with the design module.

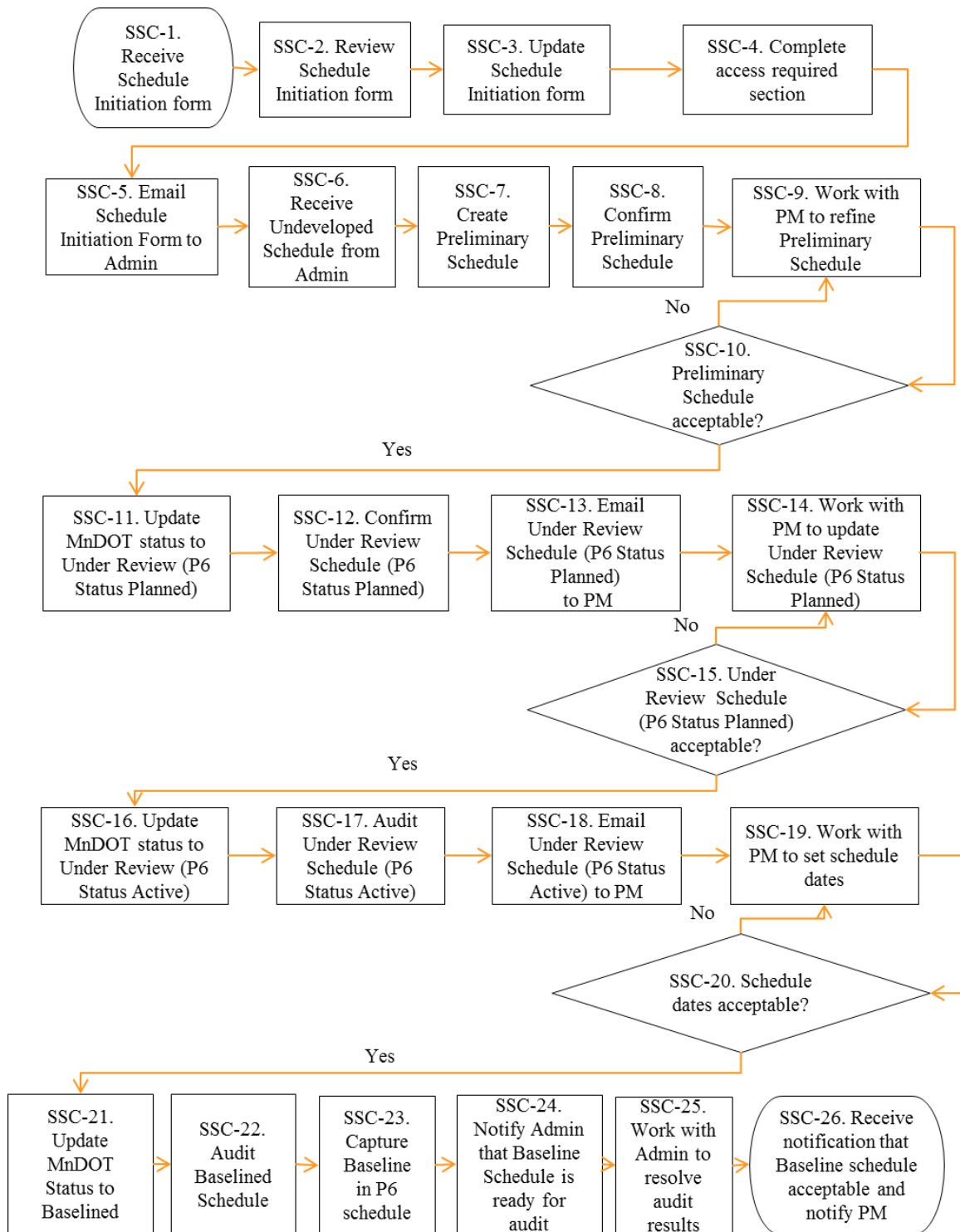
2.0 PROCESS SUMMARY

This section delineates the general process for each of the primary staff roles that create and baseline a schedule: Project Manager (PM), Shared Service Center (SSC), and EPMS Administration (Admin).

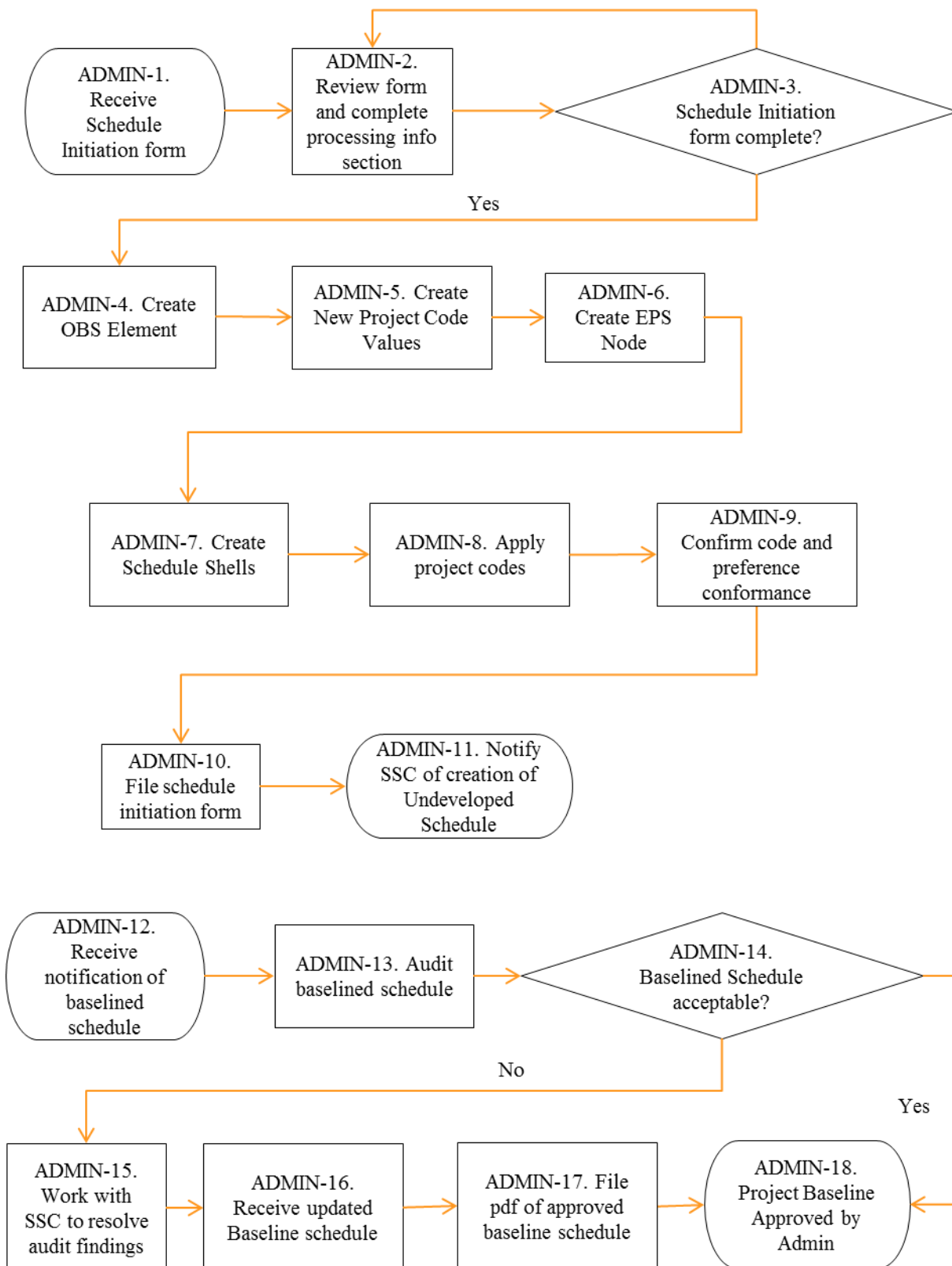
2.1 PM PROCESS



2.2 SSC PROCESS



2.3 ADMIN PROCESS

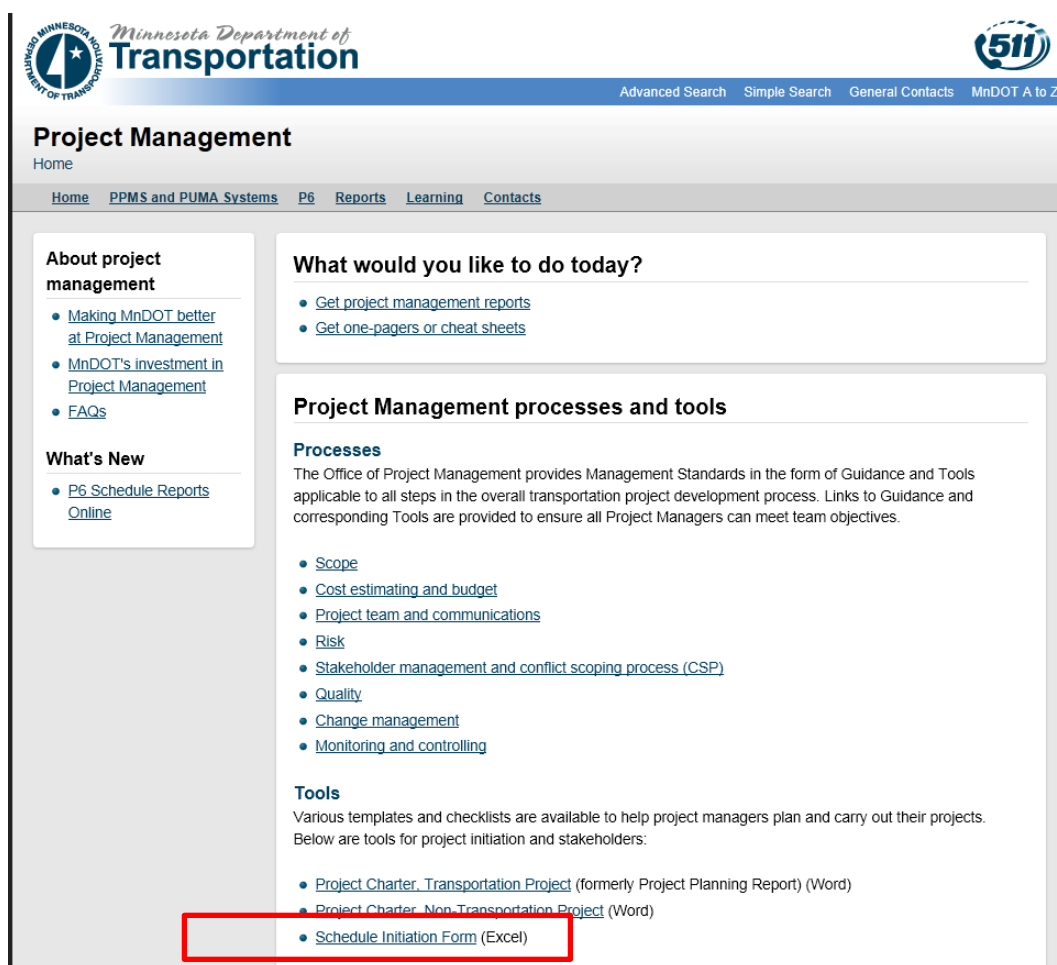


3.0 PROCESS DETAILS

This section provides additional detail for the processes each of the primary staff roles use to create and baseline a schedule: Project Manager (PM), Shared Service Center (SSC), and EPMS Administration (Admin).

3.1 PM PROCESS DETAILS

- PM-1. Determine need for project schedule.
- PM-2. Download [Schedule Initiation Form](#) from the Project Management website.



- PM-3. Complete the schedule initiation form.

Follow the instructions on the “instructions” tab in the workbook.

The schedule initiation form may need to be updated during the lifecycle of the project.

If a project has a clearly defined project scope, the PM can select the work packages required to take the project from the scoping through the letting phase.

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If the project is not scoped, the PM will select appropriate work packages to bring the project to the next phase in the project lifecycle. The remaining phases will appear as single bars in the schedule. The PM will need to determine how far to build out the schedule. Once a schedule is created in P6, the additional work packages required to take the project to the letting can be inserted.

PM-4. Email the schedule initiation form to SSC.

SSC staff is divided into regions. See [Project Management & P6 Scheduling Shared Service Center Summary](#) for regional contact information. The SSC staff will process the completed project initiation form and contact the PM when a preliminary schedule is available.

PM-5. Receive the Preliminary Schedule from SSC.

The PM will receive the following reports for the Preliminary Schedule:

- a) Baseline Gantt Chart Report: a graphic report that includes activity details and a bar chart (Gantt chart) of the schedule.
- b) Baseline Relationships Report: a tabular report that shows the relationships between activities in the schedule.

If there are questions about the data or additional reports that are needed for this initial review of the schedule, the PM should contact the SSC scheduler.

Please note that the Preliminary schedule is a basic schedule based on the information on the data from the project initiation form and a schedule template. It is intended as a starting point and requires review and refinement as outlined in the steps below.

PM-6. Work with the SSC to refine the activities, durations, logic, functional group assignment, and activity owners, in the Preliminary Schedule.

The PM will work with the SSC staff to tailor the preliminary schedule for the project. The schedule will be modified to add or remove activities, confirm the ties between the activities, refine the activity durations, and confirm the activity owners and functional groups required to complete the project. The schedule should be built out to the appropriate phase of the project lifecycle. SSC staff will build the under review schedule based on the information provided by the PM.

The SSC is available to provide guidance on schedule-related items, including understanding how activities and logic work in the schedule, what calendars are used for an activity, and how to estimate durations. However, SSC staff is not familiar with the specific project requirements. Tailoring the schedule for your project will need to be completed by the PM and project team members.

PM-7. Repeat PM-5 through PM-6 until PM approves Preliminary Schedule.

PM-8. Receive the Under Review Schedule (P6 Status Planned) from SSC.

The PM will receive the following reports for the Under Review Schedule. The reports will have activity details, and dates, however, the dates will not be agreed to until the schedule is baselined.

- a) Baseline Gantt Chart Report: a graphical report that includes activity details and a bar chart (Gantt chart) of the schedule.

- b) Baseline Relationships Report: a tabular report that shows the relationships between activities in the schedule.
- c) Role Review by Activity: a tabular report grouped by activity showing role and role hour assignments for each activity.
- d) Role Review by Role: a tabular report grouped by role showing activities and role hour assignments for each role.

PM-9. Distribute the Under Review Schedule (P6 Status Planned) to the Project Team and refine the activities, durations, logic, functional group assignments, activity owners, roles, role hours and calendars with Functional Group Leads.

The project manager shall specify the date by which they need feedback otherwise the information will stay as planned. The project manager and functional group will negotiate schedule issues. Possible outcomes if they disagree:

- a) Schedule gets adjusted as requested by functional group
- b) Functional group agrees to the original activities
- c) The PM seeks alternate methods to get the work delivered

Note: the Under Review Schedule (P6 Status Planned) will not have specific delivery dates assigned. The dates will be negotiated with the Functional Group Lead using the Under Review Schedule (P6 Status Active).

PM-10. The PM will work with the SSC staff to update the information in the Under Review Schedule (P6 Status Planned) to incorporate the functional group and activity owner comments.

PM-11. Repeat PM-8 through PM-10 until PM receives concurrence from the Functional Group Lead on the Under Review Schedule (P6 Status Planned). Concurrence is defined as agreement on activities, durations, logic, functional group assignment, activity owners, roles, role hours and calendars. It does NOT include schedule date concurrence.

PM-12. Notify the SSC that the Under Review Schedule (P6 Status Planned) is accepted by the Functional Groups.

PM-13. Receive the Under Review Schedule (P6 Status Active) from SSC.

Once the P6 Status code is changed to Active, the activities will appear in Team Member for owner activity updating.

PM-14. Distribute the Under Review Schedule (P6 Status Active) to the Project Team and work with the Functional Group Leads to obtain concurrence on schedule dates, roles and role hours.

The SSC will work with the PM to add float limits (planned start date) to the schedule if necessary.

Float limits help define the “point in time” when work on an activity will occur. For example, if a small project has a letting date in May, the P6 schedule will show that the work can occur anytime between “now” and May due to a large amount of float. The PM and functional groups may want to show the actual design occurring in January to balance the workload. By using a float limit, it minimizes the float and moves the start of the project to a point in the future. Float limits should follow the general “rules of thumb”:

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- a. 0 Days – minor projects
- b. 20 Days – moderate projects
- c. 40 Days – major projects

The PM will confirm the contingency buffer activity has the appropriate duration. See [Appendix 4.9](#) for additional guidance.

The PM will coordinate with the Functional Group Leads to confirm the accepted Under Review Schedule is accurate and the functional group can deliver their activities by the dates shown in the schedule.

Note: Functional Groups will be balancing their workload on a statewide and Districtwide basis. Functional Groups will need to concur on the project timeline before a schedule can be baselined.

After concurrence is obtained, the PM will notify the SSC staff that the project schedule is ready to be baselined in P6.

PM-15. Work with the SSC to refine the schedule based on input from the Functional Group Leads.

PM-16. Repeat PM-13 through PM-15 until you receive schedule concurrence from the Functional Group Leads on schedule dates.

PM-17. Notify the SSC that the schedule is ready to be baselined.

PM-18. Receive baseline schedule from SSC, distribute to project team, and save copy to project document management system.

3.2 SSC PROCESS DETAILS

SSC-1. Receive schedule initiation form from PM.

SSC-2. Review schedule initiation form content and discuss revisions with PM.

Confirm that the information in the header tab matches the authoritative source, work location and description complies with appropriate standards, and all information required to initiate a schedule has been provided.

SSC-3. Update schedule initiation form based on PM revisions.

SSC-4. Complete the access required information on the Header Info tab of the Schedule Initiation form.

ACCESS REQUIRED (LIST NAMES)	
SHARED SERVICE CENTER:	_____
SCHEDULER:	_____
OTHER:	_____

Security Access to a schedule is granted only to users with a current P6 access. If users do not have access to P6, the SSC must submit [P6 Security Access Form](#) to Admin.

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SSC-5. Email the schedule initiation form to Admin.

SSC-6. Receive notification that the Undeveloped Schedule (EPS Node, schedule shell and codes) has been created from Admin.

For an Undeveloped Schedule the project status codes will be:

- a) Planned Status (P6 Project Status)
- b) Planned or Programmed (MnDOT Project Status)

SSC-7. Create the Preliminary Schedule by adding the schedule modules and project work packages/templates requested by the PM in the Project initiation form. See [Appendix 4.6 Adding Work Package](#) for additional information.

If a new work package or activity is requested, see [Work Package Creation and Maintenance Process](#).

If roles need to be added, see [Role Loading Process](#) and [Role Dictionary](#).

The authoritative project template is located in the EPS at the following location: Templates\Project Templates\Authoritative Project Templates. The work packages are located in the EPS at the following: location Templates\Work Packages.

To determine which work packages need to be added or deleted from the project template, click the “Create Summary” button on the templates tab in the Project Initiation Form. The form will then create a list of work packages to be added or deleted.

For a Preliminary Schedule the project codes will be:

- o Planned Status (P6 Project Status)
- o Planned or Programmed (MnDOT Project Status)

The SSC will generate the following reports for the Preliminary Schedule and distribute to the Project Manager:

1. MnDOT - Gantt Chart Prelim Sch Review (in the Activities screen as a global layout).
2. MnDOT Activity Logic Report (in the P6 Reports screen as a global report).

To add a work package or template, see [Appendix 4.6](#)

Confirming MnDOT Project Codes and UDFs

Project Codes assignments and UDFs are required for proper reporting. The project code directory is available at [Project Code Dictionary](#). The Project Code Dictionary defines which codes are assigned by SSC and Admin staff.

Updating Activity Owners

Activity owner assignments will be reviewed by the PM and Functional Groups. Activity owners from some functional groups are provided in [Work Package Dictionary](#).

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SSC-8. Confirm that there are no open ends or logic issues by scheduling the project and viewing the log.

SSC-9. Work with the PM to refine the preliminary schedule.

SSC-10. Receive notification from the PM that the Preliminary Project Schedule is acceptable and is ready to be routed to functional groups for review.

SSC-11. Update MnDOT Status to Under Review (P6 Status will remain at Planned).

For an Under Review Schedule (P6 Status Planned) the project status codes will be:

- a. Planned Status (P6 Project Status) until functional groups buy-in to work packages, activities, relationships (logic), durations, role hours, and activity owners. This does not include the schedule dates (date in time when the activities will occur).
- b. Planned or Programmed (MnDOT Project Status).

SSC-12. Confirm that there are no open ends or logic issues by scheduling the project and viewing the log. SSC will complete a Schedule Quality Control check to confirm data integrity. The purpose of the check is to review Schedule for analysis of project settings and defaults, appropriate KPIs, project codes, activity codes, proper logic sequence (Circular loops, reduction of open-ended activities), logic ties, roles, durations, functional group codes, activity owners, activity calendars, and float.

SSC-13. Email Under Review Schedule (P6 Status Planned) to the PM so the PM can obtain acceptance on the Under Review (P6 Status Planned) Schedule from the Functional Groups working on the project. Provide the following reports to the PM for routing to the Functional Groups:

1. Gantt Chart Report (in the Activities screen as a global layout).
2. MnDOT Activity Logic Report (in the P6 Reports screen as a global report).
3. Role Review by Activity (in the Resource Assignments screen as a global layout).
4. Role Review by Role (in the Resource Assignments screen as a global layout).

SSC-14. Work with PM to update Under Review Schedule (P6 Status Planned) to incorporate Functional Group comments.

Set Duration type to fixed duration and units on all activities after functional group buy-in on durations.

SSC-15. Receive notification from the PM that the Under Review Schedule (P6 Status Planned) has been accepted by the Functional Groups and is ready to become active in Team Member.

SSC-16. Update MnDOT Status to Under Review Schedule (P6 Status Active).

Prior to updating the P6 Status to Active, SSC will complete a Schedule Quality Control check to confirm data integrity as described in SSC-12.

For an Under Review Schedule (P6 Status Active) the project status codes will be:

- Active Status (P6 Project Status) when PM obtains function group buy-in.
- Planned or Programmed (MnDOT Project Status)

The schedule is available in Team Member for activity owner updates.

SSC-17. Review the Under Review Schedule (P6 Status Active) for analysis of project settings and defaults, appropriate KPIs, project codes, activity codes, proper logic sequence (Circular loops, reduction of open-ended activities), logic ties, roles, durations, functional group codes, activity owners, activity calendars, and float before returning it to the PM.

SSC-18. Email the Under Review Schedule (P6 Status Active) to the PM for baselining (concurrence on schedule dates, roles and role hours).

The SSC will work with the PM to add float limits (planned start date) to the schedule if necessary. See [Section 3.1](#), step PM-14 and [Appendix 4.8](#) for additional guidance on setting float limits.

Provide the following reports to the PM for routing to the Functional Groups.

1. Gantt Chart Report (in the Activities screen as a global layout)
2. MnDOT Activity Logic Report (in the P6 Reports screen as a global report)
3. Role Review by Activity (in the Resource Assignments screen as a global layout)
4. Role Review by Role (in the Resource Assignments screen as a global layout)

SSC-19. Work with the PM to incorporate changes needed for concurrence on schedule dates.

SSC-20. Receive notification from the PM that the dates in the Under Review Schedule (P6 Status Active) have been accepted by the Functional Groups and is ready to be baselined.

SSC-21. Update the MnDOT Status to Baselined.

For Baselined Schedule the project codes will be:

- Active Status (P6 Project Status).
- Planned or Programmed (MnDOT Project Status).

SSC-22. Review the Baselined Schedule for activities, durations, logic, functional group codes, activity owners, role hours, activity start and finish dates completing a Schedule Quality Control check described in SSC-12.

SSC-23. Capture a Baseline Schedule in P6 and assign to current project.

- a. Capture baseline information using “Maintain Baselines” in P6 Client.
- b. With the Project open; Select “Project” menu.
- c. Select Maintain Baselines.
- d. Highlight project and select “Add” to create a baseline copy.
 - i. Re-name project baseline to format of “**BL01-DD **/**/**** PROJECT NAME**” (Asterisk represents current data date of project) .
 - ii. Select Baseline Type to categorize phase of project.

- iii. Current Baseline Types are:
 - 1. Construction Baseline.
 - 2. Contract Time (CTD) Baseline.
 - 3. Design Baseline.
 - 4. Recovery Baseline.
 - 5. Revised Construction Baseline.

- e. Select “Close” to complete addition of baseline.

As the baseline has been created, it is required to assign the baseline to the project

- a. Select “Project” menu
- b. Select “Assign Baselines”
- c. Verify the correct project is selected
- d. Choose dropdown within “Project Baseline” and select newly created baseline
- e. Select “Ok” to close window

SSC-24. Notify Admin that baselined schedule has been created and is ready for audit

SSC-25. Work with Admin to resolve audit findings.

SSC-26. Receive notification from Admin that Baseline Schedule has been approved and email the Baseline Schedule to PM. The PDF of the approved baseline schedule will be available on the Reports page of the P6 website.

3.3 ADMIN PROCESS DETAILS

ADMIN-1. Receive schedule initiation form from SSC.

ADMIN-2. Complete the Processing Info section of the schedule initiation form.

Upon receipt of the Schedule Initiation Form, the Admin team shall review the fields to verify completeness. If there are noted discrepancies, Admin team will communicate with the SSC to obtain the correct information for schedule creation and security access to the project.

Security Access to a schedule is granted only to users with a current P6 access. If users do not have access to P6, the SSC must submit [P6 Security Access Form](#) to Admin.

Multiple schedule modules will be created for a single project. Admin will create the appropriate shells based on the modules selected within the Schedule Initiation form.

ADMIN-3. Rejection or acceptance of the Project Initiation Form will be recorded in the Processing Info section of the form. See Admin-9 for how to file initiation form.

PROCESSING INFO: <i>This area is to be populated by the EPMS Admin and saved per standards</i>			
DATE RECEIVED:		PROCESSED BY:	
APPROVED / REJECTED:		DATE COMPLETED:	

ADMIN-4. Create Organizational Breakdown Structure (OBS) element.

An OBS element must be created to accommodate the securities to the projects within the appropriate EPS nodes down to the PUMA Element.

Based on the access required, the users will be assigned to the newly created OBS. Admins will also verify the district of the project and add any additional users that require full district access. SSC's shall be notified if requested users were not listed on the form. Admin will maintain a list of P6 Client users for each district (see [Appendix 4.5](#)).

To create the OBS element:

- a. Go to the Administer tab → User Access



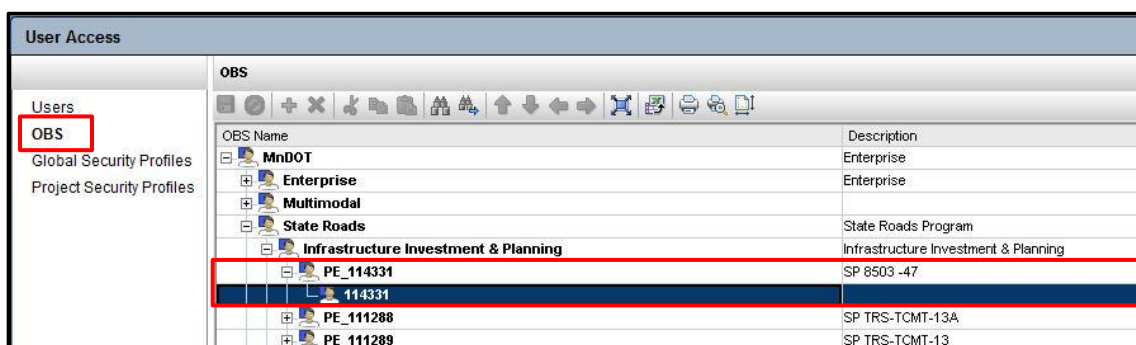
- b. Create a new **OBS element** to allow proper assignment of the responsible manager to the project.
- c. Populate the **OBS Name** for both the PUMA element and its child. The PUMA element is on the Project Initiation form.

PUMA Element: "PE_"[PE#]

PUMA Element Child (indented in the hierarchy): [PE#]

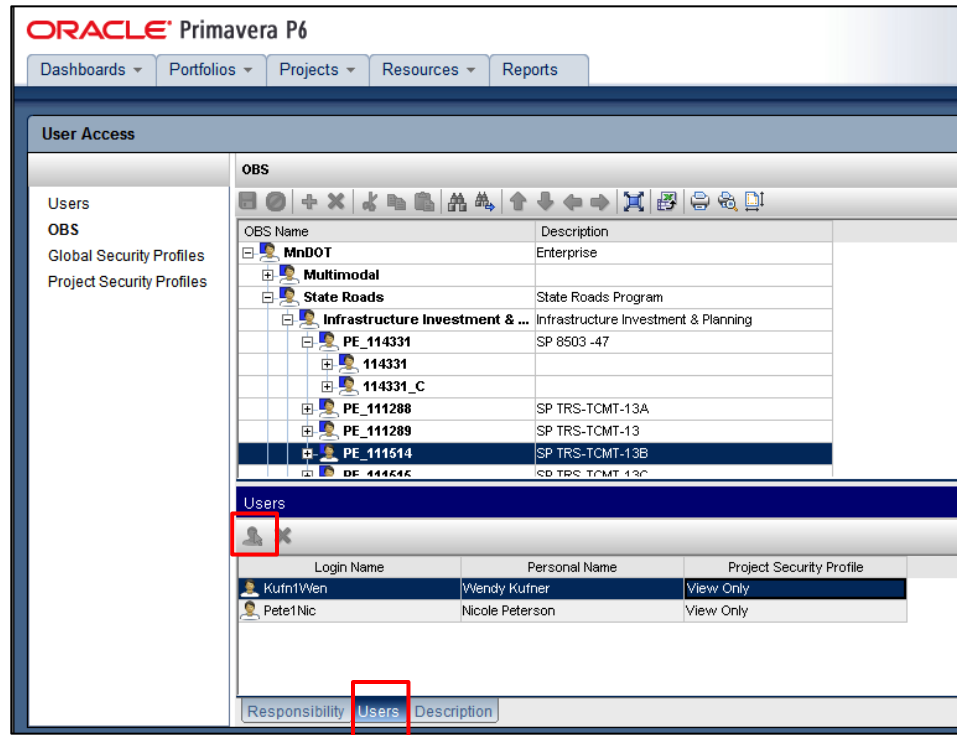
Note: This should be indented under the PUMA element

- d. Populate the **Description** field for only the PUMA element.
Enter the appropriate **SP#** aligned with the **PE_#**.



Assign the appropriate users to the new OBS element. This allows the specific assigned user to login, view, and/or edit the project accordingly. See Appendix for security profile information.

- a. In the **Users tab**, select the add user icon and select the appropriate new user(s).
- b. Select appropriate Project Security Profile for each user(s).



ADMIN-5. Create new project code values in P6 Web.

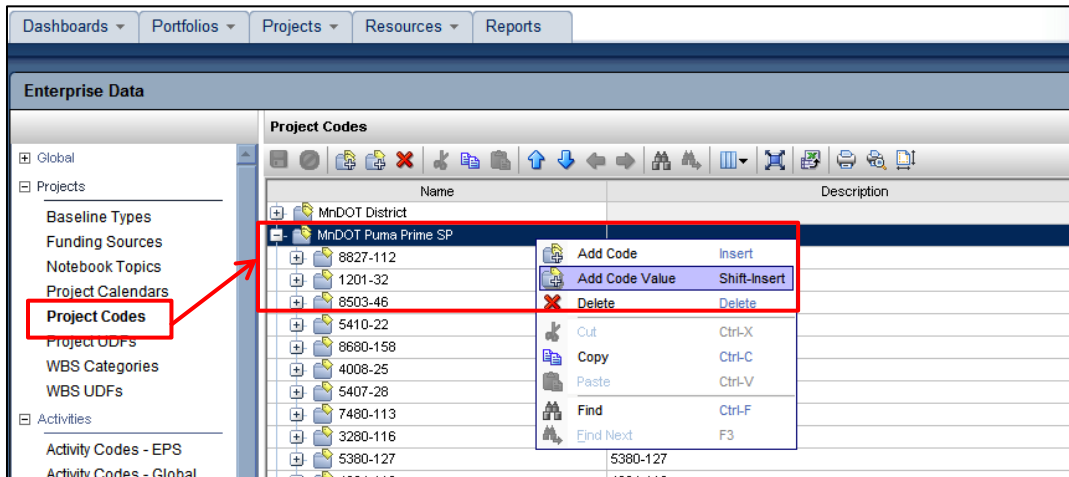
Project Codes are based on the values entered in the Schedule Initiation form. Project Code Values that are created at this time are: PUMA Prime SP, PUMA SP, PUMA Bundle, PUMA Element ID & MnDOT SWIFT Project ID. Additional code values may need to be created on a case-by-case basis.

To enter Project Code Values:

- Go to the Administer tab → Enterprise Data → Projects → Project Codes.



- Highlight the appropriate project code, right-click and select **Add Code Value**. See [Project Code Dictionary](#) for a list of all code values.

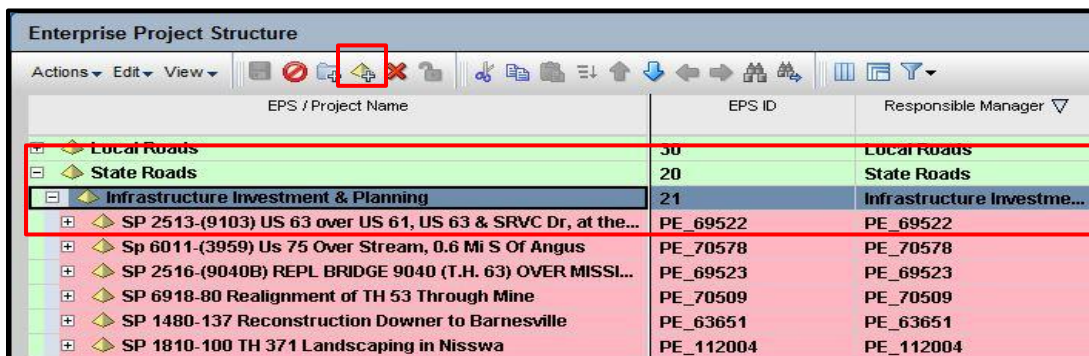


ADMIN-6. Create EPS Node.

Admin shall build a new EPS node for placement of the new projects (modules). The EPS should reflect the same hierarchy as the newly created OBS.

To build the EPS Node:

- Locate the appropriate hierarchy and select **Add Sibling EPS icon**.



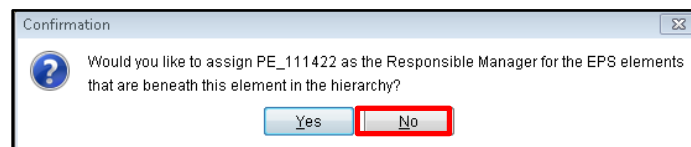
In this example, the project will be added under State Roads → Infrastructure Investment & Planning.

- Use the following convention to assign the **EPS Name** and **EPS ID**. Character Limit is 120.

EPS Name: [SP#][Route Type and #][Project Description]

EPS ID: PE_[Element #]

- Assign the appropriate **PE_#** (created within the OBS) as the **Responsible Manager**. Select No when prompted by the following dialog box:



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ADMIN-7. Create schedule shells in appropriate EPS node.

To generate each schedule (module):

- a. Copy and paste the “MnDOT Project Template Shell” from the Admin Archive EPS into the appropriate EPS node..
- b. Populate the following information using the **schedule initiation form**:

Field Name	Standard Convention
Project ID	<ul style="list-style-type: none"> ■ Scoping Schedules – Element ID #_S ■ Right-Of-Way Schedules – Element ID #_R ■ Bridge Schedule(s) – Element ID #_B ■ Design Schedule – Element ID #_F ■ Construction Schedules – Element ID #_C
Project Name	<ul style="list-style-type: none"> ■ [SP#][Route Type and #][Project Description] <p>The Project Name should match the EPS Name.</p>
EPS	[PE]_[Element ID #]
Responsible Manager	<p><i>Based on corresponding OBS element</i></p> <ul style="list-style-type: none"> ■ Preconstruction Schedules – [Element ID] ■ Contractors Construction Schedules – [Element ID]_C
Project Planned Start	Retain the default date that appears (the date the project is created)
Must Finish By Date	<ul style="list-style-type: none"> ■ Preconstruction Schedules – Let date ■ Construction Schedules – None

- c. Verify **Project Settings**
 - i. Defaults
 1. Duration Type – Fixed Duration and Units/Time
 2. Percent Complete - Physical
 3. Activity Type – Task Dependant
 4. Calendar – MnDOT w/ Standard Holidays
 - ii. Resources
 1. Uncheck “Drive Activity Dates by Default”
 - iii. Settings
 1. Define Critical Activities – Longest Path
 - iv. Calculations
 1. Link Budget and At Completion for Not Started activities – Checked
 2. Select “Reset Remaining Duration and Units to Original”
 3. When updating actual units and costs - “Subtract Actual from At Completion”
 4. Recalculate actual units and costs when duration % complete changes
 5. Link actual to date and actual this period units and costs
- d. Verify Team Member settings in P6 Web located in the project preferences.
 - i. Team Members are assigned as “Activity Owners”
 - ii. Activity Fields

- iii. Activity % Complete
- iv. Remaining Labor Units
- e. View Fields
 - i. Job Number – MnDOT
- f. Source/Cost Code - MnDOT With the new project open, select [F9] to review the settings (**DO NOT SCHEDULE THE PROJECT**). It is important to verify the correct settings of a project for state project control uniformity. Ensure the following settings are selected:

Note: The screen shot shown below depicts how the screen should look for all projects. Always confirm the correct selections are made.

When scheduling progressed activities use: **Retained Logic**.

Define critical activities as: **Longest Path**.

Calculate float based on finish date of **Each Projects**.

The screenshot shows the 'Schedule Options' dialog box with the 'General' tab selected. The following settings are highlighted with red boxes:

- When scheduling progressed activities use:** ☒ Retained Logic, ☐ Progress Override, ☐ Actual Dates
- Calculate start-to-start lag from:** ☒ Early Start, ☐ Actual Start
- Define critical activities as:** ☒ Longest Path (with a value of 0h)
- Calculate float based on finish date of:** ☒ Each project, ☐ Opened projects
- Compute Total Float as:** Finish Float = Late Finish - Early Finish
- Calendar for scheduling Relationship Lag:** Predecessor Activity Calendar

- g. Populate all project codes that the EPMS is responsible for (use [MnDOT – New Project Creation Form] Layout in Client).

Update P6 Project status to “Planned” and set MnDOT Baseline Status Project Code to “Undeveloped”.

Repeat steps ADMIN-7 a-g for each schedule (module) under the same PUMA Prime SP.

ADMIN-8. Apply project codes. See [Project Code Dictionary](#).

ADMIN-9. Confirm code and preference conformance.

P6 Admin will review the following items on the schedules (modules) (use [MnDOT – New Project Creation Form] Layout in Client):

a. MnDOT Project Codes. and UDFs

- PUMA Prime SP
- PUMA Bundle
- PUMA Element
- PUMA SP
- SWIFT Project ID
- Job Phase
- MnDOT Project Status
- Products & Services
- Work Responsibility
- District
- Let Date
- MnDOT Const Cost

b. Responsible Manager for appropriate user access to individual schedules.

c. Schedule default settings; fixed duration & units and physical % complete; team member settings.

d. Calendar setting is MnDOT w/ Standard Holidays (default).

e. Confirm Project Status & Must Finish By Date in each module. The Must Finish By date will be set at 5:01pm of the project letting date.

ADMIN-10. File the schedule initiation forms.

a. Schedule initiation forms will be retained for documentation and historical purposes using the following steps:

b. Populate the Date Completed field with the date on which the schedule was initiated.

c. Save the form to the N drive in the [N:\OPMTS Project Management\Project Management Unit\P6 Implementation\Admin Archive\SSC Schedule Initiation Forms] folder with the following naming convention:

[Project Name]_SIF_[YYYY_MM_DD], where date equals date of completion

d. Save a pdf of the Header Info tab to the N drive in the [N:\OPMTS Project Management\Project Management Unit\P6 Implementation\Admin Archive\SSC Schedule Initiation Forms] folder with the following naming convention:

[Project Name]_HI_[YYYY_MM_DD], where date equals date of completion

ADMIN-11. Send an email notification to the SSC that the undeveloped schedule has been created in the EPS, but may still need additional project codes and template/work packages added. The pdf of the Header Info tab will be attached to the email.

ADMIN-12. Receive notification that the baselined schedule has been created from SSC.

ADMIN-13. Audit the Baseline Schedule for logic ties, coding and physical capture of baseline.

Upon receipt of the Baseline Schedule, the Admin team shall review the schedule to confirm schedule complies with MnDOT scheduling protocols.

Admin will complete [Audit for baseline schedule](#) and file the completed form at [N:\OPMTS Project Management\Project Management Unit\P6 Implementation\Admin Archive\Audit Completions\Baseline](#) with the following naming convention:

[Project Name]_BLA_[YYYY_MM_DD], where date equals date of completion

Discrepancies will need to be resolved by SSC prior to final approval of schedule.

Items to be audited are as follows:

- a. Constraints and Lags: Confirm the schedule does not contain unapproved activity level constraints or lags.
- b. Negative Float: Verify the schedule has a Float Value greater than 0 when the project is open.
- c. Logic Ties: There should not be greater than (2) open-ended activities in the schedule. This can be verified in the schedule log file report.
- d. Project and Activity Level Coding: Verify the project codes have been properly assigned. Verify the Functional Group and Reportable Milestones Activity Code values have been properly assigned. Standard project codes can be found in [Project Code Dictionary](#).
- e. Maintain Baselines and Assign Baselines: With the project open, verify the baseline has been captured and named properly within "Maintain Baselines". Open "Assign Baselines" to verify the baseline has been assigned to the current project.
- f. Confirm the following information in the Projects window
 - i. Project ID
 - ii. Project Name
 - iii. Must Finish By/MnDOT Let Date/PPMS Letting
 - iv. Mandatory Project Coding/PPMS Headers
 - v. Project settings
 - vi. Team Member Settings
- g. Confirm the following information in the Activities window
 - i. No Unapproved LOE Activities
 - ii. Mandatory Activity Coding
 - iii. Activity Ownership applied
 - iv. Proper Calendars applied
 - v. Default settings
 - vi. Time Options
 - vii. Schedule Options
 - viii. Modular Schedule Ties
- h. Confirm the following information in the Schedule to Log file
 - i. Constraints
 - ii. Lags

- iii. Negative Float
- iv. Logic Ties

ADMIN-14. Notify SSC of rejection or acceptance of the Baseline schedule.

ADMIN-15. Work with SSC to resolve audit findings.

ADMIN-16. Receive updated Baseline Schedule from SSC for approval.

ADMIN-17. File a pdf of the approved baseline schedule at [N:\OPMTS Project Management\Project Management Unit\P6 Implementation\Reports\P6 Reports\Baseline Schedules pdfs](#) in the appropriate District. The file naming convention is XXXX-XX-BS-Y where XXXX-XX is the SP number and Y is the version control number.

ADMIN-18. Notify the SSC and the PM that the baseline schedule has been approved and will be posted to the P6 website.

4.0 APPENDIX

The following information is further guidance, protocols, and reference materials for creating and baselining a schedule.

4.1 ACTIVITIES

1. **Activity Definition:** It is generally encouraged to break activities at products and handoffs.
2. **Activity ID:** Activity IDs for a single work package should have a three letter prefix that coincides with the appropriate WBS node according to the Activity ID prefix listed in [Work Package Creation and Maintenance Process](#), Appendix 6.3. The prefix is followed by a four digit code that should progress in order by ten based on the general chronology of the activities (1000, 1010, 1020, etc.)
3. **Activity Description:** Activity descriptions should at minimum have verb, object, and (when applicable) location. Activities should clearly describe the work represented by the activity. Title capitalization should be used for descriptions; never all caps.
4. **Activity Duration:** Activities should generally be in the 5-20 day range. However, activities can fall outside of these thresholds as long as there is a clear deliverable represented and there is the appropriate amount of detail to manage the work.
5. **Activity Duration:** Activity duration on a work package should be based on the most likely number of days the activity would take on an average project. Durations can be scaled during the schedule concurrence process.
6. **Total Number of Activities:** Care should be taken that the total number of activities in a work package does not make it too cumbersome to update.
7. **Constraints/Lags/Leads:** Activity level constraints, lags, and leads are not allowed in the schedules.
8. **Calendars:** Seasonally or otherwise restricted activities should be placed on a calendar that appropriately reflects when that work can be performed.
9. **Activity Codes:** ALL ACTIVITIES should have the appropriate code value for MnDOT Functional Group.

4.2 KEY PERFORMANCE INDICATORS

Key Performance Indicators (KPI) are milestones used to measure key deliverables for a project. The following are required KPIs on all schedules. Additional optional KPIs are found in the milestones section of the [Work Package Dictionary](#).

Activity ID	Activity Description
MS_150	Environmental Document Approved
MS_180	MDR Completed
MS_185	Layout Approved
MS_200	Municipal Agreement Request Submitted
MS_230	Project Turned In
MS_245	Army Corps Permit Submitted
MS_270	Letting Held

4.3 RELATIONSHIPS

1. Activities in a schedule must at minimum have a predecessor and a successor excepting the first and last activity in the schedule.
2. Start to Finish relationships are not to be used.
3. Lags and leads are not to be used.

4.4 CONSTRAINTS

Constraints are not to be used on the project except for the following project-level constraints:

1. Project Start Date
Used when project is identified but no work is anticipated prior to some future point.
2. Project Must Finish By
Currently used to indicate letting date.

Activity level constraints must be approved by Admin staff.

4.5 SECURITY PROFILES

User Category	Security Rights	P6 Profile Assigned
P6 Admin	<ul style="list-style-type: none"> Access is determined on a case by case basis by the admin lead. 	<ul style="list-style-type: none"> Access is determined on a case by case basis by the admin lead.
SSC Lead	<ul style="list-style-type: none"> Edit all design schedules in assigned districts Create schedules in assigned sandboxes Copy project templates and work packages into a schedule View all contractor schedules in assigned districts 	<ul style="list-style-type: none"> <i>Scheduler 1</i> (all MnDOT highway design projects in assigned districts) <i>Scheduler 2</i> (sandbox in assigned districts) <i>View Only</i> (templates, work packages, contractor schedules in assigned districts, sandbox in unassigned districts)
SSC Scheduler	<ul style="list-style-type: none"> Edit all design schedules in assigned districts Copy project templates and work packages into a schedule 	<ul style="list-style-type: none"> <i>Scheduler 1</i> (all MnDOT highway design projects in assigned districts) <i>View Only</i> (templates, work packages, sandbox in unassigned districts)
Project Manager	<ul style="list-style-type: none"> Update activity progress in Team Member View access to assigned projects in P6 can be granted by special request to the PMU office 	<ul style="list-style-type: none"> <i>Team Member</i> (all assigned activities) <i>View Only</i> to assigned projects by special request
Activity Owner	<ul style="list-style-type: none"> Update activity progress in Team Member 	<ul style="list-style-type: none"> <i>Team Member</i> (all assigned activities)
Functional Group – CO	<ul style="list-style-type: none"> Update activity progress in Team Member View access to assigned projects in P6 can be granted by special request to the PMU office 	<ul style="list-style-type: none"> <i>Team Member</i> (all assigned activities) <i>View Only</i> to assigned projects by special request
Functional Group - District	<ul style="list-style-type: none"> Update activity progress in Team Member View access to assigned projects in P6 can be granted by special request to the PMU office 	<ul style="list-style-type: none"> <i>Team Member</i> (all assigned activities) <i>View Only</i> to assigned projects by special request

4.6 ADDING A WORK PACKAGE

To Add a Work Package or Template:

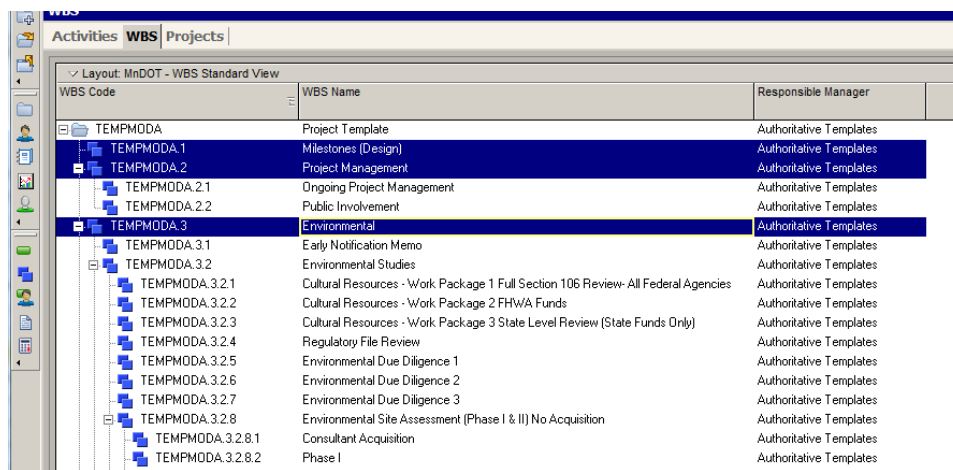
- Open the project template and the new project together using CTRL+Click.
- In the **WBS window**, copy and paste the necessary WBS elements from the template into the new project.

Note: Relationships between activities in different WBS elements will only be retained if copied and pasted together. Be sure to highlight all necessary WBS elements at the same time before copying into each project.

Multiple schedules may be created for the requirements below. It is necessary to open all schedules at the same time when copying templates.

- Scoping
- Design
- Bridge
- Right-of-way
- Construction Administration

In the example below, all activities within Milestones, Project Management, and Environmental will retain their relationships when copied because they are being highlighted and copied together. If Road Design is copied separately, all relationships to activities in previously copied and pasted WBS nodes will be lost.



WBS Code	WBS Name	Responsible Manager
TEMPMODA	Project Template	Authoritative Templates
TEMPMODA.1	Milestones (Design)	Authoritative Templates
TEMPMODA.2	Project Management	Authoritative Templates
TEMPMODA.2.1	Ongoing Project Management	Authoritative Templates
TEMPMODA.2.2	Public Involvement	Authoritative Templates
TEMPMODA.3	Environmental	Authoritative Templates
TEMPMODA.3.1	Early Notification Memo	Authoritative Templates
TEMPMODA.3.2	Environmental Studies	Authoritative Templates
TEMPMODA.3.2.1	Cultural Resources - Work Package 1 Full Section 106 Review- All Federal Agencies	Authoritative Templates
TEMPMODA.3.2.2	Cultural Resources - Work Package 2 FHWA Funds	Authoritative Templates
TEMPMODA.3.2.3	Cultural Resources - Work Package 3 State Level Review (State Funds Only)	Authoritative Templates
TEMPMODA.3.2.4	Regulatory File Review	Authoritative Templates
TEMPMODA.3.2.5	Environmental Due Diligence 1	Authoritative Templates
TEMPMODA.3.2.6	Environmental Due Diligence 2	Authoritative Templates
TEMPMODA.3.2.7	Environmental Due Diligence 3	Authoritative Templates
TEMPMODA.3.2.8	Environmental Site Assessment (Phase I & II) No Acquisition	Authoritative Templates
TEMPMODA.3.2.8.1	Consultant Acquisition	Authoritative Templates
TEMPMODA.3.2.8.2	Phase I	Authoritative Templates

Remember, you should not copy the project level (top level shown in the WBS window), only second-tier and lower nodes.

In the example above, although Functional Group Schedule Acceptance, Final Design Project Baseline, Ongoing Project Management, and Public Involvement are not highlighted, they will be automatically copied with their parent node, Project Management. This includes the WBS structure and activities.

- Update the Responsible Manager on all WBS nodes to the element ID of the project.

- d) Review the schedule for missing relationships and make corrections as necessary.
- e) Schedulers shall NOT remove empty WBS nodes from the project schedule. The empty WBS nodes can be hidden by clicking hide if empty in the review and sort screen. The nodes will be left in place in case activities need to be added or adjusted in the project schedule.

Using Dissolvable Milestones

- a) Link predecessors and successors between the work package and the destination schedule using activities in the Dissolvable Milestone WBS:
 - i) Select each temporary activity in the Dissolvable Milestone WBS,
 - ii) Add the logic between the temporary activity and the destination schedule by closing the open end. Link the predecessor or successor of the temporary activity to the activity in the schedule with similar Activity ID excluding the “ZZZ” leading text.
 - iii) Revise relationship type if needed.
 - iv) Repeat for all temporary activities in the Dissolvable Milestone WBS.

Hydraulics Design Recommendations			
Dissolvable Milestone (Dissolve after relationship Linked & remove node from WBS)			
ZZZPLN9000	Prepare 90% Plans (As Defined by Project Team in Activity Steps)	PLN9000	HPR1020
ZZZTUR1010-1	Revise Final Plan	HPR1020	TUR1010
ZZZTUR1010-2	Revise Final Plan	TUR1010	HPR1030
ZZZTUR1040	Prepare Submittal Memo and Submit Plans & Specs	HPR1040	TUR1040
Hydraulics Plan Review			
HPR1020	Review WRE 90% Plan	ZZZPLN9000	ZZZTUR1010-1
HPR1030	Check WRE Redlines 100% Plan Review	ZZZTUR1010-2	HPR1040
HPR1040	Sign WRE Plan	HPR1030	ZZZTUR1040

- b) Once all of the relationships are linked, dissolve all activities under WBS “Dissolvable Milestone (Dissolve after relationship Linked & remove node from WBS)”.
- c) Final work package linked to destination schedule:

Activity ID		Activity Name	Predecessors	Successors
Hydraulics Design Recommendations				
Hydraulics Plan Review				
HPR1020	Review WRE 90% Plan	PLN9000	TUR1010	
HPR1030	Check WRE Redlines 100% Plan Review	TUR1010	HPR1040	
HPR1040	Sign WRE Plan	HPR1030	TUR1040	

4.7 SCHEDULE MODULE OVERVIEW

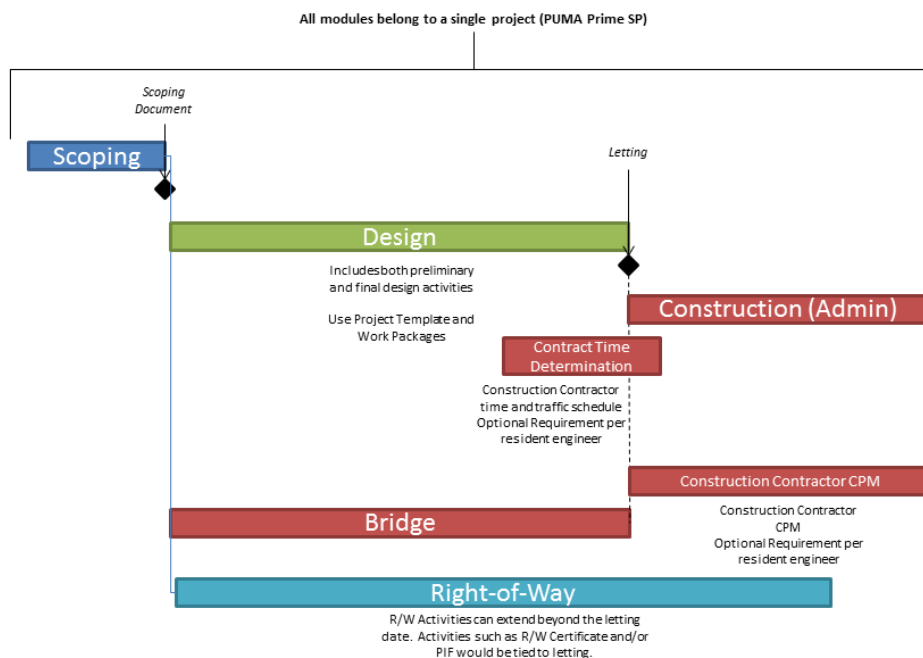
Project Lifecycle

Every MnDOT project has a lifecycle.



MnDOT project schedules are developed using seven modules that mimic the lifecycle of a project. Each module has a clearly defined end deliverable. The seven modules are maintained within a single Prime SP Schedule in P6. Having multiple modules for one project allows the progressive elaboration (the schedule information is expanded as the project proceeds along its lifecycle journey) of the project schedule.

Schedule Module Overview



The seven modules are:

Scoping The scoping module includes the activities required to generate a signed scoping document and the creation of the schedule for the next stage of the project - design. The design schedule at this time may be a single activity line representing the duration of the work and the Roles/Resources planned to do the work; or, it may be a detailed schedule developed from work packages.

The Project Manager will own all activities and update status complete in P6. The module includes the key performance indicators required for WIG reporting. The project manager will establish the activity durations and work with the SSC to enter information in P6.

Updated 20150327

Design This module encompasses the project lifecycle stages between the signed scoping document and letting, other than bridge and right-of-way. These activities include conceptual development, environmental documentation, preliminary design, final design, construction document generation and preletting activities for MnDOT and locally let projects. No activities will extend beyond the letting date.

The design schedule is generated by selecting individual project templates and work packages that have been developed by MnDOT Functional and District groups. The templates and work packages are maintained by the Office of Project Management and Technical Support, with input from the districts via the Template Group. The project manager will coordinate with MnDOT staff to establish the appropriate activities, duration and personnel for the work. The project manager will work with SSC to enter the information in P6.

Bridge The bridge module includes the activities required to generate bridge letting documents.

This module encompasses the lifecycle stages between the signed scoping document and letting. This module is separated from the design module because of the unique reporting requirements for bridge projects (bridges have separate SP numbers, activities that may span multiple stages of a project life cycle, and schedule code maintenance is simplified on a module basis rather than an activity basis). No activities will extend beyond the letting date.

The bridge work packages were developed and will be maintained by the Bridge Office. The project manager will coordinate with Bridge Office staff to establish the appropriate activities, duration and personnel for the work. The project manager will work with SSC to enter the information in P6.

Right-of-Way The right-of-way module includes the activities required to generate right-of-way documents.

This module encompasses the lifecycle stages following the signed scoping document and can extend beyond the project letting. This module is separated from the design module because activities span multiple phases of a project life cycle and some activities occur after the letting date.

The right-of-way work packages were developed and will be maintained by the Office of Land Management (OLM). The project manager will coordinate with district Right-of-Way staff and OLM to establish the appropriate activities, duration and personnel for the work. The project manager will work with SSC to enter the information in P6.

Construction Administration The Construction Administration module includes the activities MnDOT staff will perform after the project has been let.

This module encompasses the lifecycle stages after the project letting through the completion of construction.

The construction administration work packages will be developed and maintained by the Resident Engineer Group. The project manager will coordinate with Resident Engineer staff to establish the appropriate activities, duration and personnel for the work. The project manager will work with SSC to enter the information in P6.

Contract Time Determination The Contract Time Determination module is generated at the request of the Resident Engineer. This schedule is developed to estimate construction activity durations and to forecast potential impacts to the project.

This module encompasses the lifecycle stages after the project letting through construction is complete.

The contract time determination schedules will be developed by MnDOT.

Construction – Contractor The Construction – Contractor module includes the activities the Contractor will complete to construct the project. This module will only be required if the Resident Engineer decides to include a P6 CPM schedule requirement in the Special Provisions.

This module encompasses the lifecycle stages after the project letting through construction is complete.

The construction control work packages will be developed and maintained by the Contractor. The project manager will coordinate with Contractor to confirm the appropriate milestones are met.

The system is intended to be tailored to a specific project while maintaining data integrity to report on key project indicators on a statewide basis. [Master WBS](#) (Work Breakdown Structure) nodes can't be modified, but additional sub-level WBS nodes can be added.

MnDOT functional groups and district staff have developed multiple work packages that facilitate the creation of project schedules. These work packages contain the activities that are required to complete work on a project. See the [Appendix 4.6](#) Adding Work Package for creating a schedule using work packages.

Multiple staff are involved in creating and maintaining each project schedule. The primary groups actively involved in project schedules are: Admin, SSC, PM, District and Central Office Functional Groups and Activity Owners.

MnDOT project schedules are generated by having the PM select work packages applicable to the specific project. The work packages contain activities which are role loaded and have generic durations for completion. The project manager will work with project team members to adjust the durations for each project and assign ownership to staff that will complete the project activities. See Sections [2.0](#) and [3.0](#), for additional information.

During the project lifecycle, all project team members will monitor their activities using reports available on the [P6 web site reports page](#). Activity owners will update the remaining duration and percent complete for each activity assigned to them using the process outlined in [Updating Activity Progress in Team Member](#). The reports will be updated by Admin staff as shown in the [Report Generation Schedule](#) and [Report Dates](#) on the P6 web site.

4.8 SETTING FLOAT LIMITS

1. Work with the PM to determine the float limit on the project. General “rules of thumb” are:
0 Days – minor projects, 20 Days – moderate projects, 40 Days – major projects
2. Confirm that there are no actual dates on your project. If your project has actual dates, substitute Data Date for Project Planned Start Date in the steps below.
3. On the Design module, under the Dates tab of the Projects screen, set a Project Planned Start Date (or Data Date) in the future that will make the total float of the schedule equal to the float limit. This date should be set BEFORE distributing the schedule for final baseline review. If a project schedule already contains actual dates, do NOT change the Project Planned Start Date, but change the Data Date instead. Determine this date by:

Subtracting the current total float of the project from the float limit.

Adding that number of days (in *working* days) to the current data date of the project.

4. Open the Design, Bridge, and Right of Way modules and schedule the project. Confirm on your Schedule Options that it is set to “Calculate float based on finish date of Opened Projects”.

5. Confirm that the total float of the project is equal to the float limit. If they are not equal, repeat steps two and three. Because not all activities are on the same calendars, these steps may need to be repeated a couple of times.
6. Once the Project Planned Start Date (or Data Date) is determined for the Design module, assign the same date to the Right of Way and Bridge modules.

Under the Notebook tab in the Projects screen, add a Notebook Topic under Constraints. Enter the date and the scheduler’s name. Then enter the project manager’s name, the Project Planned Start Date, and the float limit.

7. The float limit should be reset using this process if additional changes are made before baseline or if a baselined schedule is re-baselined for any reason.

4.9 PROJECT CONTINGENCY BUFFER ACTIVITY

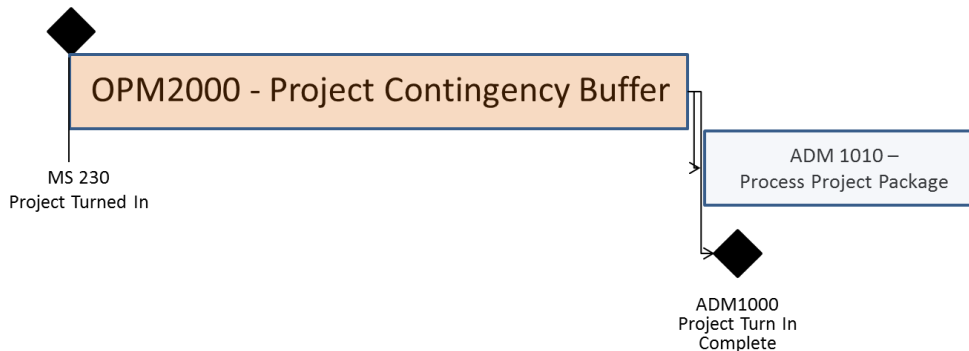
The Project Management Leadership Group (PMLG) requested to baseline FY 17 and FY 18 using P6 Late Finish Dates. MnDOT leadership expressed concern about the risk of delivering projects late by using the late date (running too many activities critical or near critical). To mitigate leadership concerns, the PMLG has proposed adding a Project Contingency Activity for the Project Manager to manage risk on the project.

Activity Purpose

This activity allows Project Managers to effectively manage project schedule risk. Without this contingency, there is no float in the project schedule. This minimizes the ability of the Project Manager to recover the schedule if an activity is delivered late.

Schedule Location

This activity will be placed between Project Turn-in and the Pre-Letting process as shown below:



Placing this activity here requires the lowest risk of missing activities that need to flow through the buffer. Schedulers only need to add this activity between two existing milestones and the Process Project Package activity versus searching for all predecessors that need to tie-in.

Placing this activity between Advertisement and Award was also considered, but this would impact Pre-Lettings ability to effectively plan resources. Placing this activity at the end of the schedule would also conflict with Pre-Lettings project turn-in calendar that PMs and functional groups use, causing confusion.

Activity Duration

The minimum duration will be 10 days (5 day work week). This minimum duration is required to minimize leaderships concern with running too many activities with 0 or low float. Project Managers can initially base-line projects with increased duration. A maximum duration of 25 days should be considered. **Long maximum durations may unnecessarily push the dates before other priority work and make resource planning difficult for all users.**

Updated 20150327**Responsibilities of the Project Manager**

The Project Manager:

- Owns and updates this activity (See Note 1)
- Must communicate with each activity owner if their due date changes. Due dates will change when you modify the buffer activity duration.
- Must closely monitor activities that do not use MS 230 (Project Turn-in) as a successor activity. For example, permitting or r/w activities may be tied to the Letting Milestone. The buffer activity does not provide contingency for these items.
- Should not use excessive durations on the buffer activity. This will have a negative impact to the overall program by limiting functional group abilities to properly plan work. If a certain activity has risk, consider increasing the duration of that activity versus increasing the buffer activity.

Note 1: By not updating this activity, projects may show false negative float (e.g. If you have 20 days of contingency and your float shows negative 5 Days, you are still +15 Days). The WIG Scoreboard is not going to filter this, it will report negative float whether it is false or not.

Float Ownership & When to Use

The Project Manager owns the contingency activity. The primary purpose is to manage unexpected items that arise, NOT to simply extend the duration of existing activities.

Activity owners are committed to the Late Finish Dates in their schedule. If an activity owner is not able to deliver on-time, they must contact the Project Manager to develop a recovery strategy.

Activities owners are not to assume the contingency is for their activity. The Project Manager is to notify the activity owners (and obtain buy-in) if their due dates change because the Project Contingency Buffer activity has been reduced.

Information for SSC Schedulers

When adding this activity to a schedule, SSC schedulers must:

1. Place a new activity in the Ongoing Project Management node of the WBS.
2. Use Activity ID OPM2000
3. Use Activity Name "Project Contingency Buffer"
4. Assign Ownership to the Project Manager
5. Assign a minimum 10 day duration
6. Add predecessor: MS_230 Project Turned In
7. Add successors: ADM1000 Project Turn In Complete and ADM1010 Process Project Package

When to use Requirement

This activity is required on all FY 17 and beyond projects.

FY 16 will not be using this requirement. These projects are already base-lined with agreed upon dates. Many of these projects (over 40%) are already in negative float. Adding this activity would require significant effort to determine the appropriate duration with limited value for the amount of effort the PM, functional groups, and SSC would need to go through.

4.10 BASELINE AUDITS

This document is available in work format at <\\Ad\co\TechSupp\Data\OPMTS Project Management\Project Management Unit\P6 Implementation\Documents\Forms\Audit for baseline schedules.docx>

Project Name:

Project Scheduler:

Audit completed by:

QA completed by:

Audit Checks

Description	Date Checked	Comment	Notes
Confirm the following in the projects window			
Project ID			
Project Name			
Must Finish By/MnDOT Let Date/PPMS Letting must match			
Mandatory Project Coding/PPMS Headers			
Project settings: Verify MnDOT Standard Schedule Options - DO NOT CALCULATE			
Team Member Settings			
Confirm the following in the activities window			
No Unapproved LOE Activities			
Mandatory Activity Coding is in place			
Activity Ownership applied correctly			
Proper Calendars applied			
Default settings			
Time Options			
Schedule Options			
Modular Schedule Ties			
Are there Task Activities that have zero Original Durations? If so, should be a milestone.			
Confirm the following in the Schedule to Log file			
Constraints have been approved			
Lags do not exist on activity level			
Project does not have Negative Float			
Logic Ties are appropriate – there should be greater than two open activities			

Description	Date Checked	Comment	Notes
General			
Baseline has been captured and assigned to the project			
Baseline pdf has been uploaded to reports page on P6 website			
Check Float <ul style="list-style-type: none"> Turning on time in Edit; User Preferences, Note Hour or Minute Discrepancies in start and finish date columns MnDOT Standard Calendar Start and Finish times are Standard 8:00 am - 5:00 pm Must Finish By date should also be verified the correct time 			
Data Date should equal project start should equal first activity in sequence. Verify all (3) dates are aligned.			
Has the correct access been given?			

QA Checks

Description	Date Checked	Comment	Notes
Spot check on QC completed – list checks completed			
QC documents filed			

4.11 ESTIMATING ACTIVITY DURATIONS

What is duration?

- Duration is the number of working days it takes to complete a task under average working conditions.
- Duration is NOT an estimated number of days to a deadline or date.
- Duration should NOT be confused with hours worked which is a resource estimate.

Original Duration

- Original duration is the total estimated number of days to complete a task.
- The original duration for an activity is established before an activity has been started.

Remaining Duration

- Remaining duration is the remaining number of days to complete a task that is already in progress.
- Remaining duration should be updated during every update period for any activity that is in progress.
- If you do not update remaining duration, you will create inaccurate schedule float.

When estimating an activity's duration...

DO:

- Assume a normal work load
- Estimate your duration based on the MOST LIKELY number of working days.
- Take into account average working conditions for the resources (people) working on the activity (e.g. meetings, concurrent work on other projects, etc)
- Estimate based on what you think you WILL do.

DO NOT:

- Use the deadline as the driver for the duration
- Use a worst case estimate or include contingency.
- Use remaining duration to plan your work
- Include non-work periods (e.g. weekends, holidays, weather/seasonal restrictions) in your estimate.
- Use resource hours to estimate duration.
- Estimate based on what you think you SHOULD do.