



PROJECT DELIVERY GUIDE

STRATEGIC BUSINESS SERVICES



Strategic Business Services Branch

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PROGRAM DEVELOPMENT STAGE

Program development begins with transportation planning to explore needs at the state and local levels and identify projects for the [Statewide Transportation Improvement Program, also known as the STIP](#). The STIP is a staged, multi-year, statewide intermodal program of transportation projects, consistent with the statewide transportation plan and planning processes as well as metropolitan plans, transportation improvement programs (TIPs), and planning processes. The STIP must be developed in cooperation with the metropolitan planning organizations (MPOs), public transit providers, and any Regional Transportation Planning Organizations (RTPO) in the state, and must be compatible with the TIPs for the state's metropolitan areas.

Projects listed in the STIP may include state and federally funded highway and bridge construction or repairs; project development activities such as environmental review; and other non-construction projects such as public transit service improvements and capital purchases. The STIP also includes Federal transportation projects in national parks and forests, Federal lands and Indian reservation road systems, interstate, regional highways, and bridges; as well as, many locally funded projects of statewide or regional significance, and public and active transportation projects.

Preparation of the STIP determines which projects should be funded, when the work should be done, and what state or Federal funding sources or program(s) should be used to pay for them. The STIP includes a financial plan that identifies all capital and non-capital projects within the State of Oregon for which there is committed or reasonably available funding. See Code of Federal Regulations [here](#). The STIP further includes:

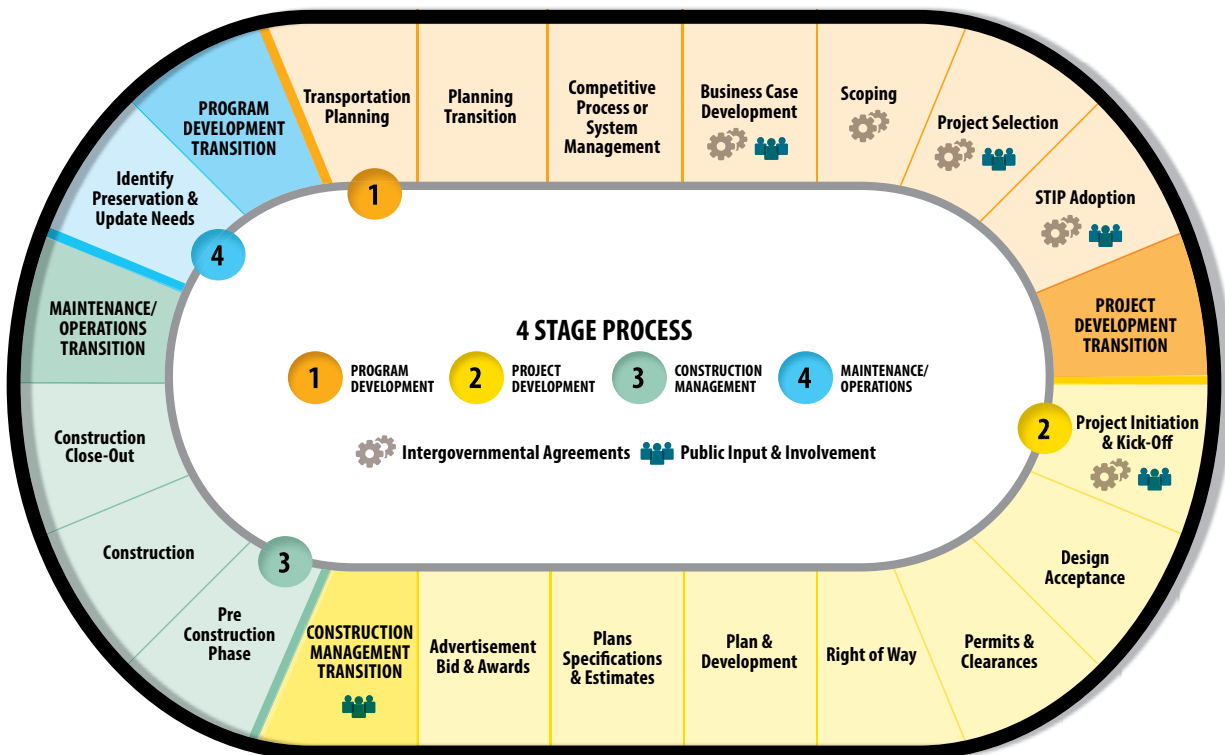
- Sufficient scope description (type of work, termini, and length);
- Estimated total project cost, which may extend beyond the program years of the STIP;
- Federal funds proposed by fiscal year;
- Proposed source(s) of Federal and non-Federal funding;
- Responsible agency.

The STIP is adopted by the Oregon Transportation Commission (OTC) and is effective once approved by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Identifying and planning for transportation needs is an ongoing process with periodic reviews. The STIP is updated every two or three years, routinely amended from month to month for project-specific changes and additions. The 2021-2024 STIP categorizes programs into the following six categories:

- **Fix-It Category** includes all the capital funding programs that fix or preserve the state's highway system, including bridges, pavement, culverts, traffic signals and other infrastructure. ODOT uses data about the conditions of assets to choose the highest priority projects. In recent STIPs the OTC has allocated most funding to Fix-It programs.
- **Enhance Highway Category** funds projects that enhance or expand the state highway system. Area Commissions on Transportation recommend high-priority investments from state and local transportation plans in the Enhance program.

- **Safety Category** funds projects that are focused on reducing serious injuries and fatal crashes on Oregon’s roads. This includes the All Roads Transportation Safety program, which selects projects through a data-driven process to ensure resources have maximum impact on improving the safety of Oregon’s state highways and local roads.
- **Non-Highway Category** funds projects that improve bicycle, pedestrian, public transportation, and transportation options. Area Commissions on Transportation often recommend these projects to their Regions and the OTC.
- **Local Programs Category** directs funding to local governments to fund priority projects.
- **Other Functions Category** includes workforce development, planning, data collection and indirect cost recovery using federal resources. After the Final STIP is approved it is posted online, accompanied by the updated 2018-2021 STIP to reflect completed amendments: <http://www.oregon.gov/odot/stip/pages/index.aspx>

TRANSPORTATION SYSTEM LIFECYCLE



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TRANSPORTATION PLANNING

TRANSPORTATION PLANNING

Transportation planning includes development of the Oregon Transportation Plan and modal plans that provide Oregon’s strategic transportation vision and policies. Statewide policy plans also provide guidance and direction for developing other transportation system plans.

City and county Transportation System Plans—which include all of the state system within their boundaries—describe existing conditions, identify roadway classification and transportation needs over a 20-year period and develop priorities for transportation system improvements within a defined geographic area. Generally completed by local cities or counties, TSPs evaluate needs across all modes of transportation and may include portions of or whole transportation corridors. Program Managers may consider projects identified in TSPs for inclusion in a future STIP.

Planning Deliverables and Expectations

Transportation Policy Planning is high level and includes:

- Oregon Transportation Plan.
- Oregon Highway Plan and other modal plans.
- Strategic vision, high level policy planning.
- A framework to help prioritize investments for all modes of transportation.
- Identification of strategic objectives and outcomes from management and investment decisions.

Transportation System Planning includes:

- City and/or county TSPs.
- ODOT facility plans.
- An assessment of future transportation system needs and recommended solutions.
- Prioritized investment strategies and projects.
- All modes of transportation.
- Projects that are prioritized for inclusion in the STIP.

The Transportation Planning Section is responsible for managing the statewide policy planning process and the Regional Planning Units are responsible for managing the system planning process.

For more information, visit the [Transportation Development Planning web page](#).

PLANNING TRANSITION

PLANNING TRANSITION

Planning provides important information to develop context-sensitive transportation solutions, including long-range policy direction, system definition, priorities and land use management decisions. Planning information also helps identify and manage potential risks during project development and construction.

The intent of the Planning Transition phase is to maximize communication and understanding between planning and project development to ensure information provided and commitments made to stakeholders during the planning process are carried forward.

Planning Transition is part of the STIP development process, which includes:

- STIP program and work type criteria.
- Program objectives and goals.
- Required ADA considerations
- System performance outcomes.
- Scoping criteria.





Coordination with Planning should occur at each of the following project phases:

- Scoping.
- Project selection.
- Project design.

PLANNING TRANSITION RESOURCES

[Planning/Project Delivery Integration Process Map](#)

COMPETITIVE PROCESS OR SYSTEM MANAGEMENT

SYSTEM MANAGEMENT

The majority of projects in the STIP come from the management system and databases that monitor specific system needs such as pavement conditions, rockslide hazard areas or bridge conditions. Program Managers choose projects based on a cost-to-benefit analysis.

The Oregon Transportation Management System provides information to assist state and local decision-makers in selecting cost-effective policies, programs and projects to preserve and improve transportation infrastructure. The OTMS inventories roadway and other transportation facilities, including:

- Integrated Transportation System.
- Bridge Management System.
- Congestion Management System.
- Intermodal Management System.
- Pavement Management System.
- Safety Management System.
- Traffic Systems Monitoring for Highways.
- Drainage Facility Management System.
- Related or triggered accessible transportation elements in any of these systems.

COMPETITIVE PROCESS

All Regions Transportation Safety (ARTS) selects one category of STIP projects through a competitive process that uses data on crash history, evaluation of potential fixes, and an application and scoring system based on benefit to cost ratio. (Note - There are Federal guidelines on what kind of crashes the program must address but no federal agency administers the program).

IDENTIFYING POTENTIAL PROJECTS

A project evolves from a transportation problem or need identified through a variety of sources while ensuring the transportation system is accessible to all users:

- Legislation
- Data Driven Management systems
- Area Commissions on Transportation
- ODOT Modal Plans
- ODOT Corridor Plans
- Local Transportation System Plans

Most of the enhance/capacity adding projects are identified in legislation. 90% of the remaining projects are identified through the Fix It management systems. Only about 10% of the projects are selected by ACTS and modes.

BUSINESS CASE DEVELOPMENT

BUSINESS CASE PURPOSE

Business cases clearly define the problems, needs, benefits and value of projects. Pre-scoping (initial) gives the scoping team direction on what needs to be scoped. Post-scoping (final) communicates to the project team the important details and decisions identified through the needs, scoping and selection processes.

Business cases consider modal involvement, connections to basic assumptions, commitments for funding and the project's original funding program goals early in the project's lifecycle and ensure these elements are not lost in the project development process.

DEVELOPING THE BUSINESS CASE

Funding program managers develop the initial needs business case. They are responsible for managing the funding program portfolio and meeting funding program goals. Active scoping begins once project sponsors complete the business case. Post-scoping, funding program managers work with project sponsors to finalize the business case before project selection. The business case will include identification of accessible transportation elements being included in the project or a description why there are no accessible elements required.

FORMS AND DOCUMENTS

- Initial Business Case template
- Business Case Development Guidance

See Guidance and Appendices for roles defined for Project Sponsor and Funding Program Manager.

SCOPING

PURPOSE OF SCOPING

ODOT scopes projects to validate their purpose and potential investment strategies while identifying delivery risks and opportunities. Outputs of scoping include defining the project context, scope, schedule (for funding and programming purposes), budget, risks and opportunities. The scoping and selection process often provides additional context and identifies expectations for stakeholder input and public engagement.

Scoping coordinators will request scoping folders in ProjectWise to store all scoping documents.

TRIGGERS FOR SCOPING

Various actions can trigger scoping:

- Project needs and potential wants lists.
- Legislative and/or public push; stakeholder needs.
- Regular funding cycles (STIP, etc.).
- Defining funding buckets.
- Need to re-scope a project or validate an assumed scope (maintenance, local, etc.).
- Emergency projects.
- New or unused funding becomes available; leftover funds after projects go to bid.
- Development Review; major development.
- Required accessible transportation elements.
- Environmental Assessment /Environmental Impact Statement (during planning phase or when funding is available).

INPUTS TO SCOPING

The primary input to the scoping process is the initial business case, which defines the purpose of the project and establishes its need and value (the ‘why’). Funding program managers develop the initial business case and are responsible for managing the funding program portfolio and ensuring funding program goals are met. Asset data is also an important input to the scoping process. See Project Workflow Diagram in Guidance and Appendices for the overall process to initiate a project.

ACTIVE SCOPING

The Scope and Select Leadership Team oversees active scoping and sets expectations. Each region is responsible for scoping projects. The process and forms may vary across regions.

OUTPUTS OF SCOPING

In order to open a project Expenditure Account, or EA, and initiate a project, FHWA and ODOT require the following outputs from the scoping process:

- Final business case.
- Programming request needed to obligate funds (to include projected end date).
- STIP approval.
- Project key number.
- Executed funding Intergovernmental Agreement (when applicable).

Additional outputs of scoping include:

- Scoping documentation (scoping notes and estimates).
- Draft Project Charter (including draft schedule after project selection).

QUESTIONS TO ANSWER DURING SCOPING

Scope: What is the scope of the project?

Schedule: What is the schedule/urgency/timeframe of the project?

Budget:

- What is the cost of the project (by phase – Preliminary Engineering, Right of Way, Construction)?
- Have all required accessible transportation elements been included?
- What funding source(s) will be used?
- Did we account for the correct PE cost for the type of project scoped?
- What investment and leveraging opportunities exist (intermodal, multimodal, system/corridor improvements, mobility, etc.)?
- Are there opportunities to address related or nearby issues, while maintaining the program funding goals (e.g., guardrail replacement on a 1R project)?
- Are there opportunities to combine projects?
- Do we have the right people at the table to fully discuss all possible investment opportunities?

ASSET CONDITIONS AND FEATURES

- What is the current condition of the assets and features, including those that provide access to the system for people with disabilities?
- Which issues could be addressed by the project?
- Which issues should not be addressed by the project and why?

Risks:

- What are the risks, assumptions and constraints associated with the project?
- Has the project received the necessary approvals (i.e., sponsor, stakeholder, approval authority)?
- Risk Assessment: What issues and/or stakeholders could impact scope, schedule and/or budget (i.e., environmental, railroads, etc.)?
- Does the project require any specific approvals (i.e., deviates from a facility plan, design exception, stakeholder input, etc.)?
- What standards will we apply and are any design exceptions or design deviations required?
- Are there requirements, such as ADA, that do not directly address the problem?
 - ▶ If so, what are they?
 - ▶ Can/should we modify those requirements or make exceptions?
- What are the potential staging and mobility issues? Are there opportunities to separate traffic and/or create a detour?
- What potential work zone enforcement issues exist, including temporary pedestrian accessible route plans?
- What are the potential utility and right of way impacts?
- What access management strategies may be needed?
- What geo-hazards are present?
- Are there existing bridges within the project limits?
 - ▶ Are there any load rating issues or concerns?
 - ▶ If project involves road surfacing, are there any deck issues?
 - ▶ Are there any bridge rail safety warrants or is a Safety Assessment needed?
- What are the engineering and design risks?

Environmental Risks:

- What are the rough Area of Potential Impact or project limits (determined during the scoping phase if not beforehand through the planning or NEPA process)?
- Will the project require detailed cultural resources surveys and will it impact resources that require mitigation (Memorandum of Agreement) or extensive tribal consultation?

- Are resources that are particularly sensitive to Tribal governments present in the project API (Traditional Cultural Properties)?
- Are there specific environmental resources present in the API that we must avoid to hold the project schedule and budget?
- What natural (wetlands, waters, Endangered Species Act-listed species, etc.) and cultural resources are present within or near the API of the project?
- How do we avoid or minimize impacts to the natural and cultural resources identified within the API?
- How are project siting, alignment and design fitted to the context of the surrounding landscape?
- Which, if any, of the following may be required for the project?
 - Aesthetics/visual resources.
 - Air Quality.
 - Biological resources (fish, birds, wildlife, plants/habitat)
 - Environment and Archaeological resources.
 - Economic and Social Impact considerations.
 - Energy resources.
 - Environmental Justice considerations.
 - Hazardous materials and sites.
 - Land Use Compatibility/Permits.
 - Noise Study/Mitigation.
 - Public parks/recreation resources.
 - Right of Way needs (permanent and temporary).
 - Section 4(f) evaluation and documentation.
 - Section 6(f) identification and coordination with Oregon Parks and Recreation documentation.
 - Traffic Analysis and Study Report.
 - Wetlands and waters of the state/U.S.
 - Water resources/water quality/stormwater.

Investment Strategy:

- What is the proposed investment strategy?
- Does the proposed improvement address the purpose of the project?
- Do we understand the problem or opportunity?
 - ▶ Has our understanding of the problem or opportunity changed?
 - ▶ If so, how?
- How will the project address the needs?

- Is the project consistent with sponsor and/or stakeholder expectations?
- What impacts and alternatives have we analyzed?
- Why did we select the proposed strategy over alternatives?

PRACTICAL DESIGN

Practical Design is a philosophy and strategy to establish the appropriate scope for a project that focuses on the project purpose, evaluates the safety and operations of design tradeoffs and documents design decisions where appropriate.

Practical Design has three major goals:

1. Direct available dollars toward activities and projects that optimize the system as a whole.
2. Develop solutions to address the purpose and need identified for each project.
3. Design projects that make the system better, including making it accessible to all users, address changing needs and/or maintain current functionality by meeting but not necessarily exceeding the defined project purpose, need and goals.

PRACTICAL DESIGN S.C.O.P.E. VALUES

Five key values form the foundation of Practical Design and support ODOT's mission of providing a safe, efficient transportation system that supports economic opportunity and livable communities for Oregonians. Project Development Teams should consider S.C.O.P.E. values when working through the project development and design processes.

- **Safety:** Overall system safety is ODOT's top priority. This requires using sound engineering judgment when making safety decisions (i.e., look for high value add-ins with minimal cost). Individual projects may look different, but every project will either make the facility safer or maintain its existing safety level.
- **Corridor Context:** Practical Design takes the concept across a system down to a corridor level and applies it to each project. Use a corridor approach in establishing or evaluating design criteria, and apply it consistently throughout the corridor. Roadways should respect the character of adjacent lands.
- **Optimize the System:** ODOT allocates available funding on a priority basis to optimize the safety and mobility of and financial investment in the transportation system. An asset management approach is integral to assessing and developing strategies to optimize the lifecycle investment of transportation infrastructure.
- **Public Support:** ODOT recognizes that public trust is a cornerstone of success and strives to work in partnership with local communities to make system improvements visible to the traveling public. Working with local communities provides opportunities for the community to shape the chosen solution, and considers the environment, aesthetics and needs of pedestrians, the community with disabilities, bicyclists, transit users and freight. When working with community interests it is essential to be clear about the project purpose, need and alignment of the proposed project with the overall plan for Oregon's transportation system.

- **Efficient Cost:** ODOT has limited funds to apply to projects and strives to stretch these dollars as much as possible. Practical Design emphasizes making the best strategic decisions that meet the purpose and needs of projects while benefiting the overall system. This may include redistributing funds to be used where they will produce the most benefit to the system.

PRACTICAL DESIGN PROCESS

Tools to promote sound project-making decisions:

- **Understanding the problem and the context before programming a solution.**
The project funding manager must define the purpose of the investment, including addressing ADA, from the beginning by gathering sufficient information in the initial business case to understand the problem.
- **Clarity of purpose and need.** Clarity is essential for prioritizing project elements that meet the project's intent or addresses specific needs. Key questions in scoping and documentation in the final business case, scoping notes and Practical Design S.C.O.P.E. Integration form help clarify a project's purpose and need.
- **Establishing goals and objectives:** Goals and objectives set the desired expectations for the project and direct the decision-making process during project development. Goals are the main driver for evaluating solutions. Objectives give further direction and clarification for the desired outcomes of the project and can be documented in the Charter, Risk and Decision Log, Project Management Plan and the Practical Design S.C.O.P.E. Integration form. Project Leaders must submit Final Integration forms to the Technical Services Practical Design mailbox between Advanced Plans and PS&E. Please see S.C.O.P.E. Integration form instructions sheet for more information.



ROLES AND RESPONSIBILITIES

Technical Services Branch and Strategic Business Services:

- Overall responsibility for oversight, coordination, process improvement, technical support and quality assurance.
- Provide project feedback to project leaders/teams via the S.C.O.P.E. Integration form.
- Obtain information for best practices and lessons learned.
- Review for consistency.
- Report Practical Design within ODOT.
- Update Practical Design within project development and delivery contexts.
- Review for process improvement opportunities.

Regions:

- Carry out Practical Design on specific projects.
- Establish process to document, maintain and submit project files to Technical Services for reporting.
- Email Scope Integration form to [ODOT Practical Design mailbox](#).

APPLICATION OF PRACTICAL DESIGN

Consider Practical Design elements throughout the lifecycle of a project to provide clarity and document lessons learned.

Resources/Tasks:

- What resources/tasks are needed to accomplish the project?
- What delivery method is proposed (in house, outsource, local)?
- What opportunities for alternative delivery/contracting exist (e.g., Construction Manager/General Contractor, Design-Build, etc.)?
- Are consultant services needed?
- Which disciplines are needed?
- What outreach, communication and stakeholder engagement are needed (i.e., internal and external)?

Documentation:

- Is the information documented in a consistent and accessible way for future users (e.g., Practical Design, project team initiation, etc.)?
- How has scoping validated/invalidated the original business case?
- When is it time to initiate a project? How will the information be accessed?

The STIP Scoping Phases chart, in the Scoping Expectations Document summarizes each of the phases of scoping, associated activities and appropriate EA charges and deliverables.



Forms and Documents

- Business Case Template
- Project Workflow Diagram
- S.C.O.P.E. Integration form
- Scoping Expectations
- Project Charter
- Decision Tree
- Scoping Notes

PROJECT SELECTION

PROJECT SELECTION — DRAFT STIP

Federal law requires Oregon to produce a Statewide Transportation Improvement Program that is updated at least once every three to four years.

The Active Transportation Section allocates the annual STIP funding levels to five funding categories in support of the Oregon Transportation Commission's goals. Regions balance their individual programs with their allotted funding targets. The OTC establishes funding targets for all programs and the criteria for identifying priorities.

Active Transportation Section staff use the Oregon Transportation Management System to identify and prioritize preservation, bridge and safety projects. Additional sources of information include statewide ADA compliant traffic data, Intelligent Transportation Systems, freight movement, fish passage culvert strategic or action plans, public transit, Intermodal Management Systems, MPOs, local governments, ACTs, regional partnerships and stakeholder and public input.

Funding program managers create initial business cases for projects at 150% of available funding. Region project teams scope each project (see business case development and scoping sections) to develop cost estimates and project details. Funding program managers use scoping data to select projects at 100% of funding levels. STIP coordinators in each region reenter the selected projects into FACS-STIP, and the resulting list of projects make up the draft STIP. ODOT provides at least a 45-day public review of the draft STIP and a minimum of two open public meetings per region during this period. Region STIP coordinators summarize and send public comments to the STIP development manager.



STATEWIDE TRANSPORTATION IMPROVEMENT PLAN ADOPTION

STIP ADOPTION

The STIP Coordinator prepares the draft STIP document for final presentation to the Oregon Transportation Commission. Area Commissions on Transportation may also review the final program prior to OTC review and adoption. After the OTC adopts the STIP, the final STIP is forwarded to the Federal Highway Administration and Federal Transit Administration for final approval. Both agencies review the STIP for consistency with planning, financial constraints, appropriate grouping of smaller projects and compliance with state plans for air quality.

At the time of federal approval, all projects in the STIP are approved for development and/or construction. In some instances, requests may delay or move projects from one year to another for various reasons within the first three years of the program.

ODOT publishes the STIP at the end of odd-numbered years. Any corrections, additions or revisions to the approved STIP document must be made through a federally-approved amendment process.



PROJECT DEVELOPMENT TRANSITION

PROJECT DEVELOPMENT TRANSITION

In most cases, a significant amount of time passes between project selection and project initiation (typically two three years). When a project is ready to be initiated and a project charter is being finalized, it is important to validate the original scope, including how the project addresses ADA requirements, using the documentation produced during the scoping phase and stored in ProjectWise. Scope validation is important to determine if any significant changes have occurred to the project parameters and context that impact the scope, schedule, budget, risks, opportunities, assumptions, constraints or Practical Design implications.

Prior to the finalization of the project charter, the area manager assigns a project leader, local agency liaison or consultant project manager to a project in the approved STIP.

PROJECT CHARTER

Project charters describe the key objectives, goals, assumptions, constraints, risks, etc. of projects (the what). Charters can also document the approved scopes. Elements of what to include are listed below.

PROJECT DESCRIPTION

Project descriptions are high level summaries of the work to be performed, and can include information regarding the end product.

Examples include:

- What will be built.
- Services to be provided.
- Equipment that will be purchased.
- Phases of the project (if applicable).

Additional Constraints

Describe any new or additional constraints or limiting factors that were not described in the business case, or any new developments in cost/budget, environmental information, mobility, etc.

Risks

List any risks that have been identified. The team will register and investigate these risks during project development planning.

Proposed Milestones

Identify major milestone and dates (see PD19 for statewide milestone requirements).

Funding

What is the proposed funding source(s) and amount(s)? What is the approved budget available for this project?

Funding Eligibility/Flexibility

Why is this information needed?

- Some federal funding types are dependent on population size (e.g., STP).
- Major requirements of NHPP funds.
- Helps determine eligibility of activities with State Highway Funds and federal funding types (e.g., TAP).
- Some improvements are eligible with either (i.e., buses, transit connection improvements). Larger Transit Districts can deliver projects themselves through FTA. The decision for which federal agency to use for project delivery is between the funding program manager and project sponsor.
- Eligibility question for Federal Rail Crossing funds, regardless if it is a project identified through the “Rail Crossing Program.”
- Determines eligibility of Penalty 164 funds.
- Eligibility question for meeting Fix-It Program goals.

Key Stakeholders

List major stakeholders of the project. Be sure to indicate whether or not the stakeholder has decision-making authority, can influence the outcome and/or will be directly affected by the project as known to date.

Project Leader Authority Level

Explain who has the authority to lead the project. What authority do PLs have to determine, manage and approve changes?

Staffing Decisions:

What authority do PLs have in regard to staffing for the project? Do they have authority to assign work to or hold the project team accountable? Project leaders do not have authority to assign Technical Center resources to projects. Technical center managers assign resources and are responsible for balancing the workload of their unit.

Once resources are assigned to a project, PLs are responsible for monitoring the progress of project team members' work to keep the project on schedule. If project team members are having difficulty completing their work on time, PLs are responsible for discussing the matter with them and their manager if necessary, and identifying steps to get the work back on track.

Budget Management and Variances:

Describe the authority PLs have over the project budget. Project leaders are responsible for managing the project budget to make sure expenditures do not overrun. The budget includes preliminary engineering, right of way and utilities. When a project is assigned, PLs verify the scope of the project and determine if the assigned budget is sufficient. If additional funds are needed, PLs need to work with their respective funding program manager, project sponsor, area manager and STIP coordinator to determine if additional funding will be added or the scope of work reduced. Project leaders must use a Change Management Request for either action.

Project Communication and/or Escalation Process:

Describe the process to escalate decisions.

Change Management:

What authority do PLs have to determine when scope, budget and timeline changes are required? When will a CMR be required?

Resources

Project leaders coordinate with resource managers to identify the functional areas for the project team including specialty groups, consultants, contractors and other organizations or agencies that should be included in project development.

Signatures/Roles and Responsibilities

Project Leader

Responsible for effective planning, collaboration, execution, monitoring and delivery of assigned projects in accordance with objectives and specifications outlined in the business case, project charter and funding Intergovernmental Agreement (if needed). Applies change management process and makes recommendations/decisions with or on behalf of the project team.

Area Manager:

If not the project sponsor, see Project Sponsor.

Project Sponsor:

Signs and endorses the project charter in accordance with objectives outlined in the business case.

Program Funding Manager:

Reviews and signs the project charter in accordance with objectives outlined in the goals of the funding program.

Tech Center Manager:

Reviews charter and provides input.

District Manager:

Reviews charter and provides input.

Local Partners:

Varies based on the funding source and delivery method, but engaged in the effective planning, execution, monitoring and delivery of projects in accordance with requirements, roles, responsibilities, objectives and specifications provided in the project charter and funding IGA.

STIP/PROJECT KEY NUMBER

The STIP coordinator generates a project key number when entering project information into the STIP-FP.

PROJECTWISE

Project leaders submit a project request form to the ProjectWise administrator to create the necessary folders for selected projects.

See project request form

PROGRAM REQUEST (EXPENDITURE ACCOUNT REQUEST)

A Preliminary Engineering Expenditure Account is needed prior to starting any PE work on a project. Once a project is adopted in the STIP, Program and Funding Services, the region STIP coordinator and PL work together to assign the EA. The PL can then establish the project team.

FINANCIAL RESPONSIBILITIES

General Requirements

- Per federal law, all project phases are to be fully funded in the STIP. Projects are approved per the scope of the project and any charges outside of the approved scope and footprint of the project are ineligible.
- Any violation of federal requirements will make the project costs ineligible for federal participation and will require payback and potential sanctions from FHWA.

- When projects go over budget, the overage must be addressed within 90 days.
- Inaccurate programming requests will delay processing time for funding obligations.
- For projects with an IGA:
 - ▶ The IGA must be executed in order to obligate funding.
 - ▶ An IGA amendment is required for all funding changes.
 - ▶ The IGA must reference the appropriate key number to obligate funds.
- For funding changes, STIP amendments must be completed per the appropriate processes before funds can be obligated.

End Dates

- Each project phase is required to have an end date.
- Any work done past the end date is not federally reimbursable.
- General business rules for establishing end dates:
 - ▶ Preliminary Engineering, Right of Way and Utility Relocation is six months past PS&E.
 - ▶ Construction is two years from second note or plant establishment, whichever is greater. See Project End Date Calculator.
- All bills must be paid within 45 days of the end date or will not be federally reimbursable, even if work is done prior to the end date.

DELIVERABLES

- Project Charter.
- Project Schedule (refer to PD19 for milestone requirements).
- STIP/Key Number.
- Funding IGA (as applicable).
- Programming Request (to obligate funds).

PROJECT DEVELOPMENT STAGE

This stage can take as little as one to two years for simple projects (e.g., pavement overlay) or last as long as eight or more years for more complex projects (e.g., modernization project requiring an Environmental Impact Statement).



PROJECT INITIATION AND KICKOFF

Project Initiation

Project Initiation is the beginning of Project Development. Each region determines how to deliver projects. In-sourced projects have the majority of design work performed by Region Tech Centers and are typically assigned to project leaders. Out-sourced projects have all or a majority of the design work consulted out and are typically assigned to consultant project managers. Tech Centers and area managers review projects and determine when and how to deliver each in order to balance resources, including construction. Each project has an initial schedule. When it is time for the project to start, PLs assemble their project teams, make assignments and establish project management plans, and consultant contracts are in progress or in place. PLs must request development folders be set up in ProjectWise.

Project Team

Establishing the project team and conducting the project team kickoff meeting are major tasks in Project Initiation. The purpose of the initial project team meeting is to review the proposed scope, schedule and budget of the project, introduce team members to one another, review the final business case, scoping notes and Project Charter and request project work plans from each resource unit where applicable. Any and all pertinent disciplines should be represented—including maintenance, construction staff, and community affairs or communication staff—to discover and resolve issues early in the process and save time and money.

In some instances, especially on a complex project where the project team will be working together for a long time, it is helpful to have a teambuilding session to discuss how the project team will operate (e.g., decision-making process, authorities, team agreements) before starting work on project development.

Forming sub-teams to work on important project development tasks can help provide team members with opportunities for meaningful involvement in the project and ensure that tasks move forward between project team meetings.

Each region will determine who will participate on the project team based on available resources. Project leaders should work with Tech Center unit managers to determine who will be assigned to their team. Note: Each region's process may vary slightly.

Review and Confirm Project Scope

Reviewing and confirming the project scope is one of the first activities on all projects and includes assembling the project team for a scoping trip to the project site. The project team will need to review the existing project charter, business case and scoping notes to validate the purpose of the project, proposed solution, ADA considerations, and Preliminary Engineering work required to develop the project. Project teams usually complete this activity during the kickoff meeting.

Roadway Conceptual Design

This task is intended to help confirm the general proposed scope of the project design, including accessible transportation elements, as well as develop a map to show the Area of Potential Impact for subsequent field surveying, base mapping and environmental baseline/reconnaissance report activities. Roadway designers use available base maps, which may include as-constructed plans, aerial photos, topographic quad maps or other existing mapping, to prepare conceptual layouts of proposed projects. Roadway designers use this information to generate a map showing the anticipated limits of proposed construction to guide surveyors and environmental specialists in field survey and environmental research work. This task will also help confirm and validate the overall scope of the project as stated in the project business case and charter. The effort required to generate conceptual maps depends on the size and complexity of the project. For example, a new roadway alignment typically requires a sizable effort to produce the concept whereas a 1R preservation project requires very little effort.

Bridge Design Startup

Design Criteria, Standards Assessment and Design Deviations

Verify the proposed bridge/structures scope of the project design as well as begin development of design deviations and exceptions. Bridge designers use available scoping information and draft project charters to prepare the Bridge Design Criteria and Standards Assessment.

Load Rating, Deck Testing and Preliminary Analyses

Confirm completion of load rating, deck testing and certain preliminary analyses of existing bridges that will be not be replaced. Ensure results are appropriately reflected in the draft project charter and other work description documents.

Consultant Contracts

Some projects require consultant resources for project design. If ODOT needs consultant resources, the project team's Technical Center representative for the needed discipline will work through the negotiation and execution process with the ODOT Procurement Office and PL. Executing consultant contracts can be a lengthy process that requires scheduling adequate time into the overall timeline.

Depending on the type or complexity of a project or particular circumstances, ODOT may need consultant services that do not fall under the discipline-specific contracts managed by the Technical Center. In these cases, the PL manages the contract, which may include: public engagement, Interchange Area Management Plan development, environmental services for EIS projects, clearing and grubbing before a project goes to bid to meet the Migratory Bird Treaty Act, etc.

Intergovernmental Agreements

Agreements are legal and binding documents that define the obligations of all parties involved in a project, service, etc. Intergovernmental Agreements are required for funding agreements between ODOT and local agencies. The possibility of entering into

an agreement exists throughout the planning, design and construction phases of all projects. The Project Leader and Project Development Team should make every effort to identify cooperative features as early as possible during project development.

Agreements must include standard ADA language, and may be used to:

- Provide a detailed outline of the responsibilities, or “obligations,” of the parties involved.
- Grant permission to perform work on or across right of way belonging to local governments, provide for temporary or permanent street closures, obtain approval for any required changes of grade, etc.
- Transfer jurisdiction or abandon a section of roadway from one agency to another.
- Determine long-term responsibility for a facility such as maintenance of a traffic control signal or landscaping.
- Provide additional support to ODOT permits or other documents.
- Establish specific criteria for local land use and access management decisions affecting an ODOT transportation facility.
- Coordinate with local agencies and provide guidance on federally funded non-highway projects.
- Address funding and cost responsibilities for planning, project development, right of way acquisition, construction, maintenance, etc. Purchasing right of way on behalf of a local government requires a Right of Way Services Agreement.
- Allow ODOT and local agencies to share resources through maintenance agreements.
- Outline transfer of right of way between agencies.

Project leaders negotiate the terms of agreements and area managers, region managers, Department of Justice and ODOT Procurement Office give final approval. Project leaders should provide as much information as possible to the appropriate region agreement coordinator or OPO when requesting assistance.

Request services and find information about types of IGAs and a list of region agreement coordinators on the OPO web page: <http://transnet.odot.state.or.us/cs/opo/Pages/Agreements.aspx>

Public Engagement Plan

All projects require public engagement plans, which identify stakeholders, information needs and methods of communication. The plan might include the following activities (as applicable to the project):

- Completion of a Project Information Paper.
- Corridor public meetings.
- Alternative public meetings.
- Meetings with local agencies.
- Meetings with special interest groups (businesses and homeowner associations).
- Tribal meetings.

- Public hearings.
- Federal requirements for public involvement.
- Tactics and timelines for reaching audiences.
- Project web page.
- Newsletters.
- Outreach to the community of people with disabilities, including the appropriate Center for Independent Living.

Public engagement plans are living documents that require active reviewing and updating during project development. Once the project goes to bid, the project team transfers the plan to Construction. Construction executes and maintains the plan until construction is complete. Operational Notice 12 (PD-12) provides direction for public engagement expectations. The Project Development Public Involvement Resource Guide discusses public engagement, outlines the steps to develop a plan and provides links to templates and tools.

PROJECT MANAGEMENT PLAN

Project management plans document how a project is to be managed, executed and controlled, and is continuously updated throughout the life of the project. Project management plans may not be needed on projects where standard operating procedures are used. On projects without standard operating procedures, project management plans document the process the team is going to use to develop the project.



Project Scope Management Plan

Project scope management plans provide a statement of the work to be performed, including identifying the accessible transportation elements, in the development of the project, which includes elements in and out of scope. Project scope refers to all the needs to be addressed in order to create the product, service or result. Reference any work order contracts that include statements of work.

NOTE: Project scope will be managed to the work statement described unless a subsidiary plan is attached.

The project scope management plan normally includes the following:

- Scope Management Approach:
 - ▶ How the project scope will be developed.
 - ▶ Will the project team visit the site or do a desk scope?
 - ▶ How the scope will be controlled and how the baseline will be managed.
- Project Scope Statement (this could be supplemental):
 - ▶ Product scope description, including identifying accessible transportation elements.
 - ▶ Constraints.
- Deliverables.
- Acceptance criteria.
- Exclusions.
- Work breakdown structure.

Project Schedule Management Plan

MS Project is required for STIP projects and at a minimum includes the key milestones defined in PD-19. Describe any strategies to address potential schedule delays.

PE Budget Management Plan

Preliminary Engineering budget management plans describe how performance to budget will be monitored and controlled and strategies used to address potential budget shortfalls. This includes how costs will be tracked, corrective actions implemented, at what intervals cost reporting will be done for both the project team and management and what tools and techniques will be used.

Construction Budget Management Plan

Construction budget management plans describe how the construction budget will be monitored and controlled, and include strategies to address budget shortfalls.

Procurement/Contracts Management Plan

Procurement/contracts management plans list any consultant contracts associated with projects and describe their delivery method. If consultants are used in the design of the project, indicate who will be managing those contracts and who will approve/deny their deliverables. List the contract numbers for reference.

Risk Management Plan

Risk management plans describe the risk management methodology to be used, including how risks will be found, documented and dealt with. It is recommended to supplement the risk management plan with a risk register.

Change Management Plan

Please refer to your region's CMR process. Also, identify who has approval authority for changes to the project, who submits the changes and how changes will be tracked and monitored.

Communication Management Plan

Communication management plans describe how you will communicate with your team and your internal stakeholders. How often will you communicate with those stakeholders? What is your message(s)? Attach a public engagement plan for how you will communicate with stakeholders external to ODOT.

Project Resourcing Plan

Project resourcing plans list all team roles and responsibilities needed and the dates resources were committed to the project.

Quality Management Plan

Quality management plans define the critical success factors of the project as they relate to quality, including what/how quality reviews will be included in the project, the internal Quality Assurance procedures for each discipline and who is responsible for each quality component.

Transition and Closure Management Plan

Transition and closure management plans describe how the project will be transitioned to another project leader or closed, and include lessons learned, a closing celebration and review and collecting the project files for future reference.

PROJECT INITIATION DELIVERABLES AND RESPONSIBLE PARTIES

- Request for/approval of Preliminary Engineering Expenditure Account: PL.
- Request Project Team Resources: PL.
- Review and confirm project scope (includes scoping trip): Project development team.
- Roadway conceptual design: Roadway Designer.

- Bridge Design Criteria and Standards Assessment (initial): Bridge.
- Bridge Design Deviations and Exceptions (initial): Bridge.
- Negotiate and execute consultant contract(s), if necessary: Lead worker for discipline.
- Intergovernmental agreements (IGA)s, if necessary: PL and agreement writer.
- Public engagement plan: PL, community affairs coordinator or public information representative.
- Project management plan: PL.
- Project team kickoff meeting: PL.
- Preliminary survey and base mapping: Survey.
- Hazardous materials corridor study: Hazmat.
- Initial work zone traffic issues identification: Traffic analyst.
- Traffic counts and preliminary traffic analysis: Traffic analyst.

DESIGN ACCEPTANCE

DESIGN ACCEPTANCE OVERVIEW

Design Acceptance is a critical decision point that establishes the geometric boundaries of the project footprint and allows for the concurrent right of way, permitting and construction contract document activities to move forward. Design Acceptance also considers, ADA, environmental and land use requirements and how they affect the permitting and development of construction contract documents. Design Acceptance starts at the end of the initial design phase, requires that all project disciplines have reviewed the design for balance of context with standards and policies and occurs when the Project Leader obtains management signatures.

The time leading up to this milestone is also the primary opportunity for both technical and non-technical stakeholders (internal and external) to review and comment on design elements from their perspective. Design Acceptance requires both project design team and management approval. Right of way, permitting and plan development phases cannot be initiated until the Design Acceptance milestone has been met.

Significant scope, schedule and budget changes may occur between project initiation and Design Acceptance, and include changes to the footprint that affect funding requirements, right of way or permitting timelines or delay bid let or construction timelines. This is the time, through stakeholder input, to ensure we are developing the right project for the right price at the right time. Any significant changes after Design Acceptance can result in added project development time and cost.

During the Design Acceptance phase, the project team:

- Studies outstanding issues related to project location and design.
- Develops conceptual designs for design elements.
- Shares conceptual designs with appropriate stakeholders to identify any fatal flaws early.
- Identifies impacts of the design elements.
- Selects and obtains approval from management of a design for advancement.

MOBILITY STRATEGY, TRAFFIC MANAGEMENT PLAN AND MOBILITY CHECKLIST

In September 2004, FHWA updated the work zone regulations 23 CFR 630 Subpart J. The updated Rule is referred to as the Rule on Work Zone Safety and Mobility and applies to all state and local governments that receive federal-aid highway funding.

Growing congestion and an increasing need to perform rehabilitation and reconstruction work on existing roads with live traffic are some challenges to maintaining work zone safety and mobility. To help address these issues, the Rule provides a decision-making

framework that facilitates comprehensive consideration of the broader safety and mobility impacts of work zones across project development stages as well as the adoption of additional strategies that help manage these impacts during construction.

At the heart of the Rule is a requirement for agencies to develop an agency-level work zone safety and mobility policy to support systematic consideration and management of work zone impacts across all stages of project development.

Agencies will develop standard processes and procedures to support implementation of the policy, including:

- Use of work zone safety and operational data.
- Work zone training.
- Work zone process reviews.

Agencies are also encouraged to develop procedures for assessing work zone impacts. The third element of the Rule calls for the development of project-level procedures to address the work zone impacts of individual projects. These project-level procedures include identifying projects that an agency expects will cause a relatively high level of disruption (referred to in the Rule as significant projects) and developing and implementing Transportation Management Plans for all projects.

A TMP outlines a set of coordinated transportation management strategies and describes how they will be used to manage the work zone impacts of a road project. Transportation management strategies for a work zone include temporary traffic control measures and devices, TPARPs, public information and outreach and operational strategies such as travel demand management, signal retiming and traffic incident management. The scope, content and level of detail of a TMP may vary based on the anticipated work zone impacts of the project.

Highway Directive TRA 10-16 Guiding Principle for Work Zone Safety details requirements for completion of the decision tree, which includes components for traffic management.

The [Mobility Procedures Manual](#) and PD-16 detail requirements for completion of the Mobility Considerations Checklist that includes components for mobility strategy.

ROADWAY DESIGN

During Roadway Design, designers develop the following deliverables:

- Interchange Layouts (when applicable).
- Roadway Design.
- Design Narrative.
- Draft Design Exceptions.

Roadway Design will vary depending on the type of project and the amount of possible alternatives as identified by technical resources. Designers develop project design alternatives through the environmental and public engagement process, select a recommended project alternative and continue to work with different project team members to refine the selected alternative design. The final product from a designer's perspective is a complete set of contract plans.

Interchange Layouts

The Roadway Engineering Unit in Technical Services assists in exploring alternative geometric design concepts for interchanges. This subtask may involve providing advice to designers in other units and reviewing designs prepared by others, and can also include complete design and drafting services to produce interchange layouts and display maps for use in public meetings or hearings. Typically, the Transportation Planning and Analysis Unit performs traffic analysis for each alternative design. The Preliminary Design Unit may make additional geometric design refinements based on the results of the traffic analysis and input on decisions made by the project team through an interactive and iterative engineering design process. The process starts with brainstorming preliminary alternative concepts, transitions into evaluation of those alternative concepts and then carries the preferred concept through to the completion of final project design. This task may also include preparation and approval of a final interchange layout sheet when rebuilding or otherwise modifying an existing interchange.

Roadway Design

Roadway Design starts after completion of field survey and base mapping activities and continues through most of the Design Acceptance Phase. It consists of designing the horizontal and vertical roadway alignments, typical sections, super-elevation, cut and fill slopes, roadway drainage, stage construction design, erosion control measures, quantity calculations and bid item summaries, cost estimates, design exception and design concurrence requests, design narratives, design maps, profiles, cross sections and other deliverables necessary to prepare the roadway design “footprint” of the project. Other technical disciplines depend on Roadway Design to develop elements needed to obtain design acceptance.

Design Narrative

Design Narratives provide a summary of the planned work, the current state of the infrastructure and information about why the project is being undertaken. The summary helps design personnel, including consultants, become more aware of added expectations that may need to be incorporated into the project design. It is also a way to manage scope and keep the project team focused on the desired solution. Information may include:

- Alternatives Analysis: this provides a summary of what other options were considered prior to developing a recommended course of action along with justification as to why those alternatives were not feasible.
- Project location and description.
- Project Design summary: design elements from technical disciplines.
- Access Management Summary.

ACCESS MANAGEMENT

Completion of the required access management deliverables ensures that critical decisions involving highway approaches are made in a timely manner and incorporated into subsequent project design, ROW acquisition, communication plans, budget and schedule considerations. Of particular concern are the public engagement and adoption

processes associated with the Access Management Methodology, the development of the Access Management Strategy, the Official Project Access List and the Access Management Deficiency List specified in OAR 734-051-5120 and PD-03.

ENVIRONMENTAL STUDIES

The Federal Highway and Federal Transit Administrations' NEPA regulations recognize three "classes of action" that require different levels of environmental analysis and documentation.

- Class 1 projects involve modernization work known to create "significant" impacts under NEPA—such as a new highway in a new location—and require preparation of an Environmental Impact Statement (EIS).
- Class 2 projects are Categorical Exclusions (see next paragraph).
- Class 3 projects, for which the NEPA significance of the action is yet unknown, require preparation of an Environmental Assessment. The preparation of EIS and EA documents is uncommon and project leaders should refer to the ODOT Geo-Environmental Section NEPA web pages for subject matter contacts and further information regarding the processes and documentation associated with Class 1 and 3 projects.

Greater than 95% of Oregon's Statewide Transportation Improvement Program highway projects fall into the FHWA category of Class 2 projects, or Categorical Exclusions. Categorical Exclusions require relatively minimal environmental documentation as compared to an EIS or EA. The two most common documents associated with projects qualifying as a CE are the "Programmatic CE Approval Document" and the "CE Closeout Document." ODOT approves Programmatic CE Approval Documents. FHWA reviews and approves CE Closeout Documents for projects exceeding the threshold limits of the 2015 Programmatic CE Agreement. More comprehensive documentation regarding environmental studies can be found on the [Geo-Environmental website](#).

Typical environmental studies or actions that may be required in support of NEPA documentation include but are not limited to the following:

- Roadside Development.
- Historic (Section 106) Determination of Eligibility (DOE) and Finding of Effect (FOE).
- Archaeology (Section 106) (FOE), memos and/or technical reports.
- Wetland Functional Impact Assessment.
- Wetland Mitigation Concept Strategy.
- Slopes V/Federal Aid Highway Program Programmatic Permitting.
- Hazardous materials reconnaissance and site assessment.
- Noise Impact and Abatement Analysis Report and Preliminary Mitigation Design.
- Environmental justice.
- Migratory Bird Act impacts.
- Water Resources Impact Assessment/Stormwater Management Plan.
- Air Quality Report.

Thorough STIP scoping and early identification of environmental issues is key to avoiding project delays related to environmental permitting.

Roadside Development

Roadside Development consists of developing plans and cost estimates for projects where roadside development is appropriate or required. This may include developing visual objectives for the protection or enhancement of views of natural or cultural features, screening unsightly objects and modifying views of the highway from adjacent property. Roadside development designs leverage opportunities to enhance the road user's experience, promote environmental stewardship and integrate the project into the greater site context. Project leaders solicit feedback from local stakeholders on roadside development alternatives when necessary. Project teams should consult maintenance personnel to discuss and reach agreement on available staff and budget for roadside maintenance and solicit input on specific issues (such as plant species, irrigation systems, etc.) as required by PD-20. Project teams and maintenance staff may also explore "hardscaping" (i.e., permanent fixtures), contour grading and other enhancement features.

Historical (Section 106) Determinations of Eligibility and Finding of Effects

Historic resources are properties that are listed in or eligible for the National Register of Historic Places. These can include historic districts, building structures, objects and sites and is not limited to resources that have already been identified in surveys, the National Register or Statewide Goal 5 resources. Cultural resources professionals are required to evaluate all historic resources that are 45 years old or older to determine if they warrant further investigation. For information regarding DOE and FOE content, please reference the ODOT [Historic Resources Manual](#).

Archaeology (Section 106) (FOE) and Memos and/or Technical Reports

All projects require some level of archaeological evaluation. Cultural resources consultants must be qualified through the ODOT Cultural Resources Consultant Qualification Training. ODOT's archaeologist is responsible for Tribal Consultation (required under Section 106), quality assurance/quality control on all deliverables and submitting all Section 106 documentation to the State Historic Preservation Office and Tribes. Please reference the ODOT [Archaeology Process and Procedures Pages](#).

Wetland Functional Impact Assessment

Projects that would permanently affect wetlands require a Wetland Functional Impact Assessment. The Environmental Permits Coordinator must complete and submit with the Section 404/Removal-Fill Application a functional assessment for the affected wetlands and wetland mitigation and reference sites in accordance with the Oregon Division of State Lands requirements.

Wetland Mitigation Concept Strategy

Agency preference for compensatory mitigation is to purchase wetland bank credits if available. If no bank is available the Wetland Mitigation Concept Strategy is intended for inclusion in permit submittals for 404 and DSL permits. Environmental resource specialists use the Wetland Mitigation Concept to develop the wetland mitigation grading and planting plans and by ROW for property acquisition if necessary. This

report includes: description of functions and values of project area wetlands, quantification of area of impacts from the preferred/selected alternative, evaluation of impacts on wetland functions and values, evaluation of cumulative impacts on wetlands, documentation of avoidance and minimization of impacts and presentation of conceptual mitigation plan. This report is based on: wetland delineation report, functional assessment based on Hydro geomorphic or Oregon Rapid Wetland Assessment Protocol methods and coordination with regulatory agencies.

On a Class 1 or 3 project, the Environmental Project Manager prepare the Wetland Mitigation Concept Strategy prior to completion of the DEIS or EA. It follows completion of the Wetland Functional Impact Assessment and precedes preparation of the Wetland Report. On a Class 2 project, wetland specialists prepare the Wetland Mitigation Concept Strategy during DAP following completion of the Wetland Functional Impact Assessment.

Slopes V/FAHP Programmatic Permitting

The Federal Aid Highway Program programmatic agreement contains a biological opinion and incidental-take statement. It is an agreement between the FHWA and National Marine Fisheries Service that allows projects to be permitted without going through individual Endangered Species Act Section 7 consultation.



The Federal Aid Highway Program provides a focus for discussion between NMFS, FHWA and ODOT/local agencies regarding ways to minimize and avoid the adverse effects of regulated actions on Endangered Species Act-listed fish species and designated critical habitat.

In general, if a project is appropriate for a programmatic permit, the project will have a shorter consultation timeline. To determine if the project is a good candidate requires more up-front evaluation of biological and hydraulic considerations, as described in the FAHP guidance document.

Hazardous materials reconnaissance and site assessment

The Hazardous Materials Program provides various services within ODOT. Region HazMat services include:

- Site assessment and waste characterization for STIP and Oregon Transportation Investment Act projects.
- Special provisions for managing contamination, hazardous material and waste and related worker health and safety during construction.
- Underground storage tank decommissioning and/or contaminated soil removal, before or during construction.
- Remediation and risk assessments for contaminated maintenance yards.
- Site assessment and cleanup for surplus properties prior to sale.
- Technical assistance regarding hazardous materials and waste management.
- Spill assistance on ODOT right of way.

Two ODOT policies direct how hazardous materials issues should be handled:

- ENV 16-01 “Hazardous Materials and Wastes,” revised December 12, 2008, sets forth ODOT’s policy for the use and control of hazardous materials and waste in compliance with federal and state laws, rules and regulations in an efficient and cost effective manner.”
- ENV 16-02 “Contaminated Site Management,” revised December 12, 2008, sets forth ODOT’s Policy for “investigation and cleanup of properties and structures that may be contaminated with hazardous materials...” This policy includes property acquisition, investigation of hazardous materials and contamination, management of contaminated sites, consideration of liability and funding sources and dealing with third parties who have impacted ODOT right of way.

The goal of hazardous materials site reconnaissance is to determine if there are any situations on a project site that meet the definition of a Recognized Environmental Condition. A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on or at a property. A REC indicates contamination is possible, but does not necessarily mean there is contamination. For ODOT, potential RECs could include but are not limited to bridges (metal-based paints, asbestos, etc.), areas where historic contamination is known or suspected (spill sites, DEQ cleanup sites, residential heating oil tanks, former filling stations, etc.), treated timber guard rails (oils, metal-based paints), shoulder soils in high traffic areas where traffic runoff can concentrate small spills, etc.

A Hazardous Materials Corridor Survey, Hazardous Materials Assessment, Phase II Environmental Site Assessment or Preliminary Site Investigation are examples of different types of site assessments that may be required in the event that hazardous materials are known or suspected based on site history or other factors. Sampling to evaluate the nature and extent of potential contamination is essential in project planning and cost development. This may include sampling and laboratory analysis of soil or groundwater for contamination, paint samples for metals, construction material samples for asbestos, etc.

Sampling efforts can indicate the location and extent of contamination, whether a cleanup is required, waste management needs and any potential permits that may be required during project delivery. It is essential that Regional HazMat coordinators be included early in project planning to evaluate site histories and assessment needs.

Noise Impact and Abatement Analysis Report and Preliminary Mitigation Design

A noise impact and abatement analysis report is usually needed for projects that include:

- The construction of a highway in a new location.
- The physical alteration of an existing highway where there is either a substantial horizontal or vertical alteration.
- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as an HOV lane, High-Occupancy Toll lane, bus lane or truck climbing lane.
- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane.
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.
- Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane.
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.

Although most noise impact and abatement analysis reports are prepared for EIS and EA projects, some CE projects may also require them. Noise impact analysis cannot begin until the alignment is known and traffic data is available. The Noise Technical Report includes the results of the impact and abatement analysis and must contain sufficient information to satisfy the requirements of NEPA, the FHWA Noise Standard and ODOT noise policies. The report includes measuring and predicting existing traffic noise levels and calculating predicted future traffic noise levels that may result from construction of the proposed project as well as levels that may occur without the project. The NTR documents the consideration of and provides recommendations for mitigation of traffic noise impacts. Not all impacts can be feasibly and reasonably mitigated. The report also provides information to local officials regarding incompatible land uses when locating development on land that is traffic-noise impacted.

The NTR is delivered to the environmental project manager for inclusion in the Draft Environmental Document (for EIS and EA projects) and to the PL. If the NTR is for a CE project, a summary of the findings from the NTR is included in the environmental closeout documentation.

Noise analysts perform preliminary mitigation design (location and dimensions) after the impact analysis. Analysts determine if mitigation meets feasible and reasonable criteria as defined in the ODOT Noise Manual. Because there can be many unknowns during preliminary project design and final design of abatement EIS and EA projects takes place later than the end of the NEPA phase, ODOT states in the NTR that abatement recommendations could change if feasible and reasonable conditions change during final design. For CE projects, oftentimes there is no lapse in time. Depending on project timing, final design could take place during the impact and abatement analysis.

For EA and EIS projects, tasks are complete when environmental program managers develop the information required to complete the draft EIS or EA. For CE projects, requirements for NEPA, FHWA noise standards and ODOT noise policies are satisfied when regional environmental coordinators complete the impact and abatement analyses and FHWA approves the project.

The NTR reports recommended abatement that meets feasible and reasonable criteria except for abatement voting. ODOT recommends abatement with the stated caveat that results from final design and public input could change the recommendation and noise abatement may not be built. Further information can be found on the [acoustics web page](#).

FHWA and FTA Environmental Justice Considerations for ODOT Projects

Environmental Justice considerations include identifying and addressing disproportionately high and adverse effects of the agency's programs, policies and activities on minority and low-income populations to achieve an equitable distribution of benefits and burdens. This includes full and fair participation of all potentially affected communities in the transportation decision-making process.

The Federal Highway and Federal Transit Administrations' consider EJ in all phases of project development including planning, environmental review, design, right of way, construction and maintenance and operations. FHWA and FTA also consider EJ in all other programs and activities such as public involvement, freight planning, safety, Tribal consultation and the Title VI civil rights program. For more information refer to the FHWA EJ Reference Guide and the FTA EJ Circular.

Because EJ considerations must be addressed for all FHWA/FTA-funded CEs, PCEs, EAs and EISs, as well as for all state-funded-only projects, project leaders should coordinate with their region environmental coordinators and/or region environmental project managers to identify EJ triggers and potential long-term and construction-related short-term impacts early in project development. Coordination with Planning is also helpful.

References

- [EO 12898 \(Environmental Justice\)](#)
- [EO 13166 \(Limited English Proficiency\)](#)
- [FTA EJ Circular](#)
- [FHWA Order 6640.23a](#)
- [USDOT Order 5610.2\(a\)](#)

Migratory Bird Act impacts

Migratory birds and their occupied nests cannot be hurt, captured or moved unless covered by a Migratory Bird Treaty Act permit. Projects that occur between March and August have the most potential for conflicts with nesting migratory birds and must have a migratory bird management strategy in place prior to encountering bird conflicts. Once birds nest on a structure, it is most often necessary to wait for the birds to fledge. Therefore, it is often better to get Animal and Plant Health Inspection Service on board early and prevent birds from nesting in areas planned for construction. There are three possible MBTA permit situations for projects:

- ODOT MBTA permit for an ODOT project: migratory birds must be managed by ODOT biological staff or USDA APHIS Wildlife Services. Consultants and contractors cannot manage migratory birds under the ODOT MBTA permit.
- ODOT MBTA permit for a Local Agency project: migratory birds must be managed by USDA APHIS Wildlife Services. Consultants and contractors cannot manage migratory birds under the ODOT MBTA permit.
- Local Agency MBTA permit for a Local Agency project: migratory birds are managed as stipulated in the Local Agency MBTA permit.

Because the ODOT MBTA permit is contingent on reasonable and practicable measures to prevent migratory bird conflicts, it is critical to begin bird management (i.e., nesting prevention activities) prior to the March through August nesting window. During project planning, Region Environmental Coordinator must clearly identify both the MBTA permit and the entity responsible for migratory bird management (i.e., ODOT biological staff, Wildlife Services, or “other” as allowed under the Local Agency MBTA permit). The ODOT Geo-Environmental Section maintains an IGA with Wildlife Services to manage migratory birds and charges costs to the project. If Wildlife Services is identified to manage migratory birds, an appropriate ODOT person from the project (usually the REC or biologist) should contact the Wildlife Services ODOT liaison with project details as soon as possible.

Water Resources Impact Assessment

A Water Resources Impact Assessment is completed for all Class 1 and most Class 3 projects. The assessment covers all aspects of impacts to water resources, though post-construction stormwater management is usually the primary focus. Other aspects covered are water quality and hydrologic effects from construction erosion and sediment control and pollution control, in-water work, including bridge bents, bank armoring and channel realignment, riparian impacts and wetland impacts.

The post-construction stormwater portion of the assessment includes a quantitative analysis of the water quality impacts of stormwater discharges to surface waters using an approved model. If Underground Injection Control Systems are proposed for the project, the assessment must contain sufficient information, including modeling if necessary, to show that groundwater resources and wells are adequately protected. The assessment describes the types and locations of best management practices that provide the stormwater treatment and hydrologic control needed to meet ODOT’s stormwater management criteria. If on-project management is not practical in whole or in part, then the assessment will identify the off-site BMPs’ type and location necessary to compensate for the insufficient on-project measures. The post-construction stormwater section also includes an analysis of indirect and cumulative impacts on water resources.

The construction portion of the assessment covers erosion and sediment control, pollution prevention and in-water work. The report findings are based on biology and wetlands technical reports and are tied to the indirect and cumulative impacts analysis. The report describes:

- Amount of ground disturbance expected.
- Location of sensitive or difficult areas based on proximity to surface waters.
- Slope and soil characteristics.
- Any special efforts or BMPs that are needed to address difficult areas or protect sensitive resources.
- For in-water work: type, magnitude and duration of the activities, measures to minimize impacts to water quality and any special conditions to protect sensitive resources.
- Magnitude of physical riparian and wetland disturbance impacts to water quality and hydrology.

Stormwater Management Plan

DEQ requires a Stormwater Management Plan for all projects requiring a 404 permit covering actions that include impervious surface area. The plan is a requirement of the 401 Water Quality Certification issued by DEQ and demonstrates that the project will meet stormwater management criteria. These criteria are essentially identical to those in the FAHP. The water resources program leader in the Geo/Environmental Section reviews and approves Stormwater Management Plans for projects that consist of ODOT facilities and are covered by a Nationwide 404 permit. ODOT has a template for Stormwater Management Plans to ensure all relevant information is included. Projects covered by the FAHP that do not have a 404 permit generally need only the stormwater section on the FAHP notification form filled out. Projects with Individual Biological Opinions may require a full Stormwater Management Plan. In the latter case it should be sufficient to follow the template for the 401 certification.

Air Quality Reports

Air Quality reports meet three distinct sets of regulatory requirements: transportation conformity, NEPA (which addresses Mobile Source Air Toxics (MSAT) and Indirect Source Construction Permit.

Transportation Conformity Rule Requirements

Air Quality conformity analyses are required for projects in *nonattainment* or *maintenance* areas that are not exempt (projects listed under [40 CFR 93.126](#), [40 CFR 93.127](#) or [40 CFR 93.128](#)) are exempt from conformity). Transportation conformity applies to projects that are federally funded or require federal approval. The analyses can be qualitative or quantitative depending on project design and traffic data. Oregon has 8 CO, PM₁₀ or PM_{2.5} nonattainment and maintenance areas.

As part of the project level conformity analysis, the AQ report must show that the project is included in a regional conformity determination, which is conducted for regional transportation plans and transportation improvement programs in metropolitan areas. The four metropolitan areas that perform regional conformity determinations are Salem/Keizer, Eugene/Springfield, Medford/Ashland and Grants Pass.

For non-exempt projects outside of metropolitan areas, ODOT is responsible for conducting the regional conformity determination. The non-metropolitan areas in Oregon are Klamath Falls, La Grande, Lakeview and Oakridge. Rural regional conformity determinations are submitted to the ODOT STIP Coordinator and region and local governments.

To meet project-level conformity requirements, a project must be identified in a conforming RTP, conforming MTIP or STIP and must not violate any new or exacerbate any existing hotspots.

NEPA Requirements (Statewide)

Air Quality reports for projects must contain sufficient information to satisfy NEPA and address MSATs and Transportation Conformity Rule requirements if applicable. Information documented in the Class 1 or 3 AQ Report is incorporated into the project Draft EIS and EA.

In “attainment areas” Class 2 or 3 projects typically do not require air analysis unless there is specific concern for potential impacts. If documentation is desired for EA, a report outlining the scope of the project and a discussion of the project’s potential impact on AQ is prepared.

The AQ report should go to the project file, PL, region, FHWA (if projects require federal money or approval) and interested parties.

Mobile Source Air Toxics

NEPA requires consideration of Mobile Source Air Toxics for all transportation projects regardless of the AQ status. MSATs analysis in NEPA documents defines projects as either exempt, low potential or high potential for MSAT effects. Most projects fall into this middle category. The third category is for projects with average annual daily traffic volumes in range of 140,000 or greater in the design year and in proximity to populated areas. The high potential analysis is very resource and time intensive. The MSAT analysis should be included with the NEPA AQ report.

Indirect Source Construction Permit

An Indirect Source Construction Permit is required prior to starting construction of an indirect source in a CO nonattainment or maintenance area within a city with a population of 50,000 or more. The DEQ ISCP requirements currently apply in Portland, Salem and Medford. Lane County is subject to the Lane Regional Air Protection Agency ISCP requirements. The AQ report must include determination of if an ISCP will be required. The ISCP is not completed until the project nears construction.

TRAFFIC DESIGN

Traffic Analysis (Air, Noise and Energy)

Traffic Analysis is usually done in support of the Alternatives Analysis and is a requirement for projects that need an Environmental Impact Statement and/or Environmental Assessment. A traffic analysis may also be required on some Class 2 projects or for some projects where the NEPA Environmental Document was completed years earlier, for many of the same purposes stated above.

Traffic Analysis consists of analyzing the traffic-related effects of the proposed design alternative(s) on study area intersections and roadway segments. A report is produced which includes volume-to-capacity analysis for each alternative design and the “no build” alternative and may include recommendations on mitigation measures for problem locations (e.g., new turn lanes or traffic signals). The report also provides traffic data needed to do energy, noise and air quality analysis on each alternative and the existing condition. If applicable, the PL and environmental project manager provide the traffic report.

Traffic Control Plan Design

Traffic Control Plans are developed in close collaboration with the roadway stage construction plans and through regular communication with other technical disciplines involved in the project (e.g., Bridge, Environmental, Construction, etc.).

Traffic Control Plans include details for routing vehicular, pedestrian and bicycle traffic through or around construction, including temporary pedestrian accessible route plans, and provide information to contractors regarding staged construction and the anticipated sequence of those stages.



Deliverables include a set of project plans, including TPARP, and specifications for inclusion in the design acceptance package, a brief narrative describing the proposed TCP and a quantity summary/cost estimate for anticipated bid items needed to implement the proposed TCP.

Sign Design

Sign design includes drafting a ROW map that shows what is needed to install signs, which requires determining if additional ROW and/or easements may be necessary and, if so, how many. Sign design also involves establishing the project feasibility, cost and overall footprint so the project can proceed to the design acceptance milestone.

If a project will impact any blue Tourist Oriented Direction signs, the signs must be protected during construction or replaced. Oregon Travel Experience should be informed as soon as possible if any of their signs will be impacted.

Signal Design

Signal design develops the design for new or replacement traffic signals, flashing beacons, ramp meters and signal interconnect systems, emergency vehicle preemption systems and other signal-related features. Signal design includes drafting a ROW map that shows what is needed to install signals, which requires determining if additional ROW and/or easements may be necessary and, if so, how many. Another key outcome is to obtain Traffic Control Device Approval, which is required for new signals, from the State Traffic Engineer. Signal design also involves establishing the project feasibility, cost and overall footprint so the project can proceed.



Illumination Design

Illumination design develops the design for roadway illumination systems. This includes drafting a ROW map that shows what is needed to install an illumination system, which requires determining if additional ROW and/or easements may be necessary and, if so, how many. Illumination design also involves establishing the project feasibility, cost and overall footprint so the project can proceed to the design acceptance milestone.

BRIDGE AND STRUCTURE DESIGN

Bridge design can be involved in many projects sponsored by different programs, and provides structure design for culverts and rigid frames, large pipes and structural pipes, retaining walls, sound walls, overhead sign supports and signal and illumination poles.

All bridges and structures require structural calculations which must be completed prior to developing plans or specifications. Identifying the need for bridge design early is essential for resourcing and staying on schedule. If the work scope can be reasonably close for non-bridge structures at project kickoff, bridge design can usually be successfully outsourced.

Design Criteria, Standards Assessment and Design Deviations

Continue the work initiated in Project Initiation, including ADA considerations. Update as work is further refined.



Alternatives Analysis

Continue the work initiated in Scoping and complete the Alternatives Analysis required for the Type Size and Location Report.

TS&L Report

The Traffic Structures, Signal Pole, and Illumination Pole Design Report serves to 1) Document the Alternatives Analysis and DAP Phase recommendations made by Bridge Design or 2) Document the scope and estimate of probable construction cost for program purposes at this milestone.

For all fully federal oversight projects, FHWA requires submission of Bridge TS&L Reports.

The bridge designer works in coordination with the geotechnical designer, hydraulics designer, regional environmental coordinator, mobility coordinator, traffic control designer, roadway designer, pavements designer, utility coordinator, railroad liaison (if applicable), construction specialist, maintenance coordinator and public affairs specialist to develop the TS&L Report and advance the project to DAP.

Bridge Design

Bridge design may include new or replacement bridges, bridge preservation, rehabilitation, ADA elements, retrofit and/or repair. Work may be above or below deck or both, and nearly always requires traffic control, staging or diversion of traffic. Any work to bridge rails or approach guard rails requires the involvement of roadway design, and the addition of deck overlays almost always requires pavement work off the ends of the bridge. Hydraulic analysis and geotechnical exploration and analysis must be completed by DAP.

Retaining/Sound Wall Design

The following activities must be completed by DAP:

- Identify the type, size and location of required retaining and sound walls.
- Complete geotechnical exploration and analysis for retaining walls and non-standard sound walls.
- For standard design sound walls, complete a geotechnical soil assessment related to the design tables found on the sound wall standard drawings.

Traffic Structures, Signal Pole, and Illumination Pole Design

The following activities must be completed by DAP:

- Identify the type, size and location of required traffic structures, such as sign bridges, cantilevered sign supports or tower poles for very large directional signs, VMS or other ITS features while ensuring their placement does not impact the accessible pedestrian route.
- Complete geotechnical exploration and analysis for traffic structures.

Culvert and Structural Pipe Design

The following activities must be completed by DAP:

- Identify the type, size and location of required culverts and structural pipes.
- Complete geotechnical exploration and analysis for culverts and structural pipes.

GEO/HYDRO DESIGN AND STUDIES

HazMat Site Assessment

Project activities that may disturb hazardous materials include excavation, utility trenching, bridge repair and coating work and building demolition. The purchase of contaminated ROW can also create future fiscal liabilities for the department. Project teams are responsible for ensuring that hazardous materials are adequately investigated during project development and the studies and findings are properly documented. All reasonable efforts will be made to identify hazardous material sites potentially affecting transportation projects. The identification of hazardous material sites will start as early as practical and will continue as the project is developed until all sites have been investigated and addressed.

A hazardous materials specialist should conduct hazardous material investigations. The level of investigation needed varies by project. Projects in commercial or industrial areas warrant more thorough investigations than those in rural or residential areas. A Level 1 HazMat Corridor Study minimum level of investigation would involve reviewing DEQ records and an on-site visit or reconnaissance. Additional investigations may involve historic aerial photos, PUC records, State Fire Marshal records, fire insurance



maps, interviews with local residents or businesses, interviews with ODOT maintenance personnel, deed searches, business registries, tests of building materials and soil or groundwater testing.

The Level 2 Preliminary Site Investigation documents the findings of environmental sampling conducted to determine the presence and/or extent of contamination related to potential sources identified in the HazMat Corridor Study. HazMat coordinators should discuss the results of Level 2 investigations with the recipients to ensure they understand the impacts and required mitigation measures.

Material Source/Disposal Site Concepts

ODOT currently has access to approximately 700 material sources located around the state. These sources collectively form a network of hard rock, borrow, disposal and maintenance material sources, and are used to meet the construction, maintenance and safety needs of the state transportation system. A Material Source site is a unique parcel or combination of parcels of land which are ODOT-owned or controlled specifically identified as the location from which material can be removed for utilization in the construction of and continued maintenance of a project. Material can either be naturally occurring earthen material or earthen material that has been transported to this location from another site or sites and stockpiled for future use. Material from this source may or may not require secondary processing prior to incorporation into a project.

A preliminary determination will need to be made as to whether or not a material source site or sites need to be developed as part of the project work. At the time of project scoping, certain project assumptions will be required to assist in making this decision.

If the initial determination is to pursue development of a public resource site(s), but a more refined design shows no source is needed or can be made available, development can cease. Problems occur when source need is not identified until late in the process when inadequate time and/or resources are available to complete the work.

If the determination is that a public site(s) should be pursued for potential use on the project, the person(s) responsible for pursuing the sites should use the [ODOT Material Source Checklist](#) to help guide the development process.

A geologist will need to review existing sources within the project vicinity and determine which site(s) will be offered to meet the anticipated project needs. They will let the PL and project team know that a prospective source(s) will be offered for the project and verify that the proper schedule elements are included. This assumes that use of a state-owned or controlled source was identified in the original scope of the project or has been agreed upon with the PL or appropriate person(s).

Hydraulics

Various types of drainage facilities are required to move water under, along or away from a highway. These facilities must be economical and efficient as well as possess the capacity to do so without damaging the highway or endangering motorists. A hydraulics engineer should be consulted on any project that includes hydraulic-related analysis and design. These design services range in scope and complexity and include the following:

- Hydrologic Analysis.
- Open Channel Analysis.
- Culvert Hydraulics and Design: culvert span of 48 inches and larger.

- Culvert: Trenchless Technology.
- Fish Passage Design.
- Bridge Hydraulics and Design.
- Temporary Water Management.
- Scour Analysis and Protection Design.
- Channel Design and Protection.
- Floodway Studies, Revisions and No Rise Certificates.

Hydraulic Preliminary Recommendations Report

Hydraulic engineers prepare a Hydraulic Preliminary Recommendations report to give the project team an idea of the hydraulic structure type, size, location and special features or concerns. Hydraulic engineers issue recommendations after the initial site visit and before the hydraulic survey request. Bridge and roadway designers will use the results of this data to refine the preliminary bridge and roadway design prior to the completion of the draft DAP.

Geotechnical Exploration

Most geotechnical work is specific to a site where some type of civil work will be constructed and includes at least three parts, each detailed below.

The first part is an investigation and characterization of subsurface conditions, and is usually the most costly and time-consuming. Subsurface characterization usually involves drilling, excavating or other means to sample and identify the nature and extent of soil and rock materials that will either be used to support facilities or as construction materials. Monitoring instruments for a select period of time is often necessary. In the case of landslide mitigation projects, monitoring can exceed a full calendar year. Industry practice, judgment, ODOT guidance and experience are all considered in defining the scope of the field investigation. Inadequate investigation can result in construction problems, delays, change orders and claims. Because of the time requirement of this task, it is essential to start this work as early as possible. It is also important to note that significant changes to alignment or structure location will result in additional investigation.

The second part starts with a review of samples and other field information and centers around laboratory testing to determine soil properties. Depending on the project and the subsurface, the scope of this part may vary significantly.

In the third and last part, geotechnical engineers use information obtained during parts one and two to develop and present design information in a written report that includes documentation of the entire process and is shared with the roadway designer, project manager, inspectors, contractors and other interested parties.

Preliminary Geotechnical Report

Geotechnical engineers prepare the Preliminary Geotechnical Report following the completion of the Geotechnical Exploration and use the report to complete both the finalized TS&L Bridge Design task and the roadway design.

Geotechnical engineers prepare a Preliminary Geotechnical Report for any project that includes a new bridge, retaining walls, large cuts or fills or other features that may require design of foundations or remediation of geological instability (e.g., landslide stabilization). The report will include preliminary recommendations on bridge and retaining wall foundation design, earthwork slopes, earthwork shrink and swell factors and options for how to mitigate geological instability. It may also include slope stability analysis for potentially unstable cut or fill slopes or for existing landslides as well as the results of laboratory tests on soil parameters.

Water Quality/Quantity Needs Identified

Hydraulic engineers identify stormwater treatment and detention requirements. Engineers/designers use PD-05 to determine the need for stormwater quality mitigation for runoff from ODOT projects and the level of mitigation necessary. Hydraulic engineers determine detention requirements, water quality treatment options and any additional right of way needs. Roadway designers complete and use a Preliminary Stormwater Recommendations report to refine the preliminary roadway design.

DRAFT RAILROAD MAPS

Draft railroad maps involve preparing proposed ROW and/or easement lines and dimensions for permanent fee ROW and permanent or temporary easements needed from railroad ROW for a project. This task takes place when the design of a project is substantially complete and the project construction footprint has been established, and must be done prior to completion of the design acceptance milestone. The railroad map(s) are incorporated into the plan sheets that will be circulated for review during the DAP review. When design acceptance is complete, the final railroad map(s) activity can be prepared, which includes the final railroad encroachment maps and legal descriptions of any property that must be acquired from a railroad.

Railroad Orders should also be completed during the time of the DAP. A Railroad Order regulates the crossing by defining the responsibilities of both the road authority and the railroad regarding the various rail crossing components. The need for Railroad Orders should be identified during the scoping process, and the completed orders should be ready by the design acceptance milestone.

DESIGN ACCEPTANCE SURVEY

The survey work that happens during DAP is to provide for additional or supplemental field survey and mapping work that may be needed during design acceptance. During this phase of work questions may arise that require additional field survey and mapping work beyond that which is done during the initial field survey and base map tasks. There may be a need to collect additional original ground terrain data in some areas if the proposed limits of the roadway excavation or embankments go beyond the area previously surveyed. Roadway, bridge and traffic or geotechnical designers may deem necessary additional drainage or utility surveying.

DESIGN ACCEPTANCE REVIEW AND COMPLETION

The Design Acceptance Package is the tangible culmination of all activities needed to begin the drafting of contract plans for construction. It consists of a complete set of plans for Approved Design. Plans for design acceptance are supported by a design narrative and consist of all substantial features of a project that allows the project team to proceed with the preparation of contract plans. Plans for design acceptance are at the stage where the project team has a high degree of confidence that the scope and footprint of the project will not change and that ROW and environmental permits can be acquired in time to meet the scheduled project letting date. Design acceptance plans will generally require a title sheet, appropriate sections and detail and layout sheets.

Compile Design Acceptance Package and Distribute for Review

This task consists of assembling the draft DAP and distributing it for review. At a minimum, the package should include a design narrative describing the project, including accessible transportation elements, preliminary bid item summary/cost estimate, preliminary construction schedule and a set of preliminary plans.

Depending on the size and complexity of the project, the DAP may also include copies or summaries of various reports that may have been prepared during design acceptance, such as the TS&L Bridge Design Report, Preliminary Hydraulics Recommendations, Pavement Design Report, Hazardous Materials Report, Preliminary Geotechnical Report and various environmental reports. The DAP plan set should include preliminary versions of plans for as many elements of the project as possible.

The desired outcome of preparing the plans is to establish the overall project footprint, including the preliminary ROW and easement lines, so that design acceptance provides the reviewers with an opportunity to determine if the proposed ROW will accommodate the project.

Project leaders or roadway designers distribute DAP for review to the members of the project team and other region and headquarters staff.

Design Acceptance Review

The project team reviews the DAP and provides comments to the PL. The PL and/or the lead designer receive, compile and distribute review comments to the team so members can prepare responses. The project team should raise issues that are more difficult to address or that may require further discussion at the Design Acceptance Workshop.

Design Acceptance Constructability Review

A Constructability Review is a review of the design to help identify potential problems that may be encountered in constructing the project as designed so appropriate changes can be made before a final design footprint has been established. The Constructability Review should take place at a point where the project design has substantially taken shape and design drawings are available for review.

The PL will arrange for a small team of construction specialists to review all the design drawings, including preliminary conceptual stage construction drawings. Construction specialists confer with each other on any problems they may see as well as potential

opportunities to improve the design to make it easier and less expensive to build, and then present their findings and recommendations to the project team for consideration. Refer to the Engineering Guidance Website for Constructability Review information.

Design Acceptance Workshop

The Design Acceptance Workshop is typically held immediately following the design acceptance package review and is usually a half- or full-day meeting with the project team. The project team reviews the draft package before the workshop to discuss the design acceptance review comments that may require changes to the project design. Team members will make changes to the DAP as necessary based on discussion at the workshop.

Obtain Design Acceptance Approval

The PL obtains the necessary signatures of the Certification of Approved Design or Design Acceptance Memorandum which documents design acceptance.

The Design Acceptance Memorandum, also known as the Certification of Approved Design Memo, is the final deliverable documenting design acceptance. The Design Acceptance milestone is achieved when the Design Acceptance Certification Memo is signed by an accountable manager or delegated authority, typically the area manager and technical center manager. The memo should summarize the findings of work leading up to the milestone and highlights of project decision-making, such as known risks or certainties, status of design exceptions, permits, intergovernmental agreements, etc. At a minimum, the Design Acceptance Memorandum should answer the following key questions:

- Have we effectively completed public engagement for this project for the decisions necessary to address all footprint-related impacts? If not, and we are choosing to move forward and accept the design, have we carefully researched, evaluated and documented the risks and trade-offs?
- Do we know enough about this project (the relative certainties, pros, cons, risks, permit expectations, etc.) to proceed with buying right of way or to complete the project within the existing ROW? Or are we deciding that in order for the project to be successful, the project will need to be completed within the existing ROW?
- Does the design firm have enough confidence to allow acquisition of environmental permits? Even minor changes to project footprints require redoing tribal coordination and can restart the regulatory review clock when permit applications need to be updated. Have we done enough work on the types, sizes and locations of the primary project features to know we have a solid scope, schedule and budget to proceed to construction? Or, weighing risks and trade-offs, are we making a defensible decision to move forward without the amount of work we would like to have at this point?
- Have we addressed and weighed any other known project risks, trade-offs and design assumptions to date?

DRAFT DESIGN ACCEPTANCE PACKAGE

All draft DAP documents waiting to be reviewed and approved need to be stored in the dDAP ProjectWise folder.

Design Acceptance Deliverables

Design Acceptance deliverables and who is responsible:

- Mobility Consideration Checklist: **PL.**
- Work Zone Decision Tree and Draft Traffic Management Plan: **Traffic Control Plan Designer.**
- Design Plans and Estimate: **all applicable disciplines (Roadway, Traffic, Bridge, Geo/Hydro, ITS, etc.).**
- Access Management Deliverables per PD-03: **Access Management Project Delivery Coordinator.**
- Final list of Environmental Resource Impacts/Permits required: **Region Environmental Coordinator.**
- Supplemental Survey Data, as needed: **Survey Unit.**
- Final Railroad Maps, as needed: **Roadway Designer.**
- Railroad Orders, as needed: **Rail.**
- Value Engineering Study, as needed: **PL.**
- Construction Cost Estimate: **Roadway Designer.**
- Construction Schedule: **Spec writer.**
- Signed Design Acceptance Memo: **PL.**
- DAP Narrative report: **Roadway Designer.**
- Design Exceptions and Deviations: **Roadway Designer.**

Other deliverables may need to be completed during this milestone depending on the region or project-specific requirements.

PERMITS AND CLEARANCES

PERMITS AND CLEARANCES LIST

There are a number of permits and clearances required from various sources to meet regulations prior to construction of a project. Some of these permits involve wetlands, material sources, fish passage, airport clearance, railroad, utilities, waterways and local ordinances. It is critical to obtain the permit prior to submission of Plans, Specs & Estimates. Permits and clearances should be obtained with enough time to make any changes to the project plans prior to PS&E, as dictated by the conditions of the permit.

Below is a list of possible permits and clearances, who is responsible for obtaining them and the approximate duration of time needed to obtain them. If the project is a class 1 or 3, the environmental project manager is often responsible.

PERMITS AND CLEARANCES TASKS

Permits obtained by environmental permit coordinators:

- NPDES Construction Permit: develop Erosion and Sediment Control Plan for each project.
- Stormwater Management Plan and CWA Section 401 Water Quality Certification.
- Underground Injection Control approval.



- 404/Division of State Lands Wetlands Accord: Fill/Removal Permit.
- Army Corps of Engineers Fill/Removal Permit.
- Coast Guard Permit.
- DOGAMI (Material Source) Permit.
- Indirect Source Construction Permit for Projects in Lane County.
- Floodplain Development and No Rise.
- Navigational Clearance.
- Irrigation US Bureau of Reclamation.

Clearances obtained by region environmental coordinators:

- Endangered Species Act Clearance.
- State ESA Plant and Wildlife Species Assessment.
- Archaeology Clearance/Recovery.
- Archaeology Finding of Fact.
- SECTION 4(f) Documentation Historic and/or Recreational.
- Historic (Section 106) Finding of Effect.
- Section 6(f) conversion request.
- Fish Passage (NMFS, ESA, ODFW, in water work period).
- Migratory Bird Treaty Act.

Permits and clearances generally obtained by area planners:

- Local Permits.
- Land Use Actions.
- Transportation System Plan Amendments.

Categorical Exclusion Closeout Documents

This task is required on all Categorical Exclusion projects that receive Federal Highway Administration funding or need some kind of FHWA approval (e.g., interstate access).

In order for FHWA to meet its legal requirements for classification of Categorical Exclusion projects, ODOT must complete and document specific parts of the environmental process prior to subsequent FHWA approvals, such as right of way and construction authorizations. ODOT must complete all environmental permits, clearances and approvals as specified in the “Completion Guidance for the Categorical Exclusion Closeout Document” (including appropriate attachments) in order for FHWA to classify a project as a Categorical Exclusion.

FHWA requires completion of specific environmental clearances and permits prior to final classification of a proposed project as a CE and prior to the authorization of ROW or construction funds.

Depending upon the type of CE process, there may be one of two types of closeout documents needed:

- CE Closeout Document (requires FHWA Oregon Division approval).
- Programmatic CE Closeout Document.

FHWA REVIEW OF CATEGORICAL EXCLUSION CLOSEOUT DOCUMENTS

This task accounts for time allowed for FHWA to review and approve the Categorical Exclusion Closeout Documents and authorize Federal Aid funding for right of way acquisition or construction.

RIGHT OF WAY

RIGHT OF WAY DEVELOPMENT

Right of Way may need to help with “Right of Entry” permits to access property in order to do a variety of analysis needed to aid plan design. Right of Way also provides other real property acquisition-related input into development of project design plans. In tandem with these activities, work to acquire the real property needed will begin.

RIGHT OF WAY ENGINEERING

Right of Way Map

Right of Way mapping starts after the proposed construction footprint has been developed as part of design acceptance. This involves drafting the proposed ROW and easement lines and dimensions, but does not include preparing ROW descriptions. Project leaders distribute the ROW map for review prior to completion and approval to ensure the proposed ROW is sufficient to build the project, and then prepares the final ROW map after obtaining design acceptance. For projects that have more than a few proposed ROW acquisitions, PLs should hold a ROW layout meeting to review and approve the ROW map.

Right of Way Descriptions

Right of Way description-writing involves preparing all property descriptions (also known as legal descriptions) required by the project. Activities include reviewing and revising proposed new ROW and easement lines that were originally prepared as part of the draft ROW map task during design acceptance and writing legal property descriptions based on the revised ROW design. This is completed after the Project Development Team approves the ROW Map.

PROPOSED RIGHT OF WAY STAKING

Proposed Right of Way staking includes staking the limits of ROW adjacent to each owner’s property, facilitating ROW appraisal and acquisition and providing property owners with a better idea of how much property is needed for the project. This work occurs after design acceptance and when ROW engineering completes the ROW map and descriptions. The senior ROW agent submits a survey request to the region survey manager who will oversee the actual survey work.

RIGHT OF WAY ACQUISITION

The following activities take place when the work of acquiring real property rights for projects is ready to begin:

- ROW Programming estimate is completed.
- Authorization to Acquire is obtained from the Oregon Transportation Commission.
- The ROW EA is requested and approved.
- ROW staking is performed upon request by the survey unit.
- Appraisals of property are produced.
- Offers to property owners are made and negotiations occur.
- Legal issues, if any, are resolved.
- Compensation is paid.
- The ROW is “Certified” in ODOT’s possession.
- Relocation assistance is provided where appropriate.
- Real property is cleared and made ready for construction.

Using the completed ROW map and descriptions, the senior ROW agent prepares a programming estimate for the cost of acquisition of necessary property and any relocation and submits the estimate to ODOT’s ROW headquarters for authorization to proceed. Post-authorization, either ODOT staff or private appraisers prepare appraisals for each ROW file. Right of Way agents review the appraisals and prepare and submit written offers to each property owner.



Oregon law includes a variety of provisions that give property owners certain timeframes to review and respond to offers (e.g., accept or reject). ODOT may use the process of Condemnation under the power of Eminent Domain as a “last resort” to gain possession of needed property for construction after the required minimum timeframes have passed.

RIGHT OF WAY CERTIFICATION

Right of Way acquisition is complete when all the project property is in possession of the agency or will be by a determined date and the region ROW supervisor signs the ROW Certification document. The ROW Certification:

- Occurs no later than assembling and submitting the Final PS&E tasks.
- Is an assurance that any real property, including permanent and/or temporary easements and construction right of entry permits that are required to build the project, have been acquired. If there is any ROW that is not in ODOT possession at the time the project is scheduled to go to the Office of Pre-Letting for the PS&E Pre-Letting review, the ROW Certification must list the holdouts.
- Must list any restrictions or conditions imposed by ROW settlements.
- Is provided to the PL for inclusion in the Final PS&E submittal.

CLEARING THE RIGHT OF WAY

Improvements to the newly acquired ROW must be sold, moved or demolished. Existing vegetation in the acquired ROW should be retained to the fullest extent practicable. Clearing must be done in compliance with the Migratory Bird Treaty Act. After selling what can be sold, the region ROW staff will contract to complete demolition. Clearing ROW also involves managing the removal of hazardous materials in properties that have been or are about to be purchased for a project. When a hazardous material site is identified, ODOT works with the property owner and Department of Environmental Quality to determine the best process for decontamination. If the property owner is unwilling or unable to clean up the site and the property is needed immediately for a roadway project, ODOT will have to decontaminate the site. This task is complete when DEQ provides ODOT with a “No Further Action Required” letter confirming the hazardous material contamination has been remedied to the satisfaction of DEQ.

RAILROAD MAPS

Where a roadway project involves any work, permanent or temporary, within ROW owned by a railroad, an encroachment map is required for temporary or permanent easements and/or possibly fee ROW. This task follows completion of design acceptance, consists of all activities required to prepare maps showing ROW requirements with respect to railroads and is complete when the maps are delivered to the State Railroad and Utilities Liaison.

RAILROAD RIGHT OF WAY PURCHASE AND RELATED AGREEMENTS

The State Railroad and Utility Liaison will take the lead role in preparing applications for permits, construction and maintenance agreements and conducting negotiations with railroads where ROW may be needed. Where railroad ROW or an associated agreement is required, this task includes:

- Preparing purchase agreements.
- Obtaining crossing permits.
- Obtaining Rail Orders.
- Facilitating other operating permits and/or easement agreements.
- Negotiating with the railroad(s) to obtain approval.
- Paying the railroad.

PLAN DEVELOPMENT

PRELIMINARY PLANS

This step is an additional technical and construction review between Design Acceptance and Advanced Plans.

For this phase, the project team coordinates the completion of preliminary plans, including accessible transportation elements, that help to build the bid documents for the project. Preliminary Plans for the Approved Design are approximately 70% complete at this point in the project development. Preliminary plans include the following:

- Noise Mitigation Final Design.
- Utility Test-Hole Excavation.
- Preliminary Plans.
- Revise Construction Cost Estimate.
- Revise Construction Schedule.

Noise Mitigation Final Design

Noise Mitigation Final Design consists of all activities to determine the required dimensions (final location, length, height, etc.) of any noise mitigation measures (i.e., noise walls or berms) that will be incorporated into the project. This task occurs after DAP is complete and is done when the required information is ready for preparation of the Preliminary Soundwall. Roadway designers may work with noise analysts to provide the footprint and dimensions. Noise analysts verify the final footprint and dimensions are still effective at providing the required noise reduction.

FHWA and ODOT noise policies require affected property owners and residents to vote for abatement. Abatement voting takes place during final design after the Project Team reconciles any constructability issues. If a majority of the affected owners and residents do not approve of abatement, the abatement will NOT be included in project design plans. The noise program leader and the PL identify and verify eligible voters during the noise impact and abatement analyses and final design respectively.

Utility Test-Hole Excavation

In some cases, utility test-hole excavation can reduce overall project costs by providing more precise horizontal and vertical locations for underground utilities, which may allow the designer to avoid or minimize impacts to utilities. Following development of the initial Utility Conflict List, utility coordinators, in collaboration with project designers and/or geo-hydro, bridge or other relevant specialists, prepares a list of locations where verified vertical and horizontal location data might be useful or is required. Region utility specialists prepare and submit requests for data to the owners of the specific utilities for which the data is needed.

Typically, utility owners are responsible for the cost of utility test-hole excavation. There is a possibility of reducing utility relocations as a result of getting better data on the locations of underground utilities. If a utility is reimbursable, ODOT will hire a potholing contractor or reimburse the utility for the cost of the potholing contractor. The test-hole excavation contractors provide the depth and horizontal location of the utility at each point requested. To allow the test-hole excavation contractor to establish precise horizontal locations at each point, it is usually necessary to either set survey control points near each test-hole location or, if possible, have a survey crew tie each utility test-hole location.

Following receipt of the test-hole data, roadway designers input the verified vertical and horizontal data into the project base mapping, in some cases using the data to create 3-dimensional line work for an underground utility line. By displaying the utility line as a surface on cross sections, roadway designers can better identify potential conflicts with the proposed construction.

Revise Construction Cost Estimate

Near the point where Preliminary Plans are complete, project development teams review and revise as needed the preliminary bid item/quantity summary/construction cost estimate. Individual technical disciplines provide updates to their portion of the construction cost estimate as part of developing the Preliminary and Advanced Plans. The intent is to flesh out more details in the construction cost estimate as the project progresses at each design phase. The purpose of updating the construction cost estimate at the Preliminary and Advanced phases is to verify that the current estimated cost of construction is consistent with the available programmed funding for the project.

Revise Construction Schedule

Near the point where the Preliminary Plans are complete, spec writers review and revise as needed the preliminary construction schedule developed during design acceptance. The intent is to flesh out more details in the construction schedule as the project progresses at each design phase. Project development teams use the construction schedule to help determine the contract completion date that will be listed in the contract special provisions.

Deliverables of Preliminary Plans for ProjectWise:

- Narrative PDF.
- Plans PDF (all sheets in one PDF).
- Estimate PDF (no prices).

ADVANCED PLANS

This key interim step of the contract document phase requires all project disciplines to review draft contract documents for completeness and accuracy. It is the primary opportunity for technical staff to provide quality control review of the project PS&E as a package.

Advanced Plans should include the revisions resulting from the Preliminary Plan review and are accompanied by the project's special provisions. Project leaders complete the PS&E checklist as a status point to evaluate how the project is progressing.

Advanced Plans Tasks

- Review and Approve Utility Relocation Plans.
- Advanced Plans.
- Final Hydraulics Report.
- Final Stormwater Report.
- Insurance Risk Assessment.
- Revise Construction Cost Estimate.
- Revise Construction Schedule.
- Compile Advanced Special Provisions.
- Draft PS&E Submittal Checklist.
- Advanced Plan Review and Completion.
- Letter of Public Interest Findings (LPIF): may occur earlier and must be completed before PS&E.

Review and Approve Utility Relocation Plans

Utility owners have 30 calendar days following receipt of a Utility Conflict Letter to prepare and submit a utility relocation map and estimated relocation schedule. Utility coordinators work with the utility to get the relocation plans to ODOT for review and approval. Utility coordinators—in collaboration with project designers, Construction office and project leaders—review utility relocation plans and schedules to ensure all identified utility conflicts are addressed in the relocation plans and the proposed schedule for relocation will not impact the project schedule. This includes ensuring any relocation that must occur during construction can be accommodated without excessive delay for the construction contractor.

If the proposed utility relocation plan is acceptable, utility coordinators direct the utility to proceed with relocation work pending approval of permits to work within the highway ROW and pending acquisition of new ROW if necessary.

If the proposed utility relocation plan or schedule is not acceptable, utility coordinators consult with the utility to develop a plan and/or schedule that is acceptable.

Final Hydraulics and Stormwater Report

Hydraulics engineers should complete a hydraulics study and report at the beginning of the Advanced Plan phase. Hydraulics engineers perform a hydrologic analysis of the drainage basin to determine flow rates or volume of water the facility will need to convey. Using this data, hydraulic engineers perform a hydraulic analysis to design the structure, water opening, scour protection, fish passage and/or temporary water management plans and fulfill any Federal Emergency Management Agency regulations.

Drainage Facility ID Requests (Culverts)

Drainage facility identification numbers are asset numbers used to uniquely identify culverts within ODOT's highway system. All new culverts from 12 inches to 20 feet in span require a DFI. Reference Chapter 17 of ODOT's *Hydraulics Manual* for more detailed information on drainage facility IDs.

Culvert Field Markers

Culvert field markers are used to identify culverts along ODOT's highway system. The type 1 pavement marker is required for existing and new culverts along a project. Reference Chapter 17 of ODOT's *Hydraulics Manual* for more detailed information on and responsibilities associated with culvert field markers.

Drainage Facility ID Request (Water Quality Facilities)

Drainage facility identification numbers are asset numbers used to uniquely identify water quality facilities within ODOT's highway system. All new water quality facilities require a DFI. Reference Chapter 14 of ODOT's *Hydraulics Manual* for more detailed information on drainage facility ID's.

Insurance Risk Assessment

The first step in the insurance risk assessment process is the completion of the risk assessment. The risk assessment requires in-depth knowledge of the project including location, environmental, safety, rail, hazardous materials and all other project elements identified during project scoping and design.

The identified risk exposures will be mitigated through project management, insurance and bonding. Project leaders complete risk assessments, which provide specifications writers the information needed to complete special provisions for insurance.



If any asbestos or lead-based paint is present or if there will be excavation of a known Hazmat site or underground storage tank, then the ODOT risk manager must review and approve the risk assessment and corresponding contractor insurance requirements. Project leaders must contact the risk manager, provide the Risk Assessment and Hazardous Materials Report for review and obtain concurrence prior to PS&E submittal.

Revise Construction Cost Estimate

Near the point where the Advanced Plans are complete, project development teams review and revise as needed the preliminary bid item/quantity summary/construction cost estimate. Individual technical disciplines provide updates to their portion of the construction cost estimate as part of developing the Advanced Plans. The intent is to flesh out more details in the construction cost estimate as the project progresses at each design phase. Updating the construction cost estimate at the Preliminary and Advanced phases is to verify that the current estimated cost of construction is consistent with the available programmed funding for the project.

Revise Construction Schedule

Near the point where the Advanced Plans are complete, spec writers review and revise as needed the preliminary construction schedule developed during DAP. The intent is to flesh out more details in the construction schedule as the project progresses at each design phase. Project development teams use the construction schedule to help determine the contract completion date that will be listed in the contract special provisions.

Utility Certification

After utility coordinators and lead designers have reviewed and approved the Utility Relocation Plans submitted by the utilities, utility coordinators prepare the Utility Certification. This lists all of the utilities that are located within the project limits as well as anticipated conflicts if applicable. The utility coordinator prepares the Utility Specifications for the project special provisions using the approved boilerplates located in Section 00150.50 and 00180.40. The special provisions will match the Utility Certification. The draft Utility Specifications are incorporated into the Advanced Special Provisions for distribution for the Advanced Plan Review.

Utility coordinators review the Utility Specifications prior to completion of the Final PS&E to ensure that any required revisions have been made prior to completion of the contract bid documents. In some cases, the final completion date of some of the utility relocations may not be known until very late in the Final Plans phase of a project.

Compile Advanced Special Provisions

Specifications writers compile final special provisions prepared by each technical discipline using current standard specifications and supplementing them with necessary additions and revisions to fit the project. This includes collecting and combining special provisions for all roadway, bridge, traffic control, TPARP, erosion control, roadside development, wetland mitigation, material source sign, signal, illumination and striping bid items. This also includes preparing special provisions to account for utility relocation issues, potential ROW file holdouts and special city, county, state or federal permit requirements.

Draft PS&E Submittal Checklist

After project development teams complete the Advanced Plans and special provisions, PLs fill out a draft version of the PS&E submittal checklist. This draft version of the PS&E submittal checklist documents the completeness of the Advanced PS&E submittal and identifies any items that remain to be completed prior to Final PS&E, such as ROW acquisition, permits and clearances.

Advanced Plan Review and Completion

Assemble, Copy and Distribute

Specifications writers assemble and distribute for review Advanced Plans for all disciplines with the special provisions.

Advanced Plan Review

The normal period allowed for review after receipt of the plans is two to three weeks. Project leaders, roadway designers or specifications writers should be designated in the cover memo as the point persons to receive and collect the review comments.

Following the review period, the project team usually holds a Plans-in-Hands meeting to discuss and resolve any significant issues identified during the review. Project leaders, roadway designers or specifications writers should prepare for the Plans-in-Hands meeting by collecting and studying review comments and deciding which issues should be brought before the entire project team for discussion.

Advanced Plans Constructability Review

Constructability Reviews are reviews of the preliminary design of a project to help identify potential problems that may be encountered in constructing the project so that appropriate changes can be made. Constructability Reviews should take place at a point where the project design has substantially taken shape and design drawings are available for review (not a required task).

Project leaders arrange for a small team of construction specialists or contractors to review all the design drawings and specifications—including preliminary conceptual stage construction drawings—and discuss any problems they may see as well as potential opportunities to improve the design to make it easier and less expensive to build. Select project team members present the team's findings and recommendations to the construction specialists for consideration.

Deliverables of Advanced Plans for ProjectWise:

- Final Hydraulics Report.
- Final Stormwater Report.
- Narrative PDF.
- Plans PDF (all sheets in one PDF).
- TMP PDF.
- Work Zone Decision Tree PDF.
- Estimate PDF (no prices).

- Specifications.
- Construction Schedule.
- Pavement Design PDF (placed in PS&E).

FINAL PLANS

This step occurs after the Plans-In-Hand meeting review and is the last opportunity for technical staff to edit and review contract documents for quality control and completeness, including accessible transportation elements, before the project is ready to move forward for PS&E submittal. Generally, final plans are not distributed to the entire team for review.

Final Plans Tasks

- Final Plans, Special Provisions and Cost Estimate.
- Final Construction Schedule.
- Final Mobility Consideration Checklist.
- Revise PS&E Submittal Checklist.
- Final Plan Review and Completion.
- Final Documents Required for PS&E Submittal.

Final Construction Cost Estimate

Spec writers perform final construction cost estimates when the Final Plans and special provisions are complete and all of the technical disciplines working on the plans have submitted their final bid item/quantity summaries. After submitting PS&E, Office of Project Letting creates the Engineers Estimate. This is used to analyze bids from contractors.

This task represents a more formal refinement of preliminary cost estimates from earlier phases of project design and includes the following steps:

- Verify validity of all bid items.
- Update cost estimate based on revised quantities.
- Verify and/or update unit costs using historical cost data from the [Estimator Database](#).
- Review and identify quantities, checking for consistency and reasonableness.
- Assure lump sum, miscellaneous and anticipated bid items are appropriate and have necessary approvals provided—refer to [PS&E Delivery Manual](#).

The Construction Cost Estimate is a confidential document not to be shared with anyone outside the agency. Typically, OPL cost estimators provide the final estimate to only a select few ODOT staff on a “need to know” basis.

Final Construction Schedule

At this point, the Final Plans are complete and spec writers review and revise as needed the construction schedule that was originally developed during DAP and updated during the Preliminary and Advanced Plans phases. The intent is to flesh out more details in the construction schedule based on the Final Plans and ensure the construction schedule accurately captures the critical path for construction and reflects a realistic timeframe.

Compile Final Special Provisions

Specifications writers will compile the final special provisions prepared by each technical discipline.

All permit and clearance activities and ROW acquisition should be finished prior to completion of this task so that any special provisions included in permit requirements or ROW holdouts can be incorporated into the final special provisions.

Final PS&E Submittal Checklist

After the Final Plans and special provisions have been completed, PLs revise the PS&E Submittal Checklist that was prepared during the Advanced Plan phase. The revised final PS&E Submittal Checklist documents the readiness of the project for advertising and identifies any items that may not yet be complete and therefore require exceptions to allow the project to proceed to advertising on the established advertisement date.

Final Plan Review and Completion

Final Plan Review

When all of the final plans and special provisions have been completed, spec writers distribute full sets for a final internal review.

The purpose of this final review is to identify and correct any remaining errors or omissions in the plans, special provisions and bid item/quantity summary. It is essential at this stage that one or more experienced staff performs a final bid-ability review to ensure that all required bid items are accounted for appropriately in the plans, special provisions and bid item/quantity summary. During this final review, spec writers and PLs typically share review comments with the designers for each technical discipline and revisions made to the PS&E as needed to prepare for submittal to the OPL for the PS&E Pre-Letting review.

Assemble and Submit Final PS&E to Office of Pre-Letting

After all revisions to the Final Special Provisions, Final Construction Cost Estimate, Final Construction Schedule and PS&E Submittal Checklist have been completed; the spec writer or PL assembles and submits the final PS&E to OPL for the PS&E Pre-Letting Review. At the conclusion of this subtask, the work of the region technical center should be complete.

DELIVERABLES OF FINAL PLANS FOR PROJECTWISE:

- Narrative PDF.
- Plans PDF (all sheets in one PDF).
- Transportation Management Plan PDF.
- Final “Draft” Operation & Maintenance Manuals.
- Work Zone Decision Tree.
- Estimate PDF (no prices).
- Specifications.
- Construction Schedule.
- Pavement Design PDF (placed in PS&E).



PLANS, SPECIFICATIONS AND ESTIMATES

The Office of Project Letting is responsible for facilitating the process of PS&E Submittal in preparation for contracting by the ODOT Procurement Office.

Project leaders are responsible for ensuring the PS&E Checklist is complete and all associated documents are included.

The PS&E manual defines the items required to meet the project submittal and completeness requirements for ODOT construction projects prior to advertisement and competitive bid. [PS&E Delivery Manual](#).



ADVERTISEMENT BID AND AWARD

For information regarding construction contracting, see the [Contract Administration webpage](#).



CONSTRUCTION MANAGEMENT TRANSITION

For information regarding construction management, see the [Construction Manual](#).