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200.01 General

This chapter provides an explanation of and the procedures for WSF capital project scoping, which is a requirement of the Washington State Office of Financial Management (OFM). The OFM plays a central role in budget planning, policy development, and fiscal development for the executive branch (Governor) and prepares the executive budget proposals to the Legislature and monitors enacted budget implementation.

Project scoping is the initial phase of project development for WSDOT capital projects. Projects are identified for scoping via various terminal asset preservation priorities and transportation policy goals developed in the WSF Capital Plan. The project scoping phase consists of developing a project's description, schedule, and cost estimate. The intent is to make design decisions early in the project development process that focus the scope of the project. A Scoping File is completed for all projects prior to the submittal of the capital project request to the legislature and is retained by the Terminal Engineering Capital Scoping Lead. The Project Summary documents, which are an integral component of the Scoping File, are included in the Design Documentation Package as described in [Chapter 220](#).

See [Chapter 205](#) for project scoping and review requirements for terminal projects that will be designed and/or administered external to the Terminal Engineering department.

200.02 References

(1) Federal/State Laws and Codes

[23 Code of Federal Regulations \(CFR\) 635.411](#), Material or product selection

[2010 ADA Standards for Accessible Design](#)

[RCW 47.06.140 Transportation facilities and services of statewide significance — Level of service standards](#)

[RCW 47.28.030 Contracts – State forces – Monetary limits – Small businesses, minority, and women contractors – Rules](#)

[RCW 47.28.035 Cost of project, defined](#)

[RCW 47.60.327 Operational strategies for asset utilization](#)

[RCW 47.60.340 Vessel maintenance and preservation program — Report](#)

[RCW 47.60.345 Life-cycle cost model on capital assets](#)

[RCW 47.60.365 Terminal design standards](#)

[RCW 47.60.385, Terminal improvement project funding requests — Predesign study — New vessel acquisition planning](#)

[RCW 47.60.550, Parking or holding area for ferry patrons in conjunction with municipal off-street parking facilities](#)

(2) Design Guidance

Office of Financial Management, [Predesign Manual](#)

WSDOT Policy Documents Index, including those listed below:

↪ www.wsdot.wa.gov/publications/policies

- Secretary's Executive Order [1052 Project Risk Management and Risk Based Estimating](#)
- Instructional Letter [IL 4071 Use of Risk-Based Project Estimates for Budgeting and Project Management](#)

WSDOT technical manuals, including those listed below:

↪ www.wsdot.wa.gov/publications/manuals/index.htm

- [Bridge Design Manual LRFD](#) M 23-50
- [Bridge Inspection Manual](#) M 36-64
- [Bridge List](#) M 23-09
- [Cost Estimating Manual for WSDOT Projects](#) M 3034
- [Design Manual](#) M 22-01
- [Emergency Relief Procedures Manual](#) M 3014
- [Environmental Procedures Manual](#) M 31-11
- [Geotechnical Design Manual](#) M 46-03
- [Highway Runoff Manual](#) M 31-16
- [Hydraulics Manual](#) M 23-03
- [Local Agency Guidelines](#) M 36-63
- [Plans Preparation Manual](#) M 22-31
- [Project Control and Reporting Manual](#) M 30-26
- [Right of Way Manual](#) M 26-01
- [Standard Plans](#) M 21-1
- [Transportation Structures Preservation Manual](#) M 23-11
- [Utilities Accommodation Policy](#) M 22-86
- [Utilities Manual](#) M 22-87

WSDOT Administrative manuals, including those listed below:

↪ www.wsdot.wa.gov/publications/manuals/index.htm

- [Advertisement and Award Manual](#) M 27-02
- [Electronic Engineering Data Standards](#) M 3028

WSDOT Engineering Applications, including those listed below:

↗ www.wsdot.wa.gov/design/projectdev/engineeringapplications

- *Bid Tabs*
- *EASE (see User's Guide for Construction Engineering Percentages and Calculation Order)*
- *Microstation*
- *Standard Items*
- *Unit Bid Analysis*

Terminal Engineering Intranet Pages, including those listed below:

↗ wwwi.wsdot.wa.gov/ferries/terminalengineering/default.htm

- *Cost Estimating*
- *Life Cycle Cost Model*
- *Programmatic Scoping*

200.03 Preservation Projects

(1) Legal Definitions

Preservation projects are defined under the law in [RCW 47.60.005](#), the relevant definition states: (8) "Preservation project" has the same meaning as used in budget instructions developed by the office of financial management.

The Washington State Office of Financial Management (OFM) plays a central role in budget planning, policy development, and fiscal development for the executive branch (Governor) and prepares the executive budget proposals to the Legislature and monitors enacted budget implementation. OFM has statutory authority to provide all state agencies with a complete set of instructions for submitting biennial budget requests.

OFM issues the budget instructions which are relevant to Terminal capital projects:

- [Transportation Budget Instructions](#) (including addendums)
- [Capital Budget Instructions](#)

The OFM Transportation Budget Instructions pertain to most transportation capital projects other than transportation buildings. The OFM Transportation Capital Facility Budget Instructions are applicable to transportation buildings including Ferry Terminals.

Preservation projects are defined in accordance with [RCW 47.60.005\(5\)](#) and (8). A preservation project:

- Extends the life of existing assets (terminals and vessels) by replacing existing systems of the asset that are determined to be at the end of their structural, mechanical or electrical lives.

- May upgrade the systems needing to be replaced for structural, mechanical or electrical reasons so long as the replacements for existing systems do not significantly change the program use of an asset (i.e., replacing two worn out wooden dolphins of a vessel slip at a terminal with two steel dolphins so long as the upgraded steel dolphins do not significantly change the throughput capacity of the terminal).
- Generally has little effect on future operating programs and budgets, except for reductions in maintenance costs and the deferred preservation backlog.

Appropriations made for preservation projects must be spent only on preservation and only when warranted by the condition of the asset – [RCW 47.60.335\(2\)](#). See [RCW 47.60.005\(8\)](#) qualified by [RCW 47.60.005\(5\)](#), [RCW 47.60.335\(2\)](#) and (3), [RCW 47.60.345\(1\)\(a\)](#) through (d) and (2) and [RCW 47.60.355\(1\)](#) for a more detailed definition of what constitutes the preservation of ferries.

Terminal Preservation project budget requests are based on the [*Life Cycle Cost Model*](#) (LCCM) as mandated by [RCW 47.60.345](#). The full text is as follows:

1. *The department shall maintain a life-cycle cost model on capital assets such that:*
 - a) *Available industry standards are used for estimating the life of an asset, and department-adopted standard life cycles derived from the experience of similar public and private entities are used when industry standards are not available;*
 - b) *Standard estimated life is adjusted for asset condition when inspections are made;*
 - c) *It does not include utilities or other systems that are not replaced on a standard life cycle; and*
 - d) *It does not include assets not yet built.*
2. *All assets in the life-cycle cost model must be inspected and updated in the life-cycle cost model for asset condition at least every three years.*
3. *The life-cycle cost model shall be used when estimating future terminal and vessel preservation needs.*
4. *The life-cycle cost model shall be the basis for developing the budget request for terminal and vessel preservation funding.*

(2) Life Cycle Cost Model

As reiterated in Sections 200.03 and 200.04(1), the [*Life Cycle Cost Model*](#) (LCCM) is used as the basis for capital terminal preservation funding requests. Therefore, if an asset is excluded from the LCCM, does not exist or is not due for replacement, the project must be classified as an improvement project as described in [Section 200.05](#).

The year due for replacement is the year which falls in the biennium for which construction will begin. For example, if the year due for replacement is 2015, then construction will begin in the 2013-2015 biennium. However, for those situations where design and possibly construction work will require a longer duration than a biennium, the project may begin in a previous biennium. The year due for each existing terminal asset is calculated via inspection and condition rating results and is provided in the LCCM. For larger preservation projects, particularly trestles, preliminary

engineering may begin several biennia prior to the actual due date if warranted by design, environmental review, and permitting requirements. In addition, in some circumstances, some assets may be replaced prior to the year due if the asset is an integral part or connected to another asset. A business case analysis will be performed to determine appropriate year to replace systems when year due dates do not line up. For example, if the condition of an existing timber trestle warrants replacement, then the pavement on the structure will also be replaced as it would be impossible for it to remain undisturbed or be moved during construction activities.

(3) Asset Management

An alternative Asset Management system based on economic life considerations and optimum replacement year of assets is under development at the direction of the Legislature. Asset management is intended to augment the current life-cycle approach to preservation funding requests by incorporating risk into the formula to determine the year due. Once completed, at the discretion of the legislature and governor, the Asset Management system will be utilized as the basis for capital preservation funding requests.

(4) Vital and Non-Vital Assets

The terminal LCCM divides assets into two categories:

- *Vital* (Category 1): Includes main and auxiliary slips and security items. These are considered the most essential items for preservation funding.
- *Non-Vital or Other* (Category 2): Includes tie-up slips and upland assets such as parking lots and terminal buildings.

Whether or not an asset is considered vital or non-vital, when the year due for replacement approaches, a scoping project will be identified and a scoping file completed for the replacement of the asset. If the Asset Management System described above is approved for use, the vital and non-vital distinction will become less relevant by incorporating the risk of failure into the model.

(5) Security Preservation Projects

Security preservation (and improvement) projects differ from other scoping projects due to the sensitive nature of the assets involved. Any information contained within a security scoping file is considered confidential and may not be released without the consent of the Company Security Officer of WSF Security. This requirement applies to stand-alone security projects, and projects which contain a security component.

See [Chapter 205](#) for scoping requirements for security projects that will be designed external to the Terminal Engineering department.

(6) Stormwater Retrofits

Water quality in the Puget Sound is a priority. As a result, the retrofitting of storm water systems may be included in appropriate preservation (or improvement) projects where construction of the detention, treatment or low impact development facility could occur in the same contract. Specifically, if feasible, scoped paving and trestle projects will have a storm water retrofit component.

(7) Design Matrix Requirements

Although the main purpose of a preservation project may be based on the requirements of the LCCM, the design matrices requirements described in Chapter 210, unless a Design Deviation is granted, must also be followed. For instance, a parking lot pavement may be due for replacement, and in the process, the adjacent pedestrian facilities must be retrofitted using Americans with Disabilities Act (ADA) design requirements.

200.04 Improvement Projects

(1) Legal Definitions

Improvement projects are defined in [RCW 47.60.005](#) as having the same meaning as used in budget instructions developed by the Office of Financial Management (OFM). According to the OFM Transportation Budget Instructions 2009-11, Issued May 2008, improvement projects are defined as follows:

Improvement projects primarily achieve a program goal, such as changing or improving the characteristics of an existing asset to meet new program requirements, or creating a new asset through construction, lease, and/or purchase. This category is less concerned with life extension of an asset, and includes projects ranging from building new assets to significant renovation of existing assets. Improvement projects may also improve conditions, accommodate changes in service or clientele, or increase or maintain federal reimbursement. Improvement projects must be tied to the statewide results areas and strategies, as well as organizational and program goals, objectives strategies, and activities:

- Certain types of capital spending may not be categorized as preservation, and therefore are categorized as improvements. This includes projects for utilities or other systems that are not replaced on a standard life cycle; assets not yet built, especially new vessel acquisitions; and master plans, right-of-way acquisitions, other non-preservation items – [RCW 47.60.005\(5\)](#) and [RCW 47.60.345\(1\)\(c\)](#) and (d).
- Additionally, each improvement project includes an allocation of system-wide and administrative capital program costs that are separately identifiable from direct project costs – [RCW 47.60.335\(3\)](#).
- Finally, if a project meets both the improvement and preservation definitions, it is classified as an improvement project – [RCW 47.60.005\(5\)](#).

(2) Call for Projects Procedure

During the months of October and November of odd numbered years prior to the Scoping Kickoff Meeting, a *Call for Projects* will be issued by the Terminal Engineering Capital Scoping Lead asking that potential terminal improvement projects be identified and submitted by WSF stakeholders, such as the Operations, Security, Information Technology and other departments. Several main categories of improvement projects will be considered:

- Americans with Disabilities Act (ADA)
 - Retrofits
 - Improvements

- Terminal Facility Improvements
 - Public
 - Employee
 - Building
- Operational Enhancements
 - Mobility Improvements;
 - Improvements to the Eagle Harbor Maintenance Facility
 - Improved dwell time, and throughput/processing
- Regulatory or Code Requirement Projects
 - Upgrading structures to current seismic codes
 - Conforming to US Coast Guard requirements
 - Other regulatory or code requirements
- Safety Improvements
 - Vessel
 - Vehicular
 - Pedestrian or Bicycle
 - Terminal or Vessel Personnel
- Maintenance expenditure reduction initiatives
 - Interim preservation
 - Replacements of Systems and Utilities not included in the Life Cycle Cost Model
 - Scour reduction
- Environmental Enhancements
 - Excluding storm water retrofits unless included in other projects
 - Creosote removal
 - Eel grass replenishment
 - Energy Savings
 - Other environmental improvements or initiatives
- Security Improvements
 - Conforming to U.S. Department of Homeland Security (DHS) requirements;
 - State and local security requirements
 - Other security improvements
- Improvement project included as part of the *Long Range Plan* (LRP)
- External commitments and agreements

In response to the *Call for Projects*, the proposal for a scoping project shall, at a minimum include draft purpose, need and benefit statements, as described in [Section 200.05](#). If the project is anticipated to be funded by an external grant, this information **must** be included. In addition, for those projects that are justified by regulatory or code requirements, the actual regulation or code must be included (a notice from a regulatory agency informing WSF of a pending regulation will suffice), or the submittal will be returned. Improvement projects with a regulatory requirement basis will be prioritized over those improvements with a business case basis.

(3) Scoping Project Kickoff Meeting

After the *Call for Projects*, the respondents and other stakeholders will be invited to the *Scoping Kickoff Meeting*. The purpose of this meeting is to discuss and vet proposed scoping projects. Those projects which are determined to be sufficiently justified and therefore warrant further investigation will be assigned a scoping Project Manager and a scoping budget allocated.

(4) Justification

Before a proposed improvement project may be scoped (as well as some preservation projects) it must be justified on a monetary, regulatory/Homeland Security, safety, seismic and/or operational/business case basis. Depending on the type of project the following supporting documentation, which may, at least partially, be contained in the Need and Benefits Statements as described in [Section 200.06\(1\)](#) is required:

(a) Americans with Disabilities Act (ADA) Projects

- Describe the ADA deficiency and how it was determined to be in non-compliance, including complaints received from staff or the public.
- Reference the standards that will be used to correct the deficiency.

(b) Terminal Facility Improvements

- Describe how the proposed project will benefit the public, such as increasing the capacity of a restroom.
- Describe how the proposed project will benefit the terminal employee, such as decreasing time lost due to ergonomic issues or response times.
- Describe why improvements to a building or other structure are necessary and the benefits.
- Include any potential cost savings.

(c) Operational Enhancements

- Describe how on-loading, off-loading or vessel crossing times, such as better aligning a slip, will be improved.
- Describe how improvements to the Eagle Harbor Maintenance Facility will result in more efficient or effective maintenance operations.
- Describe how a traffic signal may improve the dwell time related to off-loading a vessel.

Describe how overhead loading will improve dwell time by separating the pedestrian/vehicles movements from all occurring on the vehicle transfer span;

- Include any potential cost or operational time savings

Examples of Operational Enhancements include, but are not limited, to the following:

- Variable Messages signs located on the tollbooths and throughout the facility
- Operational/web cameras
- Signalization to improve off-loading/loading efficiencies
- OHL to improve off-loading/loading efficiencies, improve ADA accessibility, eliminate vehicle/pedestrians conflicts

- Two dedicated lanes of access to toll plazas
- Canopies above vehicle toll plazas
- Automated lane assignment technology within terminal holding area which automatically direct traffic to assigned lanes
- Load management system with pre-assigned vehicles to be loaded at specific locations on the ferry
- Separate controlled transit access to holding area/terminal building
- Digital GPS clocks which synchronize time keeping devices at the terminals and vessels
- Vehicle Queue Detection

(d) Regulatory or Code Requirement Projects

- Provide a specific regulatory or code reference;
- Provide specific communications with regulatory agencies on proposed or upcoming changes to requirements

(e) Safety Improvements

- Discuss specific safety issues, such as (but not limited to) the following:
 - Vehicle/pedestrian conflicts
 - Obstacles in the Pedestrian assessable route
 - Vehicular conflict points
 - Collision locations;
- Describe how the project will improve safety;
- Include and summarize accident data or other supporting documentation;
- Include any potential cost savings

(f) Seismic Retrofits

- Describe deficiency and potential consequences such as catastrophic failure;
- Cite applicable seismic code(s)

(g) Maintenance expenditure reduction initiatives

- Describe recurrent maintenance issues;
- Include any potential cost savings

(h) Environmental Enhancements

- Describe the environmental deficiencies to be improved;
- Describe how the proposed project will improve the environment;
- Cite any applicable environmental regulations or laws;
- Describe short and long term benefits, including cost savings

(i) Security Improvements

- Cite U.S. Department of Homeland Security (DHS) or other agency requirements;
- Include any potential or actual grant information available

(j) Improvement project included as part of the Long Range Plan (LRP)

- Cite the fact that the project is included in the Long Range Plan;
- Cite the justification within the LRP for its inclusion

(k) External commitments and agreements

- Cite the agreement and its reasons for being implemented

(l) Dolphin Projects

- Develop dolphin configuration Justify alterations from current configuration, such as replacing a floating dolphin with 2 fixed dolphins
- Document Operation's concurrence

(m) Construction projects to be completed by entirely by Eagle Harbor or other state forces

- Must be within legal monetary limits per [RCW 47.28.030](#)
- Develop 2 estimates for comparison:
 - Work by contractor
 - Work by Eagle Harbor or other state forces
- If work by Eagle Harbor or other state forces is determined to be less expensive, complete Public Interest Finding – Agency Force (WSDOT [Form 140-050](#)) and obtain approval signatures.

Any expectations to the above requirements must be discussed with and found agreeable by the Terminal Engineering Director.

(5) Design Matrices for Improvement Projects

Although the main purpose of a preservation project may be based on the requirements of the LCCM, the design matrices requirements described in [Chapter 210](#) must also be followed unless a Design Deviation is granted. See [Chapter 210](#) regarding the Design Matrix requirements for certain improvement projects. If an improvement project does not fall into a specific improvement project type, contact HQ Design for guidance in developing a project specific design matrix.

200.05 Scoping Procedures

(1) Project Summary Forms

Whether a project is classified as a preservation or improvement, with the exception of Limited Public Works project (under \$35,000 in estimated direct construction costs), the deliverables for all scoped capital projects include the Project Summary Forms. The scoping Project Manager is responsible for completing this form with input from designers as needed. The following is a guide concerning conventions for properly completing the elements of these forms.

(a) Project Definition Form**1. Project Description Statement**

The Project Description Statement is the opening statement in the Project Summary Form. It describes what the project will accomplish and how it will be accomplished. It does not include opinions. Generally, preservation projects are simpler to describe:

This project will preserve the Anacortes Terminal holding lanes, custom compound holding lanes, terminal building employee parking, exit lanes, replace traffic loops that will be destroyed by excavation activities, and other pavement facilities by reconstructing the pavement section to full depth. A 1200' ADA compliant pervious cement concrete sidewalk between the toll booths and bottom of the holding lanes, which replace an ADA deficient HMA walkway, will also be constructed.

In the above example, those assets which will be preserved are identified with other incidental or design matrix required work described. Improvement projects are often more difficult to describe as there may be more than one option available than may be determined at a 5-15 percent design level:

This project will either construct one fixed outer deepwater steel dolphin or a single donut fender, subject to an impact energy analysis, to provide protection to both WSF vessels and Marina structures near the Bremerton Ferry Terminal. The base cost assumes the more expensive outer deepwater dolphin will be constructed.

As the above example shows, when a project outcome includes more than one option, it is advisable to note which option is being requested in the budget.

2. Project Need Statement

The Project Need Statement justifies why the project is needed. Preservation projects, which are based on the *Life Cycle Cost Model*, are almost always supported by inspections and/or report recommendations:

The current pavement condition, based on the 2007 Inspection and Resurfacing Report, is poor and beginning to fail. Some ADA facilities, which are required to be upgraded when work is performed on adjacent pavements, are currently below standards.

The Project Need Statement for improvement projects must present the motivation for the work to be performed:

The new Bremerton marina breakwater creates a potential hazard for WSF vessels landing in Slip 2 under adverse wind and tide conditions. In February 2008 a telegraph operated vessel hit the breakwater causing damage to both the breakwater and the vessel. The lack of protection for WSF vessels and the marina leave both the vessel and the marina vulnerable in a typical vessel landing.

Note both Need Statements compliment the Project Descriptions presented in the preceding section.

3. Project Benefit Statement

The Project Benefit Statement describes the benefits expected by completing the project, including monetary savings anticipated for either the capital or operating budget. The benefits from preservation projects usually involve preserving the asset or the function of the asset:

The project will preserve the upland holding, traffic lanes and other pavement facilities, therefore extending the life of the assets, and improve ADA accessibility.

The benefits of improvement projects vary from project to project. The following example relates improvements to both safety and ferry operations:

The placement of either a single fixed dolphin or donut fender system will protect both the vessels and the marina during Slip 2 vessel landings especially in adverse weather conditions. The added protection will also remove the restriction placed on telegraph controlled vessels operating out of Slip 2 which will increase terminal reliability.

Note both Benefit Statements compliment the Project Description and Need Statements presented in the preceding sections.

(b) Project Impacts Form

Almost all terminal engineering projects impact ferry operation, the traveling public, local communities, other government agencies or possibly tribal entities. Many impacts will affect multiple stakeholders. For successful project completion, it is essential in scoping to identify these impacts, including costs and durations, and mitigation strategies. The Project Impact and Mitigation Strategy Statements, as well as impact cost and duration, will relate to the issues that will arise during the life of a project, and better enable these be mitigated accordingly.

1. **Operational Impacts** – Many projects will impact normal terminal and/or vessel operations. Temporary lane, building or slip closures are issues that will require close coordination with operations staff. In addition, additional terminal staff may be necessary to complete a terminal project, such as construction flagging support, and the project is responsible for providing the funds to do so. Besides providing additional staff, other mitigation measures may also involve scheduling work to occur during off-peak times of day, week or year. If by doing so, it must be noted if a local agency noise variance request will need to be sought. Operations staff, assigned to support Terminal Engineering projects, must be consulted during the scoping phase regarding both impacts and mitigation strategies. The scoping estimate shall include costs associated with operational costs.
2. **Impacts to the Travelling Public** – Some projects will impact the travelling public by creating delays. During scoping, the durations and costs must be identified. For example, if a toll booth is closed; more time may be required to process vehicles into the holding lanes, therefore delaying departure times. As a result, it may be necessary to notify the public in advance through public involvement or outreach efforts. The project is responsible for paying for these efforts, and funding needs to be identified in advance. The scoping Project Manager is responsible for contacting the WSDOT Transportation Planning Office for input regarding any project that is anticipated to significantly impact traffic around the terminal.

3. **Impacts to Local Communities, Agencies and Tribes** – Certain projects may impact more than just ferry operations or patrons. Lane or toll booth closures may create traffic impacts in ferry served communities. Local agencies may have utility, noise or other issues that must be addressed or require agreements. Tribal entities may have archeological interests or treaty rights that must be respected. These impacts are to be noted, along with durations and costs in the scoping documents. In identifying these impacts operations support staff, tribal liaisons, archeologists and other interested parties must be consulted during the scoping phase to reduce the risk of major obstacles being discovered later on.

(c) Project Considerations Form

1. **Preliminary Environmental Review** – Although permitting and associated considerations will be identified by Environmental staff in the *Environmental Review Summary*, the scoping project engineer is still responsible for relating other issues that may not be directly related to regulatory requirements. For example, for in-water work, the fish window will limit construction work to certain times of the year, or an eel grass bed may be present in the project vicinity. Coordination and the need for environmental involvement during design or construction phases, as needed, should also be addressed. These considerations are to be addressed in the scoping documents as an aide to planning purposes.
2. **Potential Tribal or Archeological Impacts** – Tribal interests are not just limited to impacts. Tribal treaty rights must be recognized and noted in the scoping documents. For example, increasing over-the-water coverage, due to the potentially negative impact on subsistence fishing may require tribal consultation and agreement. The scoping project manager must consult the Terminal Engineering Tribal Liaison for assistance in identifying these matters.
For archeological impacts, note whether soil disturbance, including upland excavation or geotechnical work, will occur during design and/or construction of the project.
3. **Potential Railroad Impacts** – Two WSF terminals are located adjacent to Burlington Northern owned passenger and freight rail lines. The Edmonds Ferry terminal is bisected by rail tracks and the Mukilteo Ferry Terminal is located near the same rail line to the north. Any work that impacts or requires rail road approval or agreements, including Burlington Northern provided flagging, at these two terminals must be noted in the scoping documents. Elsewhere this field will state “non-applicable”.
4. **Potential Utility Impacts** – WSF terminal facilities have numerous utilities located both upland and on the trestles. Most utilities within the ferry terminal properties are owned by WSF. For projects outside the terminal facility, utilities are owned by both private and public entities. These utilities and any known issues must be noted in the scoping documents. In particular, it is important to investigate the possibility that utilities will conflict with the proposed work. A field visits and review of as-builts are therefore recommended, and the photos, notes and plans generated must be included in the scoping file.

For marine projects, these underwater utilities are known or suspected to exist at the following terminals:

- Bremerton
 - Submarine Power Cable
- Edmonds
 - Drainage Easement (maintained by the city)
- Fauntleroy
 - Sanitary Sewer Line
- Friday Harbor
 - Sanitary Sewer Line
- Kingston
 - Wastewater Outfall
- Orcas
 - Submarine Power Cable
- Seattle
 - Sanitary Sewer Line

Note the above utilities in the scoping document and state that further investigation is required by the project team.

5. **Potential Maintenance Impacts** – Most, if not all, capital construction products will require periodic maintenance. The Terminal Engineering Maintenance Program Director and Facility Engineers must be consulted during the scoping phase to verify whether the proposed feature, as scoped, is acceptable from a maintenance point of view. Any input must be noted in the scoping files. In addition, if known, as justification for preservation and improvement projects, expected maintenance expenditure reductions will be noted and backup provided.
6. **Predesign Decisions** – Note any design decisions that have been determined during scoping. If a pre-design study is required then note so here.
7. **Potential Regulatory Impacts** – Note any potential regulatory impacts that have been identified during scoping, if any, including local building codes.
8. **Potential Engineering Services Impacts** – Note any impacts, such as the necessity for multiple or project dedicated subject matter experts, including use of Region or headquarters staff.
9. **Workforce Requirements** – List specialized workforce requirements, including archeologists, biologists, structural, electrical or mechanical engineers, architects etc.
10. **Public Involvement** – Summarize public involvement to date, and anticipated during the design and/or construction of the project, including the use of standard notification procedures and community outreach in the event of a full or partial terminal closure.
11. **Commitments** – Summarize commitments made to the project by others and/or commitments made to others, such as WSF operations or a local agency, by the project.

(d) Design Decisions Summary Form

1. **Terminal Elements** – The Terminal Elements section lists a number of typical components found in terminal projects.
2. **Design Matrix Selection** – The design matrix selected by the scoping team, its publication date, and the justification of its use (if needed), will be documented on the Design Decisions form. If the project does not fit into any of the design matrix rows in Chapter 210, a project specific matrix may need to be developed. Consult with Assistant State Design Engineer assigned to WSF.
3. **Additional Project Information** – Any additional information, such as water or pile depths, may be recorded in this section of the Design Decisions form.
4. **Safety Deficiencies and Mitigation Strategy** – Safety Deficiencies are documented in this section. Include any accident or incident histories. The mitigation strategy, such as using a safer system or installing safety redundancy measures, will detail and justify the proposed fix or solution to the deficiency. Seismic deficiencies are also being noted in this section.
5. **Operational Deficiencies and Mitigation Strategy** – Operational Deficiencies are documented in this section. The mitigation strategy, with an emphasis on the quantitative, should detail and justify the proposed fix or solution to the deficiency.
6. **Environmental Deficiencies and Mitigation Strategy** – Environmental Deficiencies are documented in this section. The mitigation strategy, based on a business case analysis with an emphasis on the regulatory requirements, will detail and justify the proposed fix or solution to the deficiency. It must not contradict the Environmental Review Summary (ERS) described below.
7. **Additional Deficiencies and Mitigation Strategy** – Additional Deficiencies are documented in this section. The mitigation strategy will detail and justify the proposed fix or solution to the deficiency. Unless addressed elsewhere, known and potential ADA issues, including temporary impacts during construction, should be discussed in this section.

(e) Environmental Review Summary

Once the WSF Scoping Project Manager has completed the scoping deliverables, including the Project Summary Forms, scoping level project estimate, 5-15 percent preliminary design and supporting documentation, the package is delivered to the Capital Scoping Lead, which will then directly give the packet to the Terminal Engineering Environmental Group for review. The Environmental Review Summary (ERS), which includes identifying permit requirements, will be completed at that time.

(2) Scoping Estimate**(a) Estimate Summary and Components**

A scoping level estimate is required for each project scoped as defined and described in the *Cost Estimating Manual for WSDOT Projects* M 3034 publication. For WSF Terminal projects, a special *Terminal Engineering Estimating Spreadsheet*, available from the Terminal Engineering Chief Estimator, will be used. A *Basis of Estimate Form*, which documents and justifies estimate costs and assumptions is also required.

The following describes typical components of a scoping level cost estimate.

(b) Estimate Summary

The estimate summary is placed as the first page of the estimate. It includes the base construction estimate, and the miscellaneous item allowance. Soft costs are also tabulated. Additional design and construction expenditures, such as public involvement and operations costs, and right of way funds needed are also shown. The cost box on the Project Definition form described above must match these results.

1. **Section Report** – This report lists all the Standard Item Table section subtotals for the project estimate. WSDOT *Standard Items* are to be used whenever possible.
2. **Component Estimate Summary** – The Component Estimate Summary lists subtotals and prorates costs for major estimate components such as structures, buildings, or other assets. Each major structure cost, including retaining walls and berthing structures, should be captured in a single column.
3. **Section Tabs** – This worksheet lists bid items for the project. WSDOT *Standard Items* and non-standard items may be utilized. The units of measurement, cost per unit, quantities, source of unit pricing and justifications are displayed for each bid item. State whether quantities were determined from CADD files, scaling, field measurements or some other means on these tabs.
4. **Lump Sum Breakdowns** – Most Lump Sum bid items must be broken down to determine a basis of cost. Source or justification for pricing must also be included. For larger calculations, the lump sum may be displayed on a separate sheet. State whether quantities were determined from CADD files, scaling, field measurements or some other means on these tabs.
5. **Additional Estimate Components** – All projects are unique, therefore there may be additional estimate components needed to provide an accurate picture of how quantities were calculated or assumptions made to determine a project estimate. This additional information must be included as well.

(c) Basis of Estimate

A *Basis of Estimate Form*, which documents and justifies estimate costs and assumptions, is required for all scoping projects. The primary estimating methodologies, design assumptions, cost basis, allowance, assumptions made, exclusions, exceptions, risks, quality assurance measures, reconciliation and the estimating teams are all recorded. Several attachments, such as reference and deliverables, may also be included.

A Terminal Engineering specific *Basis of Estimate Form* has been created and is available on request from the lead scoping engineer.

(d) Soft Costs

Soft costs are items added to an estimate to cover intangible costs other than the actual construction work done or property acquired on a project. For WSDOT estimates, soft costs include miscellaneous item allowances (60 percent or lower design level only), Preliminary Engineering costs, Construction Engineering costs, Construction Change Order Contingency and other costs not associated with the actual construction work identified to be completed or property to be acquired. Many of these soft costs are the product of markups determined by the size of the project and the type of work to be completed.

1. **Miscellaneous Item Allowance** – The Miscellaneous Item Allowance is a markup added to the estimated construction cost to account for those items of work that have either not yet been identified or were too minor to consider for the level of estimate in question. The *Cost Estimating Manual for WSDOT Projects* includes guidance dependent upon the level of estimate for the markup to be applied to the base construction cost. Typically a planning level estimate would have a Miscellaneous Item Allowance between 30 percent and 50 percent, whereas a scoping level estimate, which is better defined, would be marked up between 20 percent and 30 percent. At WSF, the standard procedure is to use the lower range (or below) unless a higher percentage can be justified by either calculating it directly per the method described in the Terminal Engineering estimating template spreadsheet, citing project complexity, higher than usual environmental or tribal mitigation costs, experimental features, missing data that cannot be obtained at the scoping level, or some other factor that is anticipated to lead to higher costs.

An alternate method assigns allowances and uncertainty percentages per each individual bid item in the estimate. This allows the allowance to be justified and defensible. See the Capital Scoping Lead for assistance with this method.

2. **Preliminary Engineering and Construction Engineering** – Currently, the W Capital Program has not published guidance concerning the soft cost markups for Preliminary Engineering and Construction Engineering. Therefore, standard WSF Terminal Engineering practice is to compare the scoped project to similar highway I or P projects in the *Cost Estimating Manual for WSDOT Projects* and the *EASE User's Guide*, respectively. For projects that are a mix of work types, such as one including trestle preservation and storm water retrofit work, a weighted average, as shown in the WSDOT *EASE User's Guide* is used. The following is a rough guide to analogous projects:

Type of Work	Analogous Subprogram	Analogous Category	Notes
Building Work	P3 Other Facilities	PD Rest Area	For Building Projects above \$1M use 15% for Preliminary Engineering
Electrical or Mechanical Work	P3 Other Facilities	PH Major Drain Electrical	For Electrical or Mechanical Projects above \$5M use 15% for Preliminary Engineering
Paving Work	P1 Roadway Preservation	Paving Safety Restoration	<u>Includes chip seal and pavement repair projects</u>
Seismic Retrofit	P2 Structures Preservation	PC Catastrophic Reduction	<u>For Subprogram W1, seismic retrofits are considered improvements</u>
Storm Water Retrofit*	I4 Environmental Retrofit	IK Storm Water Runoff	For Storm Water Retrofit Projects above \$2M use 15% for Preliminary Engineering
Storm Water System Preservation*	P3 Other Facilities	PH Major Drain Electrical	For Storm Water System Preservation Projects above \$5M use 15% for Preliminary Engineering
Structures Improvement	I1 Mobility or I2 Safety	IA Urban, IA Rural or IE Collision Prevention	Dependant on need to be addressed.
Structures Preservation	P2 Structures Preservation	PB Structures Preservation	
Upland Projects Outside WSF Facility			Treat as highway project

*Not a Stand-alone Alone WSF Project Type

Equivalent Projects for Determination of Preliminary and Construction Engineering Soft Cost Markups

Exhibit 200-1

For projects below \$100,000 in construction costs, a bottom-up preliminary engineering phase estimate is required, including a design contingency that matches the miscellaneous item allowance percentage. The scoping engineer is directed to consult with Capital Scoping Lead in those situations where a project does not fit any of the above criteria or is an upland project outside the WSF facility. The use of a percentage higher than listed in the tables shall only be allowed with the concurrence of the Director of Terminal Engineering.

3. **Change Order Contingency** – The Construction Change Order Contingency is always 4 percent per the WSDOT *Plans Preparation Manual*.
4. **Right of Way Acquisition** – Often, at the scoping level, a designer will consult an online county assessor's database to determine the cost to purchase a parcel of property. However, WSDOT Right-Of-Way staff will still need to investigate the property, negotiate with the property owner, demolish existing structures and perform other work to acquire the parcel. A typical markup of 15-20 percent should be used above the cost of the property.

(e) Additional Project Expenses

1. **Preliminary Engineering Phase** – Additional Design Expenses, which are above and beyond typical design engineering expenses, involve additional funding to the Preliminary Engineering phase to pay for operations support, permit fees, environmental studies beyond the scope of a typical project, and public relations

costs, which are described below. Monies for tribal and other agreements may also be included in this phase or the Construction Phase. These need to be justified, calculated and noted on the Estimate Summary Form.

2. **Construction Phase** – The construction phase may include additional “below-the-line” items that are typically not included in the cost to administer a construction project. These may or may not be fully identified at the scoping level, but an effort must be made to determine these costs as far as possible. These should be noted on the Project Estimate Summary with supporting calculations as necessary. Some examples, not meant to be exhaustive, are given as follows.

- a. **Public Art Requirement** – Per [RCW 43.17.200](#) Building Improvement projects must include a minimum of one-half of one percent formula, to be applied to architecture and engineering fees, total building cost and equipment costs to pay for public art. New buildings and building additions, per [RCW 43.17.200](#), are subject to this requirement. See [WAC 30-40-050](#) and [Appendix V](#) for additional information.
- b. **WSF Operations Construction Support** – WSF Operations will often provide flagging, per standing labor agreements, and other support services. These must be identified with input from operations. Typically these required funds are calculated and justified based on the Full Time Equivalent (FTE’s) required. Consult Program Management Staff to determine the monthly cost of 1 FTE to be used for this estimated cost.

Construction support may also involve providing Passenger Only (PO) service or re-routing the vessels to another terminal. Terminal Operations support staff must be contacted to provide a cost estimate based on time, equipment and fuel costs.

In the estimate, WSF Operations Construction Support is accounted for as 800-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- c. **Utility Payments** – For projects outside the WSF facility, such as a traffic signal or luminaire installation, the organization responsible for administrating the project may be required to pay the utility bill until the responsibility for maintaining the new construction is turned back to the region. Contact region utilities staff to determine this amount.

In the estimate, utility payments are accounted for as 700-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- d. **Work by WSF Eagle Harbor Maintenance or other WSDOT Forces** – Some work on a project may be performed with less expense by WSF Eagle Harbor Maintenance or WSDOT Highway Maintenance forces. The threshold for work by state forces is currently set at \$60,000 or less. In the past, as set by legislation (see [RCW 47.28.030](#)), this limit has been higher. Contact Program Management Staff to verify the threshold. The cost is calculated by determining time, equipment and materials costs with representatives from the organization that will perform the work. Public Interest Finding - Agency Force (DOT Form [140-050](#)) must be completed and signed by the applicable approving authority.

Dividing the construction of any project by state forces into units of work or classes of work to give the appearance of compliance with the monetary limits above is prohibited per [RCW 47.28.035](#).

In the estimate, work by WSF Eagle Harbor Maintenance or other WSDOT forces are accounted for as 800-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- e. **Work by State Forces from other Agencies** – Project support may be provided by other agencies, such as the Washington State Patrol or local law enforcement. The cost is calculated by determining costs with representatives from the organization that will perform the work.

In the estimate, work by state forces from other agencies are accounted for as 700-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- f. **Equipment and furnishings supplied by WSF** – Equipment and furnishings, particularly for building and security projects, may be provided by WSF. These costs will be validated by including the costs of the equipment, furnishings, and labor to install.

In the estimate, equipment and furnishings supplied by WSF are accounted for as 800-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- g. **State supplied materials** – Rather than supplied by a contractor, some materials used on projects, such as steel pile pipe and hydraulic equipment, may be used on a contract. For scoping projects, future availability must be verified as state supplied material is less expensive than from other sources.

If no labor by state forces, including Eagle Harbor, is involved, then no monetary limit exists; otherwise the limit is as discussed in above in (d.) *Work by WSF Eagle Harbor Maintenance or other WSDOT Forces*.

In the estimate, state supplied materials are accounted for as 800-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- h. **Agreement Funds** – Many different types of agreements may be made with utility companies, local agencies, property owners, tribes and others that will involve the transfer of funds for mitigation purposes, services, utility work, local street improvements and other matters. For scoping, these must be identified as far as possible and supporting documentation provided.

In the estimate, agreement funds are accounted for as 700-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- i. **Consultant Services** – For projects designed by consultant forces, who may be called upon during the construction contract to provide advice or other services, or projects involving special inspectors, such as required by some local agencies for building projects, additional “below-the-line” items must be added for each agency or firm involved.

In the estimate, funds for consultant services are accounted for as 700-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

- j. **Permit Requirements—Environmental Monitoring** – Some projects, particularly marine projects involving pile driving, require regulatory environmental monitoring for endangered species and marine mammals. For scoping efforts, this amount may be based on expenditures from previous projects. In addition, bid items to compensate the contractor for the resultant shutdown times incurred must be added to the construction estimate.

In the estimate, funds for environmental monitoring, if the work is to be performed by WSDOT forces, are accounted for as 800-level “non-bid items”. Otherwise, the funds are accounted for as 700-level “non-bid items”. See the [EBASE User’s Guide](#) for more information.

(3) Supporting Documentation and Approvals

(a) Scoping documentation

A preliminary checklist for scoping projects will be provided by Capital Scoping Lead prior to project scoping. Scoping documentation, beyond the Project Summary Forms, Environmental Review Summary and Project Scoping Cost Estimate discussed above, are listed below. This includes, but is not limited, the following:

- Risk Analysis, per WSDOT Secretary’s Executive Order [E 1053](#), is required for all projects. If no risks are identified, document in the Basis of Estimate.
- Vicinity Map or Ariel Photo is recommended for projects where elements are easily identified at the scale of the drawing or photo.
- Conceptual Plans, by discipline, at the 5-15 percent design level for applicable projects and as-builts. These can be markups or CAD drawings as needed.
- Specialist recommendations, such as surfacing reports, geotechnical reports, traffic study results or others as applicable.
- Field visit notes and photos as applicable
- *Life Cycle Cost Model* details and condition ratings for preservation projects
- Meeting notes and minutes
- Prior scoping results noted if applicable
- Email or other correspondences.
- Review and concurrence forms
- Project Schedule information
- Structural or other calculations
- ADA needs
- Stormwater needs
- Other documentation, such as bridge inspection reports, as needed

(b) Approvals and Concurrences

Scoping projects must be reviewed and concurrence received, as applicable, from or delegated by the following as noted:

- Director of Terminal Engineering (all projects—via signatures on project scoping forms)
- Design Engineering Manager (all projects—via signature on Design Decisions form)
- Assistant State Design Engineer assigned to WSF (all projects—via signature on Design Decisions form)
- Environmental Engineering Manager (all projects—via signature on Environmental Review Summary)
- Architectural/ Facilities (as applicable)
- Electrical Group Manager (as applicable)
- Mechanical Group Manager (as applicable)
- Structures Group Manager (as applicable)
- Terminal Maintenance Manager (as applicable)
- Tribal Liaison (All in-water projects and projects that increase over-the-water coverage)
- Operations (all projects)—via signature on Operational Impacts form.
- Security (as applicable)
- Cultural Resources Specialist (all projects)
- Other concurrences as needed

(4) Scoping Level of Design

Typically the level of design for most scoping projects is at the 5-15 percent design level. Major quantities and items of work are identified at this level. In some situations, where a project was shelved and then re-scoped, a higher level of design may be used.

(5) Quality Assurance Procedure

Upon completion of a scoping effort, a scoping packet with the scoping forms, estimate and other deliverables will be submitted to the Capital Scoping Lead for review. The time for review will vary depending upon project complexity and size. The comments generated by this review will then be returned to the project manager for response and to address any changes needed.

(6) Project Risk

As mentioned above, per WSDOT Secretary's Executive Order E 1053, a risk analysis is required for all projects. For scoping projects, with a total project cost below \$10M, the risk analysis is qualitative. For scoping projects, with a total project cost above \$10M, a quantitative risk analysis is conducted using a [Self-Modeling Risk Spreadsheet](#) provided by the department. The results of the Self-Modeling Risk Spreadsheet will be used to establish the project's risk reserve. Regardless of phase for the risk occurrence, the risk reserve will be established in the construction phase for budgetary purposes.

(7) **Project Delivery Method Selection Guidance**

For all Projects, scoping teams must follow the [Project Delivery Method Selection Guidance](#), to determine the optimal delivery method for the project. These project delivery methods include Design-Bid-Build, Design-Build, and General Contractor/Construction Manager. Management concurrence is required.

200.06 Predesign Studies

(1) Legal Requirements

(a) Preservation Projects

Per [RCW 47.60.355](#), vessel and terminal preservation project's funding requests shall only be for assets in the [Life Cycle Cost Model](#) (LCCM). Terminal and vessel preservation funding requests that exceed five million dollars per project must be accompanied by a predesign study as required by the Office of Financial Management (OFM).

(2) Improvement Projects

Per [RCW 47.60.385](#), Terminal improvement project funding requests must adhere to the capital plan, include route-based planning, and be submitted with a predesign study that:

1. Includes all elements required by the office of financial management;
2. Separately identifies basic terminal elements essential for operation and their costs;
3. Separately identifies additional elements to provide ancillary revenue and customer comfort and their costs;
4. Includes construction phasing options that are consistent with forecasted ridership increases;
5. Separately identifies additional elements requested by local governments and the cost and proposed funding source of those elements;
6. Separately identifies multimodal elements and the cost and proposed funding source of those elements;
7. Identifies all contingency amounts;
8. Identifies any terminal, vessel, or other capital modifications that would be required as a result of the proposed capital project;
9. Includes planned service modifications as a result of the proposed capital project, and the consistency of those service modifications with the capital plan; and
10. Demonstrates the evaluation of long-term operating costs including fuel efficiency, staffing, and preservation.

Section 4 of Chapter 506, Laws of 2007 (SHB 2366) states: "*The office of financial management shall design and implement a modified predesign process for any space request to lease, purchase, or build facilities that involve (a) the housing of new state programs, (b) a major expansion of existing state programs, or (c) the relocation of state agency programs.*"

(3) Modified Predesign Studies

In compliance with the legal requirements cited above, modified predesign studies are required for a ferry terminal improvement projects with a total project cost of \$5M or below. Guidance for the modified predesign study, which does not include all sections included in a full predesign study, is contained in the OFM issued *2009-11 Transportation Predesign Manual*. No guidance is issued regarding funding requirements for modified predesign studies. Current practice is to allocate ten percent of the preliminary engineering budget, as scoped, to the fulfillment of this requirement.

(4) Full Predesign Studies

Full predesign studies are required for all ferry terminal projects with a total project cost over \$5M. Per OFM guidance, the funding standard for full predesign studies is dependence upon both the project cost and the level of complexity. Current practice is to allocate this calculated amount of the preliminary engineering budget, as scoped, to the fulfillment of this requirement. The spreadsheet developed by Chief Estimator for scoping projects automatically calculates this amount once the level of complexity is identified.

200.07 Level of Service

Per [RCW 47.06.140](#), the legislature has declared ferry transportation facilities to be of statewide significance. WSDOT has been tasked with setting level of service (LOS) standards. The Department was directed to consider the necessary balance between providing for the free interjurisdictional movement of people and goods and the needs of local communities using these facilities. When setting the level of service standards for state ferry routes, the Department may allow for a standard that is adjustable for seasonality.

In June 2009, WSF published the Long Range Plan which re-establishes level of service standards in the vehicle holding areas. The recommended LOS measure proposed in this plan sets a maximum daily percent of sailings at vehicle capacity. This measure focuses primarily on vehicle service during peaks and towards maximizing utilization of excess capacity by implementing strategies that redistribute demand prior to investing capacity improvements.

[Exhibit 200-2](#) below summarizes the vehicle LOS standards found in the *Long Range Plan*. For each existing route, the standards have been divided between Level 1 Standards and Level 2 Standards. The LOS Standards have been further divided into three months of the year to reflect the variations in seasonal ridership, especially on the recreational routes.

The percentages in the table represent the number of sailings at full vehicle capacity on a given day compared to the total number of sailings in that day. For example, given the Seattle - Bremerton route in the month of January, Level 1 Standards are in effect when 25 to 50 percent of the sailings are full in a given day. Level 2 Standards are in effect when 50 percent or more of the sailings are full in a given day. Route-specific improvements are not recommended below 25 percent.

Route	Level 1 Standards (Consider targeted strategies to spread demand and improve customer experience)			Level 2 Standards (Assets are being used efficiently, consider additional investment)		
	January	May	August	January	May	August
Point Defiance - Tahlequah	25%	25%	30%	50%	50%	60%
Point Townsend - Coupeville	25%	30%	35%	75%	75%	85%
Mukilteo - Clinton	25%	25%	30%	65%	65%	75%
Fauntleroy - Vashon	25%	25%	30%	50%	50%	60%
Fauntleroy - Southworth	25%	25%	30%	50%	50%	60%
Seattle - Bremerton	25%	25%	30%	50%	50%	60%
Edmonds - Kingston	25%	25%	30%	65%	65%	75%
Seattle - Bainbridge	25%	25%	30%	65%	65%	75%
Anacortes - San Juan Islands	25%	30%	35%	65%	75%	85%
Anacortes - Sidney	N/A	50%	50%	N/A	100%	100%

LOS by Route – Percent of Sailings Filled
Exhibit 200-2

The 25 percent standard reflects a situation in which all peak sailings are filled to capacity, but other sailings are not, indicating opportunities to spread demand through adaptive management strategies. Recreational routes might expect to be able to achieve a higher percent of sailings filled due to customer flexibility in travel times. A large percentage of sailings filled on a given route is indicative of congestion and overloaded sailings.

Level 1 Standards indicate the point at which additional pricing and operational strategies might be needed. This standard should not be viewed as a minimum criterion to be achieved before adaptive management strategies are deployed (i.e. strategies that have system wide benefits should be considered independent of a route's performance against LOS standards). Rather, it should be an indicator of when WSF might consider more targeted adaptive management strategies to alleviate congestion and spread demand to sailings where capacity exists.

Level 2 Standards indicate when additional service might be needed. This standard should not automatically be a trigger for additional investment. It should be used as an indicator that identifies when existing assets are being used most effectively and WSF might begin considering additional investment (e.g. adding more sailings and more holding capacity).

Vehicle ridership and capacity information is available to designers through the WSF Planning Department. If a terminal is operating within Level 1 Standards, refer to targeted efficiency strategies in [Section 510.06](#) (additional operational adaptive management strategies are discussed in the *Long Range Plan*). If a terminal is operating within Level 2 Standards, refer to vehicle holding lane sizing as discussed in [Chapter 520](#).

For further reading, see [Part 6 Ferry Capacity](#) of the [Transit Cooperative Research Program \(TCRP\) Report 100: Transit Capacity and Quality of Service Manual](#), 2nd Edition.

