

OREGON



Oregon Department of Transportation



The Project Delivery System *From Idea to Construction*



This booklet is a brief introduction to the project delivery system, which is more fully documented in the Project Delivery Guidebook that is available in the ODOT Office of Project Delivery and on the web at

<http://www.oregon.gov/ODOT/HWY/OPD>

The Guidebook includes links providing up-to-date contact names and resources.



Defining the Project Delivery System

*Where do road
and bridge projects
come from and how
do they evolve?*

The intent of this booklet is to provide citizens, elected officials, and stakeholders with key information about project delivery.

The Oregon Department of Transportation (ODOT) is responsible for the entire lifecycle of transportation improvement projects on the state highway system. This includes program development, project development, awarding construction contracts, construction management, and maintenance. This booklet highlights the first four stages, which are collectively known as project delivery.

Program Development

Project Development

Award Construction Contract

Construction Management

Maintenance

} Project
Delivery
System

Project delivery begins with planning and analysis and ends when the project is constructed. Each stage has components that include activities and products. Several business functions overlap the activities throughout the process.

The project delivery system is illustrated in the booklet's centerfold, and is explained in the following pages.

Additionally, the methods for delivering a project, as well as the types of projects delivered, are described towards the end of this booklet.

Program Development

Program development is the first stage of a transportation project, occurs before the start of a project, and begins with transportation planning at the state and local levels. During this stage, stakeholders such as citizens, elected officials, local and regional governments, metropolitan planning organizations (MPOs) and ODOT, identify potential projects for possible inclusion in the Statewide Transportation Improvement Program (STIP).

The Program Development stage ends when the Oregon Transportation Commission (OTC) and the Federal Highway Administration (FHWA) approve the STIP. The identification and planning of transportation needs is an on-going process, and the STIP is updated on a two-year cycle.

This stage has five major components:

- **Transportation Planning:** Plans are developed to identify transportation needs and outline a system of transportation facilities and services to meet those needs. These plans include the Oregon Transportation Plan (OTP), modal plans including the Oregon Highway Plan (OHP), and local Transportation System Plans (TSPs)
- **Management Systems Analyses:** Management systems are tools ODOT managers use to determine project priorities for pavement, bridge, and safety projects.
- **Identify Potential Projects:** Transportation needs identified in the Planning and Systems Analyses components are moved to a ranked list of future projects for consideration.
- **Scope, Schedule and Budget:** Selected projects from the future projects lists are added to the draft STIP. Scoping teams review proposed project sites and develop scopes of work and project summaries.
- **Project Selection – Final STIP:** ODOT's STIP coordinator assigns funding to the project and verifies that statewide program goals are met. The OTC and FHWA then approve the project and it is listed in the final STIP.



*Program Development
is the first stage
for transportation projects.*

Project Development



*Project Development
is the second stage
for transportation projects.*

Project Development, also known as Preliminary Engineering (PE), is the second stage for transportation projects and begins with the assignment of a project leader to a STIP project. Projects are further defined with a work plan, timeline, budget, and project design. The project is then prepared for construction contract bidding.

This stage has seven major components:

- **Start Project:** Projects are assigned to Project Leaders, who then form project teams and develop detailed project plans.
- **Survey, Maps, Engineering and Environmental Reports:** Detailed maps are created; special reports, studies or analyses are developed; the geometric layout is confirmed and access management needs are determined.
- **Approved Design:** A project design is selected based on project location and conceptual designs.
- **Right of Way and Permits:** Potential right-of-way needs are identified; right-of-way issues are resolved through potential property and easement acquisition, owner relocation, or owner compensation; and required local and statewide permits are obtained.
- **Preliminary Plans:** Plans that further bid document preparation, such as roadway, bridge, signal, and erosion control, are drafted. Plans are about 70% completed.
- **Advance Plans and Special Provisions:** Detailed plans, specifications, and estimates of material quantities are developed. Plans are 90% completed.
- **Final Plans, Specifications and Estimates:** Plans, specifications, and estimates are completed and final bid documents are prepared.

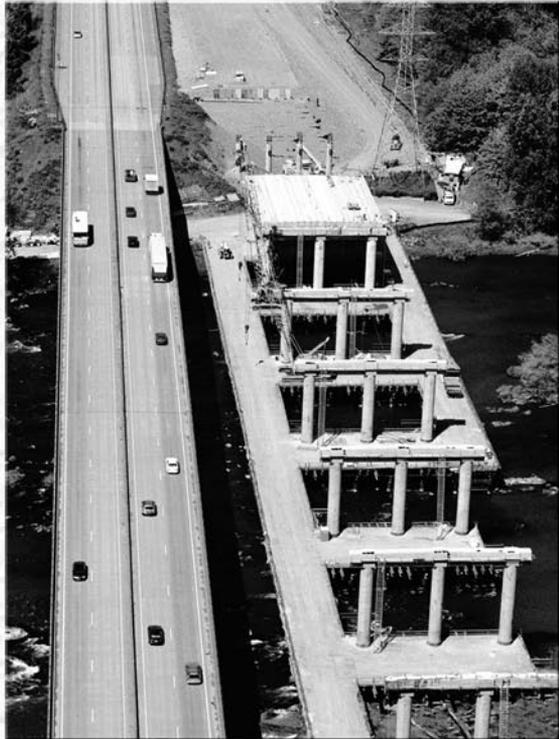
Award Construction Contract

Award Construction Contract is the third stage of transportation projects. It begins with advertising a project bid and ends when the construction contract is awarded.

This stage has two major components:

- **Advertise and Bid Opening for Design/Bid/Build Projects:** A project is advertised, contractors bid, and a bid opening occurs.
- **Award Contract:** The construction contract is awarded to the successful bidder.

Award Construction Contract is the third stage for transportation projects.



Construction Management



*Construction Management
is the last stage
for transportation projects.*

Construction Management, also known as Construction Engineering (CE), is the last phase of transportation projects. A working relationship between ODOT and the contractor is established and the project is constructed based on final plans and specifications.

This stage has five major components:

- **Before On-Site Work Begins:** All requirements such as bonds, insurance, and subcontractor compliance, are met, and a Notice to Proceed is issued.
- **On-Site Work Begins:** The contractor begins construction. The contractor is responsible to furnish materials and to do the required work according to the construction contract plans and specifications.
- **On-Site Work Completed:** The contractor finishes all or part of the construction work, clean-up and removal of equipment and materials is completed, and final project documentation is submitted.
- **Acceptance of Project:** The Project Manager ensures all on-site construction and other work required under the contract is done, all equipment is removed, and all required certifications, bills, forms, and other documents are received from the contractor.
- **Completed Project:** The project is complete when all project requirements have been met and final payment has been made to the contractor.



THE PROJECT DELIVERY SYSTEM

PROGRAM DEVELOPMENT

START

Transportation Planning

Management Systems Analysis

Identify Potential Projects

Scope, Schedule and Budget

Project Selection – Final STIP

Start Project

Survey, Maps, Engineering & Environmental Reports

Approved Design

Right of Way & Permits

Preliminary Plans for Construction

Advance Plans & Special Provisions for Construction

Final Plans, Specifications & Estimates for Construction

Advertise & Bid Opening for Design/Bid/Build

Award Contract

Start-Up Activities

On-Site Work Begins

Completed Project

Acceptance of Project

On-Site Work Completed

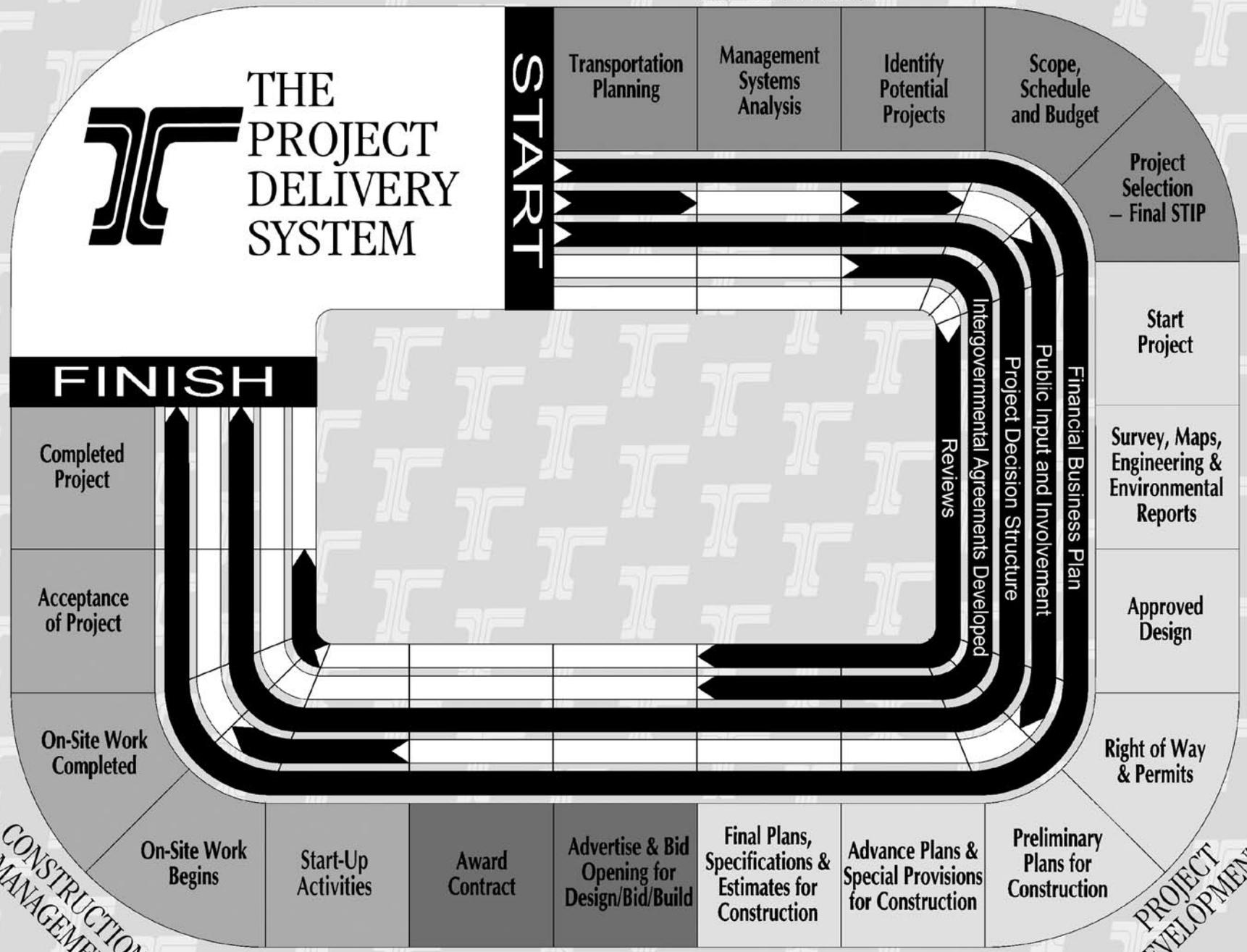
FINISH

Financial Business Plan
Public Input and Involvement
Project Decision Structure
Intergovernmental Agreements Developed
Reviews

CONSTRUCTION MANAGEMENT

AWARD CONSTRUCTION CONTRACT

PROJECT DEVELOPMENT



Business Functions



The business functions are an ongoing series of related tasks for a project.

Project business functions occur throughout project delivery.

- **Project Decision Structure:** This structure resolves project issues by allowing for two-way communication between management and project teams.
- **Financial Plan:** This plan estimates federal and state revenue and updates financial information as receipts are finalized.
- **Intergovernmental Agreements:** Intergovernmental agreements determine project obligations such as right-of-way or maintenance between governments and jurisdictions.
- **Reviews:** Reviews help assess the quality of project designs and ensure a project conforms to technical, financial, and scheduling guidelines. Reviews are conducted by ODOT managers and consultants working for ODOT.
- **Public Input and Involvement:** ODOT provides opportunities for public involvement throughout the project delivery process to include stakeholders in decision-making.

Project Delivery Methods



ODOT's goal is to integrate in-sourcing and out-sourcing into a complete project delivery system.

ODOT uses the following project delivery methods to deliver quality projects on time and within budget:

- **In-Source:** ODOT staff design projects and administer the construction contracts. Construction contractors bid on and build the projects.
- **Alternative Delivery (Out-Source) Program:** This program integrates private sector resources into our project delivery system, which increases the agency's capacity to deliver more projects. The alternative delivery program includes three delivery methods:
 - **Design-Bid-Build:** Portions of or the entire project are contracted. Construction is bid and contracted separately.
 - **Design-Build:** Engineering design and construction are combined into one solicitation and a firm or team of firms work together to deliver the project. Construction activities can proceed concurrent with design activities, thus accelerating project delivery.
 - **Program Management:** A program management firm is used to provide the day-to-day direction, organization, implementation and operational management of a related series of projects. An example is the OTIA III State Bridge Delivery Program.
- **Local Agency Projects:** Local Agency Projects can be delivered by:
 - **Consultants:** A consultant is retained either by ODOT on behalf of the local agency, or the local agency itself, to deliver the project.
 - **Qualified Agencies:** Local agencies sign an agreement with ODOT to develop, bid, let, and award the projects, as well as provide construction engineering.
 - **ODOT:** ODOT provides project development, contract award, and construction engineering services for the local agency.

Participants in the Project Delivery System



Participants in the project delivery system are primarily split between stakeholders from outside ODOT and internal ODOT staff.

Project delivery system participants include interested and affected stakeholders and ODOT staff. ODOT staff provide management and project delivery oversight and support. Together, these participants conduct all of the project delivery system tasks.

External Stakeholders:

Local and Regional Jurisdictions: Includes towns, cities, counties, metropolitan planning organizations, Area Commissions on Transportation, Governor’s Economic Revitalization Team, Local Officials Advisory Committee, and Councils of Governments. By law, they coordinate with ODOT for statewide transportation planning and STIP development.

Elected Officials: Includes elected officials such as mayors or county commissioners that advocate for transportation projects on behalf of constituents.

Regulatory and Resource Agencies: Includes agencies, such as the Oregon Department of Fish and Wildlife or US Environmental Protection Agency, that provide oversight and enforce federal and state regulations.

General Public: Any individual not affiliated with ODOT, government agencies, or local or regional jurisdictions and planning organizations. They can (individually or through an interest group or citizen advisory committee) affect projects in which they have an interest.

ODOT Management and Project Delivery Oversight:

Oregon Transportation Commission: Five Governor-appointed members who coordinate and administer transportation programs by setting transportation policy and approving the STIP.

ODOT Management: Directors and managers responsible for ODOT’s service delivery.

Office of Project Delivery: Provides leadership in all areas of project delivery to improve on-time and within budget performance for project delivery statewide.

Regions deliver the projects – primarily through:

Project Leaders and Project Teams manage, perform, and deliver activities and products for in-source projects.

Participants in the Project Delivery System cont.



Project Managers administer contracts for construction and are construction management experts for in-source projects.

Region Technical Center Staff provide bridge, environmental, geo-hydro, right-of-way, roadway, survey, and traffic support for delivery of regional projects.

Consultant Project Managers coordinate and monitor project development and construction delivery components for out-sourced projects.

Local Program Liaisons manage project development for local government projects.

ODOT Work Groups Providing Project Delivery Support:

HIGHWAY DIVISION

Technical Services Sections and Units provide oversight, subject area expertise, and overall rules, policies and guidelines for:

- Access Management
- Bridge Engineering
- Construction
- Geo-Environmental
- Right of Way
- Roadway Engineering
- Traffic Engineering & Operations

Local Government manages project delivery for local government program projects.

Maintenance helps to prolong the life and operation of transportation facilities after they are constructed.

Highway Finance Office provides program budget analysis and finding plans for projects.

OTHER ODOT DIVISIONS

Other ODOT Divisions provide guidance and tools to identify transportation needs, provide revenue and financial information, and provide specific program oversight and assistance, including:

Central Services Division:

- Financial Services
- Information Systems
- Support Services

Rail Division:

- Highway-Railroad Grade Crossings/Applications Section

Transportation Development Division:

- Planning Section
- Transportation Data
- Freight Mobility Section

Types of Projects

There are five principal types of highway projects

Modernization
Preservation
Bridge
Operations
Safety

Funding for projects is based on the following types of highway projects, although some special projects have more restrictive, specific funding:

Modernization Projects: Add capacity to the highway system to facilitate existing traffic or accommodate projected traffic growth.

Preservation Projects: Protect the state's investment in the transportation infrastructure by maintaining the existing system, especially pavements, beyond what can be done through routine maintenance.

Bridge Projects: Improve the safety and condition of bridges, overpasses, tunnels, culverts, and walls, but do not increase capacity.

Operations Projects: Increase the efficiency of the highway system including traffic signals, ramp meters, variable message signs, or rockfall and slide repairs.

Safety Projects: Improve hazardous highway locations and corridors including channelizing traffic at intersections, improving railroad crossings, and adding lights, striping, signing, and continuous shoulder rumble strips.

Special Program Projects: Meet special needs or mandates, and have funding that is more restrictive and specific, such as the pedestrian and bicycle program, transportation demand management program, or the National Scenic Byways program.

MODERNIZATION PROJECT

Remove current bridge and build a completely new bridge (with sidewalks) for greater capacity.

BRIDGE PROJECTS

Paint bridge and replace rails.

-or-

Build a new bridge of equal size and capacity

PRESERVATION PROJECTS

Overlay surface with new layer of pavement.

-or-

Fill in and seal road cracks.



SAFETY PROJECTS

Install protective screening.

-or-

Add striping and illumination.

SPECIAL PROGRAM PROJECTS

Classify the bridge as part of a scenic byway and improve it.

-or-

Develop pedestrian and bike paths across the bridge during reconstruction.

OPERATIONS PROJECT

Install traffic signals at each end of the bridge to allow for one-directional bridge crossing.

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