

# ODOT

# PROJECT DELIVERY GUIDE

## PHASE 4: CONSTRUCTION MANAGEMENT

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# PHASE 4: CONSTRUCTION MANAGEMENT

The Construction Management stage is from project bid to final acceptance. It includes the following lifecycle milestones:

[Before On-Site Work Begins](#)

[On-Site Work Begins](#)

[On-Site Work Completed](#)

[Project close out and Final Acceptance](#)

This section covers construction management from before on-site work begins to a completed construction project.

Complete information describing or referencing practices needed to administer contracts under the Oregon Standard Specifications (2001 or newer edition) can be found in the Construction Manual. The manual is on line at:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/CM.shtml>

For information on Quality Assurance see the Construction Section in the chapter on Technical Services Branch. Also see:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QAIndex.shtml>



# LIFECYCLE MILESTONE 10: BEFORE ON-SITE WORK BEGINS

ODOT sets the stage for the working relationship with the construction contractor. ODOT ensures all requirements are clear to the contractor before work begins.

Before on-site project work can begin, the contractor must have:

- Met with the project manager at a pre-construction conference
- An approved project work schedule
- An approved traffic control plan
- An approved erosion and sediment control plan
- An approved pollution control plan

The contractor may not start work on the project, unless otherwise directed, until the Notice to Proceed is issued and the contract has been executed. The notice is issued once:

- The contractor has furnished proper bonds and insurance
- The Disadvantaged Business Enterprise commitment is met
- Subcontractor compliance is met
- The contract has been executed

Each of those topics is briefly discussed below.

## ***TASK 1 - PRE-AWARD***

Very early during project development, the project team establishes the project objectives and identifies any special concerns.

Before a project is advertised for bids, the PM will meet with the project team to assure that the project is constructible and will achieve its objectives.



## ***TASK 2 - PRE-CONSTRUCTION MEETING***

The Contractor must meet with the PM, following Notice to Proceed (NTP), for a pre-construction conference (precon) prior to commencing onsite work. The Pre-Construction Conference:

- Sets the stage for the working relationship on a project
- Can be either one meeting or a series of smaller meetings
- May also be needed before the start of a critical phase of construction (e.g., paving or bridge deck work)

There are several objectives to be accomplished and topics to be discussed during a precon, such as identifying the lines of communication and reviewing the project schedule, project safety, potential utility conflicts, the Traffic Control Plan, Subcontracting, Labor Compliance and materials.

Persons who should attend a precon include key personnel from the contractor and its subcontractors, affected utilities, the PM and crew, LAL if a local government project and other appropriate personnel, such as designers, the FHWA and maintenance, who will be involved with the project.

The contractor and PM should schedule a regular time to meet and discuss the progress of the project. This would include past progress, upcoming work, newly identified problems and/or delays to the project, and unresolved issues.



### ***TASK 3 - PROJECT SCHEDULE***

The Contract requires the contractor to prepare, submit, and update the project schedule. The type of schedule and subsequent updates required are based on the size and complexity of the project.

The PM must review the project schedule to assure that the schedule shows all work will be accomplished within the contract time requirements, that it does not violate any contract restrictions, and that it depicts realistic performance of the work. Also look for errors or oversights in the logic for the work. The PM must address any concerns with the contractor and accept the schedule if it meets all of the contract requirements.

The contractor needs to submit, with each update, a short narrative describing changes to the schedule, any problems or issues that may affect the schedule, and the reasons why scheduled work is not being accomplished. The schedule should also portray impacts from delays, which information is very useful in analyzing requests for adjustment of contract time and in analyzing claims for delay damages.

The PM needs to review schedule updates to be aware of changes to the schedule, delays, and upcoming project work or needs in order to initiate appropriate action.

Remember that a project schedule is very important in helping the PM to, among other things:

- Plan the work of the project office
- Assure that the contractor understands the limitations on its work
- Assure that work is proceeding on schedule
- Be able to inform the local residents, businesses, motorists and media of the planned schedule and project completion
- Be able to analyze and mitigate delays to the project work and to possibly mitigate delays

For more information about project lifecycle Emerging Small Business ([ESB](#)), Disadvantaged Business Enterprise ([DBE](#)), Equal Employment Opportunity ([EEO](#)), On-the-Job Training ([OJT](#)), and Workforce Development Program ([WDP](#)) considerations, visit [Oregon.gov/ODOT/CS/Civil Rights](http://Oregon.gov/ODOT/CS/Civil Rights).



## ***TASK 4 - TRAFFIC CONTROL PLAN***

Five days prior to the pre-con meeting, the contractor must submit a written acceptance of the contract proposed TCP or provide changes to the TCP with supporting details. Throughout the duration of the project, the contractor must submit the details of each TCP. The PM must approve each before the contractor may commence work.

If the TCP is not providing the desired results, the contractor is responsible to make needed changes to the TCP to adequately handle traffic. The PM must consent to any proposed changes from the TCP included in the contract.

If the contract requires a Traffic Control Supervisor, that person must complete and submit a TP&DT Daily Report, form 734-2474, for each approved TCS day. Submit those reports with the final project documentation.

The contractor must also submit an acceptable plan to maintain all Travel Information Council signs so each sign properly provides information to travelers. If the contractor does not maintain each sign, the PM must assess liquidated damages as specified by the contract and notify the Travel Information Council.



## ***TASK 5 - EROSION AND SEDIMENT CONTROL PLAN***

No less than 10 calendar days prior to the pre-construction conference, the Contractor must submit an ESCP, or proposed modifications to the ESCP shown in the plans, for review by the PM. The PM must approve the ESCP before the Contractor may commence work.

If the ESCP is not providing the desired results, the Contractor is responsible to make needed changes to the ESCP to adequately control erosion and sedimentation.

## ***TASK 6 - POLLUTION CONTROL PLAN***

The Contractor must prepare and submit a pollution control plan (PCP) 10 days prior to the pre-con meeting. The PM must review and approve the PCP before the contractor may commence work. If the PCP is not achieving the desired results, or it no longer relates to actual or planned situations at the project site, the contractor must modify its PCP to adequately protect the actual or planned situations.



## **LIFECYCLE MILESTONE 11: ON-SITE WORK BEGINS**

Following the pre-con meeting(s) and approval of the various submittals required under Sections 1.1 - 1.6 above, the PM will issue First Notification when the contractor commences on-site work.

First Notification is documentation of the date when the contractor or subcontractor begins one or more of the following:

- Setting up a materials plant
- Developing aggregate sources
- Performing construction work

The contractor is responsible to furnish materials and to perform the required work according to the construction contract plans and specifications.

When construction of the project is 50-75% complete, and the project has taken pretty good shape and its final configuration is apparent, the PM should perform an onsite review with the project team (including the designer, maintenance and local agency). This ensures that the intent of the project is being fulfilled and special concerns are being adequately addressed.

When the project is nearly complete (before the contractor has left the project), the PM will review the project to assure that the project will function properly and

that no improper materials or construction are evident. This review must include the designer(s), maintenance and local agency. For non-exempt federal-aid projects, FHWA should also be invited to participate.

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## LIFECYCLE MILESTONE 12: ON-SITE WORK COMPLETED

Construction work is completed or a portion of the project is satisfactorily finished by the contractor. Upon completion of the contract work, including contract change orders and extra work orders; the PM issues Second Notification. This excludes minor corrective work, cleanup, demobilization and final project documentation. All of the exclusions will be listed in the Second Notification and the contractor must complete these in an expeditious manner within a timeframe acceptable to the engineer.

Second Notification documents the date when either:

- All required construction work, including change order work and Extra Work, has been satisfactorily completed.
- Contract time charges stop for one or all of the completion times.

NOTE: More than one Second Notification may occur if the contract includes multiple completion dates.

The PM works with the contractor to develop punch lists or other means to assure that all cleanup and repair work is accomplished. If the contractor notifies the PM that the project is complete, the PM must perform the Final Inspection and notify the contractor of known remaining work within 15 days.

Clean-up work is completed when:

- Clean-up and removal of equipment and materials from project site is done.
- Final project documentation is submitted.

NOTE: Some corrective or "clean-up" work can occur after the Second Notification providing no additional payment is required other than release of retainage.

When the contractor has completed all on-site work, the PM and AM must recommend acceptance of the project by completing a Recommendation of Project Acceptance, with signature and date.

Remember that the authority to “accept” the project is vested with the OTC, which has delegated that authority to the Construction Section. For projects with local agency or other funding, the PM should also include a letter from the local agency or other funding source stating that it accepts the project as being complete. When the Construction Section receives the recommendation of acceptance and has received all other required documentation, it will make final payment and notify the contractor of project acceptance.



## LIFECYCLE MILESTONE 13: PROJECT CLOSE-OUT AND FINAL ACCEPTANCE

The PM will issue Third Notification when all minor corrective work and cleanup is completed, equipment is removed and all project documents (certifications, warranties, etc.) are received from the contractor.

The date of Third Notification is very important because ODOT must pay interest, at the rate specified by statute, starting 30 days after the date of Third Notification, on any monies still owed the contractor. Any such interest will not be eligible for federal-aid participation.

If, after issuing Third Notification, it is found that the contractor still has unfinished work or corrective work or still needs to furnish additional documentation, the PM must rescind Third Notification until the needed items are completed. The PM must promptly notify the contractor about rescinding Third Notification and the items yet to be completed or submitted. Re-issue Third Notification when the needed items are completed.

The PM coordinates a quality and quantity review (Q&Q) with the Region Assurance Specialist on a quarterly basis, throughout the duration of the project. The final review, called the semi-final, is completed by the Construction Section in Salem to assure that all contract requirements have been met.

The PM must assure that all comments and concerns about constructability, problems, solutions, and design changes are included in the project narrative that will be distributed to the appropriate Project Development units and others. The PM will also need to convene a post-project critique, with affected and interested individuals, to identify needed improvements to processes or products that were involved in the project.

The PM must assure that all state force orders are completed and that ROW monumentation is scheduled for completion provided ROW was purchased.

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## TRANSITION TO MAINTENANCE

A smooth transition from project management to maintenance is *essential* for the success, longevity and functionality of our transportation investments. Therefore, the PM should work closely with the district manager throughout the duration to assure the intent of the project is being fulfilled and that the final product is maintainable.

While the DM or appropriate district maintenance staff should be part of the project team, or at least invited to meetings to share their perspective, raise and resolve concerns during design, they will not be intensively involved in all four phases of the project lifecycle.

Thus, the project team needs to convey all appropriate information and special considerations—including any commitments made—about each completed project to the district maintenance office to ensure its ongoing success as part of Oregon’s infrastructure.



## CONSTRUCTION TO DESIGN FEEDBACK PROCESS

ODOT designs are typically completed in Region Technical Centers or by consultants, and consistently include those who will be providing the construction engineering and administration (typically a Project Manager or members of their crew). The completed plans and specifications become the construction contract documents a project manager (along with staff and/or consultants) uses to deliver the project with a contractor.

It is anticipated that adjustments to the plans and specifications will occur during construction to complete a project successfully. During construction, contractors and construction engineering staff often identify issues with the plans and specifications. Typically, identifying and resolving these issues during project development helps make the project easier to construct.

Many project teams ensure earlier and continuous involvement and communication across design and construction engineering throughout the project life-cycle. For example, most projects assign design engineering staff to provided construction support. Feedback is also provided through a variety of documentation sources, such as Contract Change Orders (CCOs), the Project Manager’s Narrative report (final review documentation) or the Contractor’s Project Evaluation. These documents all become part of the construction project final record.

Construction feedback to designers is valuable and important for continuous improvement. The following information documents and clarifies the construction-

to-design feedback process, where design-construction feedback can be located, and how the information can be shared more effectively, within and across regions, and with Technical Services.

#### 1. Contract Change Orders:

All Contract Change Orders will be posted by the Construction Section to the change order database at the following website:

<http://intranet.odot.state.or.us/tsconstruction/resources.htm>

From this website, select the CCO Database link.

Each Technical Center Manager (TCM) and the Bridge Delivery Manager (BDM) will review their projects' data on a regular basis to identify any critical issues. The TCM will share any specific issues with the appropriate design staff at both the region and statewide level as appropriate, including consultants who may have been involved in the design.

#### 2. Contractor Project Evaluations:

At the completion of each construction project, the contractor will be asked to complete a project evaluation form #734-2469A which is available at:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/HwyConstForms1.shtml>

Once the evaluation is submitted to ODOT, it will be posted at the following website:

<http://intranet.odot.state.or.us/tsconstruction/resources.htm> (select the "ODOT Evaluations by Prime Contractor" link).

Each region TCM and the BDM will review information for their projects and identify any feedback to improve their projects. The TCM/BDM will share any lessons learned with appropriate design staff (including consultants) at both the region and statewide level as appropriate.

#### 3. Construction Project Narrative:

At the completion of each construction project, the construction project manager will complete a construction project narrative using form # 734-2756, which is available on the Construction Section website at:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/HwyConstForms1.shtml>

This narrative will include information on all contract change orders on the project, as well as any issues that caused difficulties in constructing the projects.

Copies of the construction narrative will be distributed electronically to the following:

- Construction Section

- Appropriate Region Tech Center Manager/BDM
- Appropriate Area Manager
- Applicable Technical Services Section Manager

It is expected that each of the above managers will review the project narratives they receive and distribute feedback to the appropriate technical staff who were involved in the project.

#### 4. Post Construction Review:

The construction PM will schedule a post-construction review for projects with any significant design complexity. This review could be simply an office review or could involve a site visit, if deemed appropriate. The PM will work directly with the project leader for the project to assure appropriate members of the project development team (PDT) are invited to participate in the review.

The reviews will use the current construction narrative report as the basis for discussion. The project manager will lead this meeting, highlighting the lessons learned and addressing any questions the designers might have. If there are items that need to be brought to the attention of a widespread audience for resolution, the review team can identify them and the PM will take the issue to the region TCM/BDM for wider distribution.

#### 5. Technical Center Manager Annual Report:

At the end of each year, each of the Technical Center Managers and the Bridge Delivery Manager will prepare a summary of lessons learned from the Project Managers Narrative Report (including all CCOs), the Contractor Evaluation and the Post Construction Reviews. These summaries will focus on trends and areas of improvement that could benefit all regions. The end of year reports are presented to all the Technical Center Managers the Bridge Delivery Manager, the Technical Services Section Managers and the Design Quality Assurance Manager at the spring Technical Leadership Team (TLT). As appropriate, issues will be added to the TLT annual work plan for resolution including how to provide feedback to staff (including Consultant Engineers).

