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130.01 General

The purpose of this chapter is to describe the project development sequence beginning with the Washington Transportation Plan (WTP) through the contract documents.

Projects go through a development process to ensure:

- All elements are considered.
- Local agencies and the public have an opportunity to comment on the department's proposed action.
- The final project successfully improves the functioning of the transportation system as identified in the purpose and need statement of the Project Summary.

Projects are measured for performance based on the objective of the projects using “before and after” analysis and are submitted to the Washington State Department of Transportation's (WSDOT's) quarterly performance report, the Gray Notebook.

Changes in project scope, schedule, and budget are reviewed and approved using the Project Control and Reporting Process and are controlled by and reported to the Washington State Legislature. Approved changes are reported in the Gray Notebook.

130.02 References

(1) Federal/State Laws and Codes

Revised Code of Washington ([RCW 47.05.010](#)), Priority programming for highway development

(2) Design Guidance

Environmental Procedures Manual, M 31-11, WSDOT

www.wsdot.wa.gov/Publications/Manuals/M31-11.htm

Local Agency Guidelines (LAG), M 36-63, WSDOT

www.wsdot.wa.gov/publications/manuals/fulltext/m36-63/LAGManual.pdf

Plans Preparation Manual, M 22-31, WSDOT

www.wsdot.wa.gov/publications/manuals/fulltext/M22-31/PlansPreparation.pdf

Programming and Operations Manual, M 12-51, WSDOT

www.wsdot.wa.gov/Publications/Manuals/M12-51.htm

(3) Supporting Information

Construction Manual, M 41-01, WSDOT

www.wsdot.wa.gov/publications/manuals/fulltext/m41-01/construction.pdf

130.03 Definitions

benefit cost (b/c) ratio A method for prioritizing highway Improvement projects. The b/c ratio is determined by dividing measurable benefits (based on improvement in performance) by measurable costs for a specific time period.

Capital Improvement and Preservation Program (CIPP) WSDOT's program of projects developed each biennium that delivers capital investments in highway, marine, and rail facilities that have been funded in part or in whole by the state Legislature. The CIPP is submitted to the Governor and, ultimately, by the Governor to the Legislature.

Capital Program Management System (CPMS) A computer database used to develop and manage the highway and marine construction programs. The CPMS allows users to establish and maintain project data and is used to manage and deliver statewide construction programs.

context sensitive solutions (CSS) *A collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.**

Federal Highway Administration (FHWA) The division of the U.S. Department of Transportation with jurisdiction over the use of federal transportation funds for state highway and local road and street improvements.

Federal Transit Administration (FTA) The division of the U.S. Department of Transportation with jurisdiction over the use of federal funds for financial assistance to develop new transit systems and improve, maintain, and operate existing systems.

Geographic Information System (GIS) A computerized geographic information system used to store, analyze, and map data. Data may be used with GIS if the data includes the Accumulated Route Mile (ARM) or State Route Milepost (SRMP) programs. Global Positioning System (GPS) technology provides a means of collecting data and is an alternative to ARM and SRMP. WSDOT's primary desktop tool to view and analyze GIS data is ArcGIS software. GIS is used to gather and analyze data to support the purpose and need as described in the Project Summary.

☞ <http://wwwi.wsdot.wa.gov/gis/supportteam/default.asp>

Highway Construction Program (HCP) A comprehensive multiyear program of highway Improvement and Preservation projects selected by the Legislature.

Highway System Plan (HSP) A WSDOT planning document that addresses the state highway system element of the Washington Transportation Plan (WTP). The HSP defines the service objectives, action strategies, and costs to maintain, operate, preserve, and improve the state highway system for 20 years. The HSP is the starting point for the state highway element of the CIPP and the state Highway Construction Program. It is periodically updated to reflect completed work and changing transportation needs, policies, and revenues. It compares highway needs to revenues, describes the "constrained" costs of the highway programs, and provides details of conceptual solutions and performance in the improvement program.

*From "Understanding Flexibility in Transportation Design – Washington," WSDOT, April 2005

Metropolitan Planning Organization (MPO) A lead agency designated by the Governor to administer the federally required transportation planning process in a metropolitan area with a population over 50,000. The MPO is responsible for the 20-year long-range plan and Transportation Improvement Program (TIP).

National Highway System (NHS) A network of roadways designated by Congress that consists of all interstate routes; a large percentage of urban and rural principal arterials; and strategic highways and highway connectors.

planning Transportation planning is a decision-making process required by federal and state law used to solve complex, interrelated transportation and land use problems (see [Chapter 120](#)).

Plans, Specifications, and Estimates (PS&E) The project development activity that follows Project Definition and culminates in the completion of contract-ready documents and the engineer's cost estimate.

preliminary engineering (PE) A term used to describe the Project Delivery process from project scoping through PS&E review.

priority array A collection of similar needs identified in the HSP, prioritized based on the methodology adopted by WSDOT to meet the requirements of [RCW 47.05](#).

Priority Array Tracking System (PATs) A database that allows tracking of highway needs and their solutions. The system is designed to ensure WSDOT addresses the highest-ranked transportation needs. Deficiencies are tracked for each strategy in the HSP.

Project Control and Reporting (PC&R) The Headquarters (HQ) Project Control and Reporting Office is responsible for monitoring, tracking, and reporting delivery of the Highway Construction Program in coordination with the Program Management offices in each of the six WSDOT regions and the Urban Corridors Office.

Project Summary A document that comprises the Project Definition, Design Decisions Summary, and Environmental Review Summary. The Project Summary ensures the project scope addresses the need identified in the HSP, the design complies with design guidelines, and potential environmental impacts and required permits are understood. The Project Summary is prepared by the region and reviewed and approved by Headquarters prior to budget submittal.

Regional Transportation Planning Organization (RTPO) A planning organization authorized by the Legislature in 1990 as part of the Growth Management Act. The RTPO is a voluntary organization with representatives from state and local governments that are responsible for coordinating transportation planning activities within a region.

Project Scoping See [Chapter 300](#).

Statewide Transportation Improvement Program (STIP) A planning document that includes all federally funded projects and other regionally significant projects for a three-year period.

Surface Transportation Program (STP) A federal program established by Congress in 1991 that provides a source of federal funding for highway and bridge projects.

Transportation Improvement Program (TIP) A three-year transportation improvement strategy required from MPOs by Congress, which includes all federally funded or regionally significant projects.

Transportation Information and Planning Support (TRIPS) A mainframe computer system designed to provide engineering, maintenance, planning, and accounting staff with highway inventory, traffic, and accident data.

Transportation Planning Studies These studies identify the current functions of a corridor and forecast future demands on the system. Data collection and public involvement are used to forecast future needs that will improve the function of a state route.

Washington State Pavement Management System (WSPMS) A computer system that stores data about the pavement condition of all the highways in the state. Information available includes the latest field review and past contracts for every main line mile of state highway. Calculations are used to determine whether a given section of pavement is a *past due*, *due*, or *future due* preservation need.

Washington Transportation Plan (WTP) A WSDOT planning document developed in coordination with local governments, regional agencies, and private transportation providers. The WTP addresses the future of transportation facilities owned and operated by the state as well as those the state does not own but in which it has an interest. It identifies needed transportation investments, which are defined by service objectives and specific desired outcomes for each transportation mode.

130.04 Project Development Sequence

The *Design Manual* addresses the project development process beginning with scoping, through programming with the Legislature, to project development approval.

Project development is a multidisciplinary effort that evaluates a variety of solutions for project needs. The following information pertains to the needs identified in the Highway System Plan, which suggests a list of proposed solutions based on an incremental approach. This process bridges the gap from need identification to project construction. Project Definition documents provide the framework for further development of the project scope, schedule, and estimate, and they record key decisions made early in the project development process. The contract documents provide sufficient detail to enable contractors to construct the project. Final project design decisions are documented and stored in the Design Documentation Package (DDP).

Integrating planning, program development, and project delivery are important elements for the efficient and successful delivery of the transportation projects in the Capital Improvement and Preservation Program (CIPP) approved by the Legislature. The program development process needs a global understanding in order to eliminate later corrective modifications or rework. Project modifications and rework are costly, and they impact delivery commitments made to the Legislature and the public. These projects are developed such that information and processes flow seamlessly between the planning and implementation phases of a project.

[Executive Order 1028.01](#) directs the department to adopt the principle of context sensitive solutions as a method that allows planners, programmers, and designers to best optimize the conditions and resources in the project vicinity. Planners, programmers, and designers are directed to:

- Engage with representatives of the affected communities from the project's inception.
- Ensure transportation objectives are clearly described and discussed with local communities in a process that encourages communication.
- Pay attention to and address community and citizen concerns.
- Ensure the project is a safe facility for both users and the community.

The following sections discuss the project development sequence.

(1) Washington State Highway System Plan (HSP)

The HSP is the modal element of the Washington Transportation Plan (WTP) that addresses the state highway system. The HSP, managed by the HQ Systems Analysis and Program Development (SA&PD) Section of the HQ Strategic Planning and Programming Division, includes a comprehensive assessment of existing and projected 20-year needs of the state highway system. Preservation of existing assets and safety, mobility, freight, bicycle, and pedestrian issues are among the 20-year needs. The HSP also lists potential solutions addressing these needs.

The SA&PD Section has the lead role in identifying state highway needs through coordination with WSDOT Headquarters, various technical groups, and region Planning Offices that coordinate with external Regional Transportation Planning Organizations (RTPOs) and Metropolitan Planning Organizations (MPOs). The SA&PD Section develops a 20-year plan of construction needs.

The HSP identifies the following four major programs used to manage the state-owned transportation system:

- Maintenance Program (M)
- Traffic Operations Program (Q)
- Preservation Program (P)
- Improvement Program (I)

You can access the HSP at: www.wsdot.wa.gov/planning/HSP.htm

(2) Highway Construction Program

In every odd-numbered year, the Legislature meets to consider and pass a Transportation Budget. One piece of this budget is funding for the Highway Construction Program. In order to control expenditures and track budget dollars and commitments, WSDOT groups capital projects into programs, subprograms, and categories based on the action strategies, objectives, and goals in the HSP. The department has identified three subprograms within the Preservation Program and six subprograms within the Improvement Program, four of which are shown in [Exhibit 130-2](#).

(a) Prioritizing Project Needs and Solutions

Based on the Strategic Plan, WSDOT uses the following elements for future investments in Washington's transportation system:

- Preservation of existing assets
- Safety
- Mobility, including special needs transportation
- Economic vitality
- Environment quality and health
- Stewardship

With the Highway System Plan, WSDOT has developed an incremental tiered approach to address project needs. This approach separates strategies into three investment tiers to be implemented incrementally over the life of the 20-year plan, to maximize performance improvement for every dollar invested.

The tiered approach was developed to address emerging congestion and provide interim relief when funding for major improvement work is limited. The three tiers include:

1. Tier I

Focuses on low-cost projects that deliver a high return on capital investment and have short delivery schedules. These include incident management, Intelligent Transportation Systems, access management projects, ramp modifications, turn lanes, and intersection improvements.

2. Tier II

Focuses on moderate- to higher-cost projects that deliver potential network benefits to both highways and local roads. These include improvements to parallel corridors (including local roads) and adding auxiliary lanes and direct access ramps.

3. Tier III

Focuses on highest-cost projects that can deliver corridor-wide benefits. These include commuter rail, HOV/HOT lanes, and interchange modifications. (See the Highway System Plan online for more information.)

This tiered approach is consistent with legislative direction provided in [RCW 47.05.010](#).

(b) Background Information

The HQ Systems Analysis and Program Development (SA&PD) Section begins the prioritization process for a category of work, as required by state law, by identifying the potential benefit(s) associated with solving the needs. There are insufficient resources of time and money to analyze the benefits and costs of all needs in each category of the Highway System Plan each biennium, so an initial ranking system is used to reduce the effort. Because the primary objective of WSDOT's prioritization process is to provide the most beneficial improvement for the least possible cost, needs in each category are ranked based on their potential to provide a benefit. The process is as follows:

1. The HQ SA&PD Section works with the technical experts at Headquarters to develop the ranked lists and forwards them to the region program managers for their actions. They also place the lists of needs on the department's internal website with instructions on what to do with the ranked lists.
2. The regions scope projects to address the identified needs. The biennial programming instructions provide guidance to the regions on how far down the ranked "needs lists" to go.

To obtain a consistent approach and eligibility for federal funding, WSDOT has developed a set of design matrices. Each design matrix sets forth the level of development for a given type of need that would be automatically approved by the department and FHWA (see Chapters 1100 and 1110).

WSDOT has also developed a tool using GIS called the Transportation Analysis Business Area of the GIS Workbench. This tool provides users a common source of consistent data statewide.

☞ http://wwwi.wsdot.wa.gov/gis/SupportTeam/gis_workbench/default.asp

Design teams and managers are encouraged to use the WSDOT *Project Management Online Guide* to map out the direction and the expectations for the project (☞ www.wsdot.wa.gov/Projects/ProjectMgmt/Process.htm).

They are also encouraged to make use of GIS and the Transportation Analysis Business Area of the GIS Workbench to analyze transportation and environmental resource data in the project area.

3. The regions prepare a cost estimate for the approved scope of work and compare the cost to the potential benefit in order to determine which projects are the most beneficial to construct.

In order to minimize disruptions to the public and take advantage of cost savings, the department may adjust priorities by combining solutions to HSP-identified needs into a single contract. However, adjusting priorities is generally limited to a six-year period.

(c) Building the Program

The basic building blocks for the Highway Construction Program are the project phases in the Capital Improvement and Preservation Program (CIPP).

1. Carry-Forward Projects

"Carry-forward" project commitments typically represent job phases that will continue into the next biennium.

The "book-building process," which includes a list of projects that will be started, continued, or completed in the next biennium, starts with carry-forward projects.

The regions need to review carry-forward projects and determine the potential for project delays and cost overruns in the current biennium that could affect the next biennium. Maintain close coordination between the region, the HQ Project Control and Reporting Office, the HQ SA&PD Section, the Project Development Engineer, and the Construction Engineer to ensure projects under development and under construction are accomplished as planned.

2. New Improvement Projects

New Improvement project phase starts are proposed based on improvement(s) in system performance and the cost-effectiveness of the proposed project. These new project starts represent needs that are identified in the Highway System Plan (HSP). The HQ SA&PD Section determined the needs the regions will develop projects to solve. Once Headquarters has established the level of needs to scope, the regions will begin scoping projects for the Highway Construction Program. Note: Regions cannot propose a project unless a need has been identified in the HSP.

After the new projects have been selected and the carry-forward projects identified and their planned expenditures and schedules verified, the program of projects is developed and the project data is inputted into CPMS for balancing to the projected revenue—for both dollars and workforce (FTEs). Project summaries are then developed to document the proposed scope. The program of projects is shared with region executives and their input is incorporated. Adjustments are made to ensure the program can be accomplished within the constraints of the available workforce and facilities in the region.

The Internet links on this page are incorrect. Please see the Design Manual Errata page for the updated links:
www.wsdot.wa.gov/design/manual/errata.htm

Roles and Responsibilities Within WSDOT for Developing the Highway Construction Program

WSDOT regions, working with support offices such as Environmental, Utilities, Right of Way, and Construction, develop and design the projects that deliver the transportation program. Designers have a tool called the *Project Management Online Guide* to assist with the process:

☞ <http://www.wsdot.wa.gov/Projects/ProjectMgmt/Process.htm>

[Executive Order 1032.00](#) directs the department to ensure capital projects are consistent with the principles of the project management process.

[Executive Order 1028.01](#) directs the department to use the principles of context sensitive solutions (CSS), which includes public outreach, coordination, and collaborative decision making. Designers are encouraged to consider the public outreach process in the project work plan. WSDOT has developed a guide to assist designers: ☞ www.wsdot.wa.gov/eesc/design/Urban/PDF/UnderstandingFlexibilityInTransportationDesignWashington.pdf

The HQ Budget and Financial Analysis Office and various offices in the HQ Strategic Planning and Programming Division share responsibility for developing a capital investment plan. The plan includes a forecast of available revenue by fund source and recommends investment levels based on the Washington Transportation Plan. The HQ Systems Analysis and Program Development (SA&PD) Section issues programming instructions, based on the preliminary budget targets, which assist the regions as they begin scoping highway projects.

Once a ten-year plan has been determined and the proposed projects scoped, the SA&PD Section finalizes a budget request, including a project list for submittal to the Legislature. The Legislature sets funding levels for the different programs within WSDOT that will deliver the project list for the funding amount identified in the scoping document.

(e) Categories of Work

The HSP presents the budgets for the Maintenance (M), Operations (Q), Preservation (P), and Improvement (I) programs. Strategies and conceptual solutions are limited to the Preservation and Improvement programs. Each of these programs is divided into subprograms, as shown in the [Exhibits 130-1](#) and [130-2](#).

(3) Project Summary

The Project Summary is developed in the region when a project is proposed for programming. The intent of the Project Summary is to initiate the development of a project by identifying the need that generated the project and the proposed solution to solve that need.

The regions prepare the Project Summary during project scoping. The information provided guides the project through the design process to project approval.

The Project Summary:

- Defines the purpose and need for the project and spells out the scope of work.
- Includes a cost/benefit measure to determine the project's cost-effectiveness.
- Documents the design decisions or assumptions that the region made while determining the project scope.
- Identifies the major factors that will influence the scope, schedule, and budget and includes a cost increase factor for unidentified risks.
- Establishes initial preliminary engineering, right of way, and construction cost estimates.
- Documents the project delivery schedule.
- Requires approval by the HQ SA&PD Section prior to submittal to the Legislature for programming consideration.
- Documents the potential environmental impacts and permits that may be required.

Regions are encouraged to place special emphasis on project scoping, estimating, and scheduling during program development as a means to verify that program delivery stays within the appropriated dollars and workforce. Resources available to the regions include: Highway System Plan; route development plans, and other approved corridor studies; Design Matrices; [Roadside Classification Plan](#); Environmental Workbench and other planning; and design and environmental documents to ensure project scoping is consistent.

The initial environmental classification and documentation required for the project is established in the Environmental Review Summary (ERS) section of the Project Summary. Environmental classification at the Project Summary stage has several benefits. It helps clarify the impacts associated with a project and also helps to establish a realistic schedule and PE cost estimate. All projects require supporting State Environmental Policy Act (SEPA) documentation. For projects eligible for federal funding, National Environmental Policy Act (NEPA) documentation is also required.

When scoping projects, regions are encouraged to take full advantage of expertise available from the HQ Systems Analysis and Program Development (SA&PD) Section of the Strategic Planning and Programming Division, FHWA, the HQ Environmental Services Office, and local agencies. These resources can help the regions evaluate a project's impacts and provide the appropriate project direction. They will also help ensure all aspects are considered and the proposed solution is eligible for available funding.

The HQ SA&PD Section coordinates review of the Project Summary and forwards any comments to the regions for resolution prior to approval. Once all comments and outstanding issues are resolved, the Project Summary can be approved and copies distributed.

(4) Environmental Document

The environmental document is a statement that identifies impacts to the natural and constructed environment as a result of a project and its potential mitigation. The statement may consist of one or two pages for categorically exempted projects, a SEPA Checklist, Documented Categorical Exclusion (DCE), or an Environmental Assessment (EA) or Environmental Impact Statement (EIS) for major projects (see [Chapter 220](#)).

(5) Design Documentation Package (DDP)

The DDP, which is a portion of the Project File, is a formal document of design decisions and conclusions reached in the development of a project. The Project File records various design recommendations that are reviewed within the department and, when approved, become the project design (see [Chapter 300](#)).

(6) Right of Way/Limited Access Plans

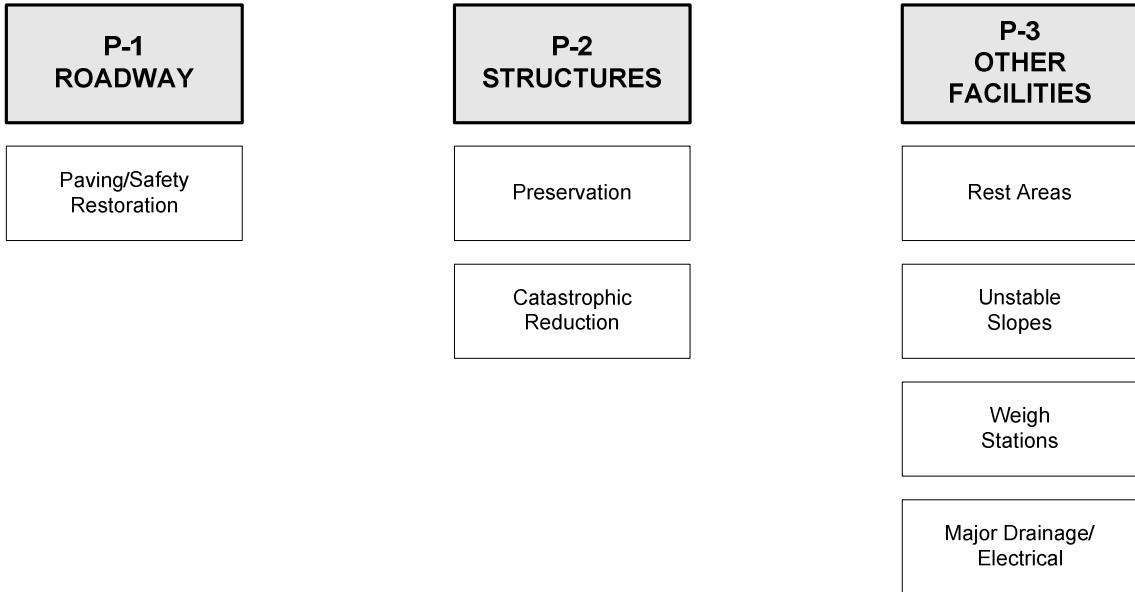
Right of way/limited access plans are the official state documents used to acquire real estate, property, and access rights. These plans determine rights of access from abutting property owners, interchange/intersection spacing, access points per mile, or other selective approaches to a highway facility. Right of way plans are used to obtain the "Order of Public Use and Necessity," which is the authority to acquire real property and property rights under eminent domain.

The establishment of limited access control is considered whenever major improvements, reconstruction, relocation, significant new rights of way, or new facilities are required. (See [Chapters 520, 530, and 540](#), and the [Plans Preparation Manual](#) for more information.)

(7) Contract Documents

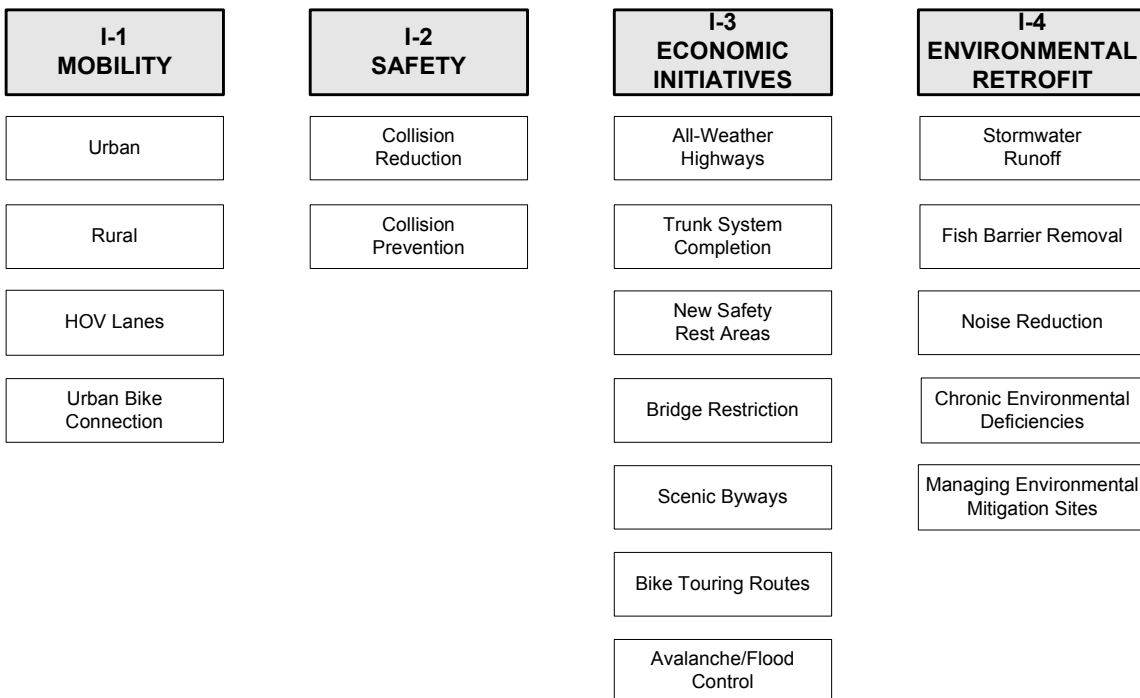
The contract Plans, Specifications, and Estimates (PS&E) are the final documents needed for the advertisement of a construction contract. Contract plans conform to the basic design features approved in the Project Summary, environmental documents, and Design Documentation Package. Present the work in the plans and contract specifications in a clear and concise manner to avoid misinterpretation. A tool available to the designer to check whether required items are addressed during the PS&E preparation is the "PS&E Review Checklist," available at: www.wsdot.wa.gov/Design/ProjectDev/. Projects may go through PS&E preparation, but they will not be advertised for construction until the required work and approvals are complete (see the [Plans Preparation Manual](#)).

Program P – Highway Preservation



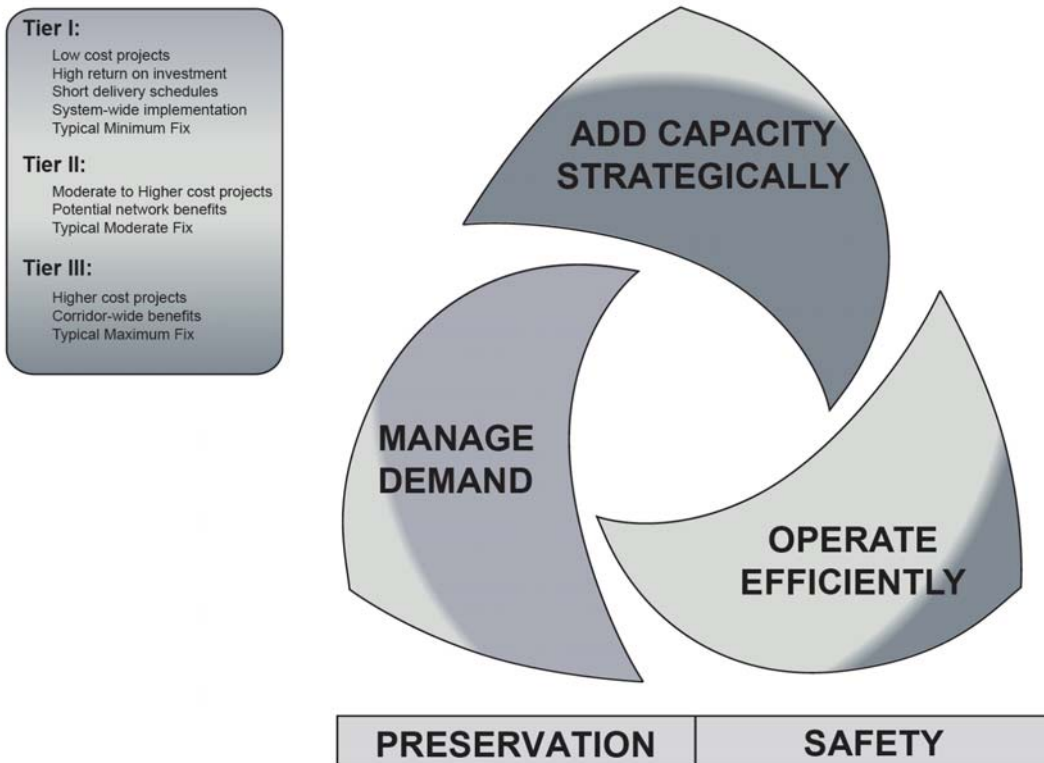
Program Elements: Highway Preservation
Exhibit 130-1

Program I – Highway Improvement



Program Elements: Highway Improvement
Exhibit 130-2

Washington State Highway System Plan: Implementation – Safety, Economic Vitality, and Mobility Strategies



Highway System Plan Implementation
Exhibit 130-3