Schedule Management

Good schedules are an essential tool for anticipating and coordinating upcoming work. Scheduling serves two fundamental purposes. Schedules are used for tracking the overall delivery of projects and reporting that progress. The other purpose of schedules is to serve as a tool for project and task managers to effectively manage and execute projects on a day to day basis.

Scheduling responsibilities are described as follow:

- **District Schedulers** prepare and build the initial schedules based on anticipated project scope of work, Work Program funding and input from the FDOT Project Managers and consultants.
- **FDOT Project Managers** manage the project schedule by monitoring the status of activities and providing monthly updates.
- **Consultant Project Managers** develop schedules necessary for them to manage their work. The milestone dates included in the consultant schedules must be coordinated with the Department's schedule through the FDOT Project Manager and District Schedulers.
- **Functional Units:** FDOT supporting functional units review their respective components of a schedule for agreement with the scope of work and assure that the appropriate activities and time durations are included.

Initiating a Schedule

Initial template project schedules are implemented by the District Scheduler for each project when it is added to the Work Program. Typically, a schedule template is used, based on the project type, funding, and initial scope of work. Standard activity durations contained within a template can be used to determine the overall project duration. The template project schedule must align with the project scope of work and funding. The District Scheduler must review and update schedules during the gaming cycle until a FDOT Project Manager is assigned to the project. (See ***Work Program Instructions (WPI)*** ***Part V - Chapter 1: Production Management - Section C: Scheduling***)

Projects enter the Work Program and initial template schedules are created as follows:

Planning Projects: These projects consist of Feasibility Studies for discovering if a PD&E project is a viable consideration. Major milestone example is Activity ID 253 Planning Contract Executed.

PD&E Projects: These projects consist of Environmental Management Class of Actions documents such as: Type I CE, SEIR, Type II CE, EA, and EIS. Major milestones examples are Activity IDs 239 PD&E Contract Executed and 263 Location Design Concept Acceptance (LDCA).

Capacity Projects: These projects consist of both Design/Build and Conventional Design/Construction phases of work which commonly have unfunded phases of work such as Right of Way and Construction/CEI at initial funding and scheduling. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 268 Documents to Right of Way, 351 Authorize Right of Way Purchase, 255 Right of Way Certified, 204 Production Date and 280 Letting Date.

Resurfacing Projects: These projects consist of improvements to the structural condition of existing pavements and provides pavement resurfacing, rehabilitation, minor reconstruction, and pavement milling and recycling to preserve the structural integrity of highway pavements. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 204 Production Date and 280 Letting Date.

Safety and Operations Projects: These projects consist of addressing FDOT's number one priority, Safety, with the intention to ensure that available safety funds are fully programmed and scheduled to reduce fatal and serious injury crashes. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 204 Production Date and 280 Letting Date.

Bridge Repair & Replacement Projects: These projects consist by statutes to preserve Florida's existing transportation infrastructure. They include construction of new bridges as a replacement for pre-existing deficient structures and the repair and rehabilitation of existing bridges. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 274 Submit Bridge Hydraulics Report, 277 Submit Bridge Development Report, 222 All Permits Clear, 204 Production Date and 280 Letting Date.

District-Wide Projects: These projects are handled with various District-Wide contracts on an annual basis or in-house staff. These are generally reoccurring each year within the Work Program funding. Consultant Acquisition activities are maintained to align funding with encumbrances and authorizations.

Building a Schedule

The following provides guidance for the building of projects schedules.

Software: FDOT uses Oracle Primavera P6 as the official scheduling software. Primavera is an enterprise program that allows scheduling information for all FDOT projects to be combined in reports that summarize project production statewide.

Project Schedule and Management (PSM) is the current statewide scheduling system, maintained by Central Office Production Management. Districts use Primavera P6 to prepare schedule data for import into the PSM system.

Templates: Primavera schedule templates have been developed independently by each District. The number of templates developed, the level of detail of the templates, and the use of the templates varies significantly by District. Templates have been developed for each program types of work by Work Mixes. The FDOT Project Manager should review each template after it has been chosen for a project by the District Scheduler for scope conformance, funding alignment, and appropriate activity durations.

Schedule Development: An efficient way to build a schedule is to work from an existing schedule for a similar project to help identify the required sequences and time durations for the new project. An alternate way to build a schedule is to utilize templates developed by the District. One caveat when using a template is to be sure to think through each step in the template carefully to ensure it applies to the current project. Individual projects may have unique conditions that will vary from the typical project reflected by a template.

Several necessary tasks that are not always included in a project task list must be accounted for, e.g., completing quality control procedures, graphics production, preparing for and conducting meetings, project management functions. These tasks are equally as important to project success as the project-specific production tasks.

Incorporate identified constraints into the schedule, including both funding and legal requirements. Coordinate with district technical staff to assist in determining critical dates for essential tasks, such as right of way maps or environmental permits. See ***PMG 240 - Scheduling Basics*** section, for examples of date constraints.

Project commitments may create constraints that are beyond Project Manager's control, e.g., local events such as school openings or closings, community celebrations, city or county board meetings, volunteer advisory committees, necessary coordination with non-FDOT projects, coordination with other FDOT

projects, Value Engineering process, balancing the letting plan so an unmanageable number of projects are not clustered in the same quarter.

Managing the Schedule

Effective schedule management means responding to the changing needs and requirements of the project as well as to outside influences. Project schedules are useful tools for communication, managing stakeholders' expectations, and a basis of performance reporting. Use the schedule to look ahead and alert the various offices, units, disciplines, and subconsultants that activities will be starting that impact them, or that deliverables will be coming in that require their attention. Project Managers can use the schedules to make sure adequate resources are available to accomplish the upcoming work.

Validate the Initial Project Schedule: Once a project has moved into the adopted Work Program, the assigned FDOT Project Manager should carefully review the project schedule to make sure it is reflective of the project scope, funding, and unnecessary activities have been removed, all constraints have been incorporated, and activity durations are appropriate. Initial baseline project schedule request can be submitted into PSEE Change Management module by selecting the Critical Schedule.

Consultant Contracts: As the project scope is refined through the consultant selection and negotiation process, the FDOT Project Manager should continue to refine the project schedule. Upon completion of negotiations, the Project Managers should update and coordinate the Department's and consultant's schedules and provide this information to the District Scheduler. Although schedules prepared and used by consultants may have different purposes than that of the FDOT, certain activities must be coordinated with FDOT.

Monitoring Schedules: When monitoring a project schedule, Project Managers should evaluate and respond to:

- Delays in activities on the critical path that impact the completion date of the project unless corrective action is taken. While non-critical activities need to be completed in a timely manner, they do not affect the completion of the project until they cannot be finished by the Late Finish date.
- Constraints used in preparing the schedule that cause delay in connected activities. Validate the intent and necessity of the constraint.
- Available staffing or other resources to complete tasks on time. The FDOT Project Manager should discuss concerns with the consultant Project Manager.
- Negative float or a reduction in positive float from month to month, or activities that have too much float.
- Non-critical activities are consistently late. This may be indicative of future problems completing critical activities.
- There are too few activities to accurately assess the progress of the project, or a major activity has a very long duration. The FDOT Project Manager should request a more detailed schedule that will enable adequate monitoring of individual activities.
- Updates that indicate all activities are exactly on schedule with no change in float from month to month. While this hopefully indicates great scheduling ability with an exceptional project team that completes every activity exactly on schedule, it could also indicate that the schedule was updated automatically with little thought or was being updated to mask an ongoing problem.
- Activities that are out of the Project Managers' control, e.g., coordination with local government or water management districts regarding permitting or funding.

At the FPID level, project schedules can be viewed using PSEE Project Scheduling (PSM) module which displays Activity ID, Activity Description, Person Responsible, Start Date, Finish Date, Remaining Days, and Total Float.

Schedule Updating: Although the standard is to provide monthly updates, there may be phases or portions of the project when weekly updates may be appropriate. Additional updates should be done as soon as a major milestone is achieved, such as a phase submittal, receiving a permit, or when something happens that may impact the project schedule or the work of other units or team members.

Accurate updating is very important when the schedule is a source of information for consultant or contractor payment. Notify all parties when the schedule changes so they may adjust other affected schedules.

The monthly update process is well defined in each District. The FDOT Project Manager should contact the District Scheduler to determine the specific procedures used within the District. The FDOT Project Manager should establish a procedure for the consultant to provide monthly progress reports, and if necessary, an updated schedule, prior to submitting the monthly update to the District Schedulers. Project schedule updates to activities can be submitted using either PSEE Monthly Schedule Update module for updating multiple projects or PSEE Scheduling module for updating a single project.

Resolving Scheduling Problems: When issues with the schedule arise, the Project Manager should evaluate corrective action and coordinate with team members to determine the impacts of a schedule change prior to updating the schedule. Possible corrections may include:

- Determine if the duration of remaining activities can be adjusted.
- Add more staff or resources to shorten the duration of activities on the critical path.
- Eliminate unnecessary or non-applicable activities.
- Overlap activities, i.e., some activities may be able to start during a previous activity rather than at its completion.

Major Schedule Changes: If it is determined the scheduled completion date must be delayed, the FDOT Project Manager is responsible for following the schedule change procedure and getting the necessary approvals prior to making the change. Districts may have varying processes for changing a commitment date, contact the District Production Manager for the individual District's process.

Once a change is approved, the FDOT Project Manager must coordinate with District Schedulers, representatives from units impacted by the schedule change as well as the consultant Project Manager to implement the change. All impacted units, consultant Project Manager(s), and Senior District Staff must agree on the proposed changes prior to finalizing the revised schedule. Revised baseline project schedule request can be submitted into PSEE Change Management module by selecting the Critical Schedule.

Schedule Closeout: Project Managers should coordinate with District Schedulers once all project schedule activities are completed to discuss baseline vs. actual outcomes, predecessor and successor revisions, added or removed activities, determining improvements for implementation into schedule templates and archiving the final project schedule. These lessons learned should be shared by the Project Managers with the District Schedulers and District team to evaluate their project at completion to identify areas where improvements can be made with respect to the project schedule. The Project Manager should discuss the project execution with all project team members to identify root causes of problems.

When appropriate, the FDOT Project Manager should work with District Schedulers to update or modify schedule templates.