Scope Management

There are typically two types of scopes for Project Manager's to manage on a project:

1. ***Project Scope**: defines the overall goal/objective of the project. This generally includes why the project is taking place, the geographical boundaries or "limits", the timeframe for the project, the estimated costs, and defines what the project needs to achieve, improve, or mitigate (i.e., the purpose and need, identified improvements needed, or deficiencies to be addressed). This is typically determined though feasibility studies and the prioritization process. The Project Scope can greatly influence the Scope of Service.*

2. ***Scope of Service:** defines the efforts and deliverables necessary to perform the work desired and within a set timeframe. Typically, this includes planning and or design work or various technical and outreach components depending on the needs of the project.*

Managing these scopes is essential to ensuring all project team members are on the same page with meeting the project goals and expectations. This effort often extends throughout the life of the project – from PDN Stage 1 to Stage 4 (Letting) or 5 (Construction).

Why Important

Project Scope

- Defines the expectations of the project to ensure the improvements meet the purpose and the need and satisfy project goals.
- A defined project scope will help the team understand the major components and level effort needed to deliver the project.
- Minimize scope creep and risk of expanding beyond the planned limits or objectives, reducing potential for project cost increases and schedule delays. It may help to identify what is not included in the project to help reduce scope creep.
- Provides guidance on the deliverables, activities, and tasks required to deliver the project.

Clearly defined scopes can keep a project moving forward whereas ambiguous scopes can delay a project and lead to disputes.

Scope of Service

- Clearly defines the work (activities, tasks, and deliverables) a firm will be performing on a project.
- Documents assumptions and limitations associated with the firm's anticipated services.
- Provides the basis for holding the project team accountable.
- The work detailed in the scope is used to develop the Workday estimate and is a portion of the PE budget in which annual cost projections are required.

Key PM Responsibilities

Project Scope

Common Goal
Ensure all team members are working toward the same goal and Purpose & Need established.

Minimize Scope Creep
Ensure project scope modifications are vetted and justified.

Scope of Services

Review Scope of Service
Ensure that deliverables and task expectations align with needs of the project.

Negotiate with Firm
Coordinate with NCDOT disciplines to negotiate the work needed to be performed.

Timely Notice to Proceed
Coordinate closely with Business Officer/Admin to ensure Notice to Proceeds are received timely.

Key Things to Consider

Project Scope

- Do the deliverables align with meeting the project goals and improvement expectations?
- Have the project stakeholders/local partners been engaged to ensure expectations are met and scope creep is minimized?
- Has any scope creep occurred that may impact prioritization and/or funding?
- If an additional item is requested - expanding the scope, is it required to meet the project purpose and need or is it considered a betterment?
- Are all team members engaged and coordinating continuously with each other?
    - Is communication freely flowing amongst team members? (PM are not having to pass the information from team member to team member.)

Scope of Service

- Is the Scope of Service adequate to meet the intent of the Project Scope?
- Does the timeline for the deliverables align with the timeline in the Project Scope?
- Are the expectations on how the project will be delivered clear?
    - Contracting type
    - Roles and Responsibilities
    - Deliverables
- Is QA/QC included in the scopes of services?
- Are the PDN deliverables and activities in the Scope of Service tailored to meet the project needs?

Does the scope clearly define the expectations of the deliverables?

Best Practices & Common Pitfalls

Best Practices	Common Pitfalls
Project Scope ✓ Communicate clear expectations at scoping meetings. Minimizing Scope Creep ✓ Ensure the project scope is clear and understood by all. ✓ Establish a clear purpose & need, maintain focus on it. Improvement requests may be beyond what is needed to meet purpose and need; evaluate before incorporating. ✓ Communicate early and often with local stakeholders and municipalities. ✓ Account for Complete Streets. Scope of Services ✓ Provide timely reviews of scope of services. ✓ Proactively negotiate work needed when necessary and appropriate. ✓ Verify that the scope of service is in line with overall expectations. ✓ Keep in mind how long the Notice to Proceed process takes. ✓ Ensure key assumptions are noted for each discipline. ✓ Clearly indicate what is not included.	Project Scope ✗ Unclear goals or purpose & need. ✗ Differing project goals throughout the project, everyone not on same page. Scope Creep ✗ Ambiguous project scope. ✗ Stakeholders not involved early in the project. ✗ Poor Communication. ✗ Unrealistic timelines. ✗ Last minute modifications or requests. Scope of Services ✗ Approving scope that is not detailed enough. ✗ Holding up approval of scope for preferential edits. ✗ Allowing prime consultants to use unapproved subconsultants to work on LSC. ✗ Delaying the project by having delayed notice to proceeds. ✗ Waiting too late to start the scoping & Notice to Proceed process for supplemental work. ✗ Approving scope of services that does not meet the Project Scope

Tools

Scope of Service Generator

Definitions

Scoping: *The process of developing the project scope or scope of service.*

Project Scope: *The overall goal/objective of the project, outlining the work that needs to be completed, the resources required, and the timeline for completion.*

Scope of Service: *The efforts and deliverables needed for a project team to perform within a set timeframe. Also referred to as Scope of Work.*

Scope Creep: *Continuous or uncontrolled changes to the project scope beyond what was originally programmed in the STIP or contracted with the firm.*

Activity: *The overall action(s) completed by a technical discipline Activities are the boxes on the PDN diagram represented by an identifier (ie 2HY2) and can be completed in parallel or sequentially.*

Task: *The step(s) and process(es) necessary to complete an activity. These are identified in the "Deliverables" table for each Activity in the PDN.*

Schedule Management

Schedule management is the process of understanding the major milestones on each project and how tasks and deliverables can impact achieving those major milestones. A project schedule helps outline the project specific deliverables, tasks, durations, sequence of activities, and critical path. Schedules also help the project team know who is completing each task and deliverable and when they will be completed.

Why Important

Well-structured schedules provide clear, effective plans for how a project will be delivered.

- A one-stop shop that clearly displays the project specific tasks/deliverables and the prerequisites needed to reliably deliver a project on time.
- Maps out the order and flow for completing the project based on the timelines and deadlines set by the project team.
- Displays the tasks and activities on the critical path and allows the project team to better understand how accelerations and delays impact the critical path.
- A reliable and accurate schedule allows team members (discipline leads & project managers) to plan and allocate the appropriate resources to perform a task/complete a deliverable. This, in turn, could yield more accurate cost projections.
- Schedule updates reflect what happened, track progress, and display upcoming work. This allows the PM to know if the project is proceeding according to plan and will be completed on time.
- Reviewing updated schedules allows team members to identify potential risks such as schedule conflicts, slippage, or resourcing issues may reside. Early identification allows teams to discuss mitigation strategies, decreasing the impact on the project.

Key PM Responsibilities

Review Baseline Schedule
Ensure schedule aligns with the project scope and is reasonable with no fatal flaws.

Update SAP Milestones
Ensure forecasted and confirmed milestones dates are updated in SAP. Submit SCR, if necessary.

Review Schedule Updates
Review schedule updates for key delivery dates and the status of critical items.

Know the Critical Path
Know what tasks are on the critical path and understand how unforeseen issues can impact it.

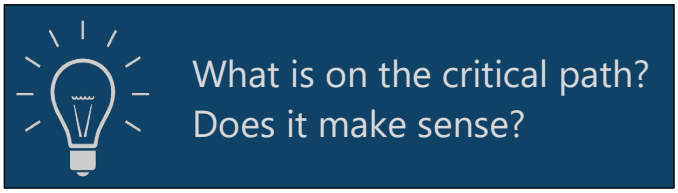
Schedule Communication
Discuss key deadlines, schedule updates, and issues in status meetings and status reports.

Key Things to Consider

Baseline Schedule Review

- Has the proper coordination amongst the project team occurred?
- Are the correct tasks/deliverables, duration, and logic (order of the tasks/deliverables) included?
- Are all project team members on the same page with the deliverable due dates? Are there concerns with meeting these?
- Do all project team members know what tasks are on the critical path?
- What could quickly derail the project? Are these identified/included in the schedule?
- Are reviews and NCDOT activities properly accounted for in the schedule and is the responsibility assignment clear?

Updating and Management of Project Schedule



- Are tasks being completed and are deliverables being turned in on time?
- What needs to be done on the project in the next weeks and months (commonly referred to as a "Look Ahead" period)?
- Are there changes to the tasks or deliverables on the critical path?
  - If so, what are the impacts and are any corrective actions needed?
  - If corrective actions are required, what actions are needed and who should implement each action?
- If unforeseen significant issues arise, how is the schedule impacted and can the impacts be mitigated?
  - Does the issue impact the Purpose and Need, push financial milestones into a different Fiscal Year (i.e. ROW, UTL, or LET date), or change the scope of the project?
  - Are the impacts significant enough to require discussions with management?
    - Are purpose and need or if a major milestone is impacted?
    - Will changes require a Schedule Change Request (SCR) to be submitted?
    - Are there changes that may require re-prioritization (i.e., purpose and need modifications or budgetary issues)?

Schedule Communication

- If delays are occurring on non-critical path items can additional time be given?
- Are public facing websites or reports being updated to align with current schedule?
- Have any schedule updates or decisions made in a vacuum and are there unintended consequences?
- What could quickly derail the project? Are these identified/included in the schedule?
- Is the updated schedule accessible to all team members on SharePoint or team sites so all team members have access to the schedule?

Best Practices & Common Pitfalls

Best Practices	Common Pitfalls
✓ Coordinate early and often with ROW, utilities, regulatory agencies, and other key team members. ✓ Verify proper predecessors or successors are included in the schedule. ✓ Review the critical path to ensure that it is "logical". ✓ Ensure that critical NCDOT actions (funding requests, reviews, etc.) are accounted for. ✓ Look at concurrent/overlapping tasks to ensure they are logical. ✓ Ensure that the proper level of detail and major milestones are included, as appropriate for each project. ✓ Ensure proper Division or Management coordination occurs prior to submitting a SCR. ✓ Ensure financial milestones align with the State Transportation Improvement Program (STIP).	✗ Unrealistic schedule & unclear tasks. ✗ Underestimating the time for critical path items (permits, Right of Way acquisition, utility relocation, etc…). ✗ Failure to account for activities that are out of the project team's control (private utility relocations). ✗ Failure to account for holidays and/or seasonal restrictions. ✗ Not properly accounting for stakeholder/agency reviews. ✗ Not taking time to properly communicate schedule changes to team members.

Tools

Microsoft Project Template

6 Key Items to Review on Schedules

Definitions

Critical Path: *The minimum time necessary to complete the project. This identifies the longest sequence of dependent tasks within a project.*

Milestone: *An event, significant accomplishment, decision, or deliverable used to measure progress toward completing the project.*

Major Milestone *Formal SAP milestones that provide details for project delivery reporting and spend plan accounting to measure delivery success and obtain financial stability. Major milestones include: Notice to Proceed (NTP), Environmental Document, ROW Plans Complete (RPC), R/W Acquisition Begins, Utility Relocation by Others Begins, Utility Relocation by Others Complete, All ROW parcels Accessible, and LET.*

Float: *The amount of time a task can be delayed without impacting the overall project completion date.*

Schedule Change *The act of the NCDOT PM submitting a formal Schedule Change Request in SAP to change a major milestone within the project schedule.*

Leading Teams

Leading teams is the process of guiding team members through the highs and lows of delivering a project. Effective leaders facilitate conversation, resolve conflicts, build trust among team members, build cohesion, guide teams to solutions and results, motivate team members, and create a sense of urgency.

Why Important

Project Managers are the leaders of project teams; as such, they are the primary point of contact for all stakeholders and team members. Effective leaders are essential to ensuring everyone is working towards the same goal.

Impact when Project Managers provide lead teams effectively:

Team Functions as One Unified Team

Motivated team members have a sense of purpose – what they are providing is valued. Thus, are more committed to working together to achieve a common goal and delivering higher quality products on time.

Increased Innovation & Creative Solutions

Constant communication and collaboration across team members increases innovation and creative solutions to challenging obstacles.

Communication & Coordination Occur Easily

Clear roles and responsibilities make it easy to know who to coordinate with and what to coordinate with them on.

Projects are Delivered On-Time and On Budget

Everyone is aware of the next steps, action items, critical path, and the intermediate and final milestones mapped out in the schedule.

Risks and Issues are Promptly Resolved

Issues & risks are anticipated and discussed before they occur. Team is proactive about mitigating risks and issues before they become a bigger problem.

Conflicts are Effectively Resolved

Impact when Project Managers struggle to lead teams:

Lack of commitment -Team not committed to deliver on project on time – low team morale.

Lack of Progress/Schedule Slipping

Team members don't know what they are working towards – goal(s) are vague.

Unclear Expectations

Team members trying to figure what needs to be done now and what is coming up. Everyone feels busy but important tasks are not getting done - next steps, critical path, and milestones are unclear.

Working in a vacuum

Team members working towards their own interests or goals, creating potential for redundancy, unnecessary work being completed, and conflicts within deliverables.

Small problems turn into big problems

Unresolved conflicts - Hinder progress and drive team morale down.

Opportunities and innovative solutions are overlooked - Due to lack of communication and collaboration.

Key PM Responsibilities

Communicate Expectations
Clarify roles and responsibilities - who is doing what. Ensure all team members are informed.

Build Team Cohesion
Give each team member a sense of purpose by engaging them and providing productive feedback.

Guide Team to Delivery
Focus the team on what matters & guide teams towards solutions and desired outcomes.

Conflict Resolution
Manage conflict between disciplines. Promptly address issues and underperformance.

Stakeholder Communication
Proactively communicate to understand, inform, & reinforce expected outcomes & progress.

Team Collaboration
Foster a culture of communication across disciplines to support each other.

Key Things to Consider

Clarifying Roles and Responsibilities

- Are all team members know the critical path and the role they play in achieving progress?
- Do team members understand their role and the PM's role on the project?
- Are expectations of tasks and timelines clearly communicated with team members?

General Team Communication & Collaboration

- Do team members know who the main point of contact (Project Manager) is?
- Is relevant information being communicated to the right team members?
- Are the right team members involved in making decisions?
- Is the form of communication with the team members working? Different team members may communicate in different ways.
- Do team members understand expectations regarding when to elevate concerns and who to communicate with on what?
- Are decisions known by all team members (no surprises)?

Projects don't fail from overcommunicating.

Facilitating Meetings

- Is the purpose and desired outcome(s) of the meeting clearly defined so all attendees know what is expected to be accomplished before and during the meeting?
- What items need to be followed up on during and after the meeting to ensure progress and execution occurs within the desired timeframe?
- Are the appropriate disciplines invited?
    - Is their role in the meeting clear? (If they are a participant, do they understand how they are contributing?)

- What questions do you need to ask during the meeting to encourage team engagement, achieve meeting objectives, and foster collaboration to resolve any issues?
- At the end of the meeting, are action items and next steps identified and assigned?

Stakeholder Coordination

- Are stakeholders informed of the purpose and the associated improvements of the project?
- Do external stakeholders and DOT have a shared understanding of project outcomes?

Best Practices & Common Pitfalls

Best Practices	Common Pitfalls
Team Cohesion	Team Cohesion
✓ Team members are involved in decisions that impact their work.	✗ Team members are not engaged or committed to the success of the project.
✓ Conflicts are worked through and resolved before becoming personal.	✗ Team members don't trust each other.
✓ Roles and responsibilities are clear and known by all team members.	✗ Fear of conflict or not addressing conflict when it turns personal.
✓ Constructive and positive feedback is provided to team members.	✗ Unclear roles and responsibility
✓ Team members feel empowered to share information, ask questions, and take ownership in the project.	✗ Not providing feedback
Communication	Communication
✓ Communication on decision and progress is distributed and documented.	✗ Infrequent and poor communication
✓ Follow up via phone or in person.	✗ Overlooking unresponsiveness
✓ Multiple methods of communication used.	✗ Rely only on email to communicate.
Meetings	Meetings
✓ Purpose and desired outcomes of meeting is communicated to prior to starting meeting.	✗ Holding meetings with no clear purpose or desired outcome and unclear facilitator.
✓ Meeting facilitator is identified prior to meeting.	✗ Action items are not identified or summarized.
✓ Action items and next steps are summarized at the end of the meeting and documented in the minutes.	✗ The right people are not at the meeting.
Project Progress	Project Progress
✓ Project objectives are clear.	✗ Unclear project objectives
✓ Timely guidance and direction are provided.	✗ Being too hands off when guidance and direction is needed.
✓ Use project schedule to set team expectations on project delivery timeframes.	✗ Inattentive to results.
✓ Proactively follow up on action items and next steps before due to ensure execution.	✗ Not following up on action items and upcoming or past due tasks or activities.