

100.01	Purpose	100.04	Manual Use
100.02	Presentation and Revisions	100.05	Manual Organization
100.03	Manual Applications		

## 100.01 Purpose

Under the [Engrossed State House Bill \(ESHB\) 2358](#), the WSDOT Ferries Division (referred to as Washington State Ferries or WSF) was tasked with developing terminal design standards that choose the most efficient balance between capital and operating investments, and that adhere to operational strategies, and vehicle level of service standards.

The WSF *Terminal Design Manual* was developed by the Terminal Engineering Department of Washington State Ferries, in collaboration with other departments within the agency. In keeping with the intent of [ESHB 2358](#), the manual provides guidelines for the design of ferry terminal facilities, which continue to support the overall mission of the agency to provide safe, secure, efficient, reliable, and environmentally sound marine transportation for people and goods throughout Puget Sound.

## 100.02 Presentation and Revisions

The *Terminal Design Manual* is available on the Internet. The manual can be accessed electronically through the:

- WSDOT Home Page:  
[www.wsdot.wa.gov/ferries](http://www.wsdot.wa.gov/ferries)
- Design Policy Web Page:  
[www.wsdot.wa.gov/design/policy](http://www.wsdot.wa.gov/design/policy)
- Engineering Publications Web Page:  
[www.wsdot.wa.gov/publications/manuals/index.htm](http://www.wsdot.wa.gov/publications/manuals/index.htm)

The online version of the manual enables you to conduct a word search of the entire manual. Opening an individual chapter is faster, but a word search is limited to that chapter.

The *Terminal Design Manual* is continually revised to reflect changing processes, procedures, regulations, policies, and organizations. Feedback from users is encouraged to improve the manual for everyone. Comments may be submitted by any method that is convenient for you. There is a comment form in the front of the manual, or comments may be made via the contact names on the Design Policy Internet page (see link above). Note that the Design Policy Internet page includes a link to an errata page, which provides a list of known technical errors in the manual. Manual users are encouraged to view this page on a regular basis.

A contents section lists all chapters and the major headings of the sections/pages. The exhibits section lists all the exhibits in the manual and provides their page numbers.

Most chapters include a list of references, including laws, administrative codes, manuals, and other publications, which are the basis for the information in the chapter. Definitions for acronyms and abbreviations and specialized vocabulary used in the chapters are included in [Appendix A](#) and [Appendix B](#), respectively.

### 100.03 Manual Applications

The *Terminal Design Manual* is provided to encourage the use of standard designs throughout WSF terminal facilities. The *Terminal Design Manual* is also used to:

- Interpret current design principles as they apply to ferry terminal design.
- Choose the most efficient balance between capital and operating investments.

The *Terminal Design Manual* is designed to allow for flexibility in design for specific and non-standard situations. For non-standard circumstances, the manual provides mechanisms for documenting the reasons for the choices made.

### 100.04 Manual Use

The *Terminal Design Manual* is intended for the design of department-owned terminal facilities. This manual does not address design of or modifications to existing department-owned vessels. If the guidance provided in this manual is not used on a project, it is considered a deviation and appropriate documentation and approvals are required (see [Chapter 220](#)).

The *Terminal Design Manual* example layout exhibits are developed around a single hypothetical ferry terminal facility. Chapters [330](#), [340](#) and [350](#) include example site layouts for the marine structures ([Exhibit 330-2](#)), landside elements ([Exhibit 340-2](#)), and terminal buildings ([Exhibit 350-1](#)), respectively. Each of these example layouts identifies the prominent terminal elements associated with that chapter - marine structures, landside elements, or terminal buildings - and references the corresponding chapters detailing the terminal elements identified. For example, [Exhibit 330-2](#) covers marine structures and provides references to the trestle, vehicle transfer span, passenger overhead loading, wingwalls, and fixed and floating dolphin chapters.

## 100.05 Manual Organization

The *Terminal Design Manual* is divided into the following divisions and appendices:

**Division 1 – Manual Overview:** Describes the purpose, application, organization, and use of the *Terminal Design Manual*.

- **Chapter 100 – Manual Description:** Chapter content and resources within the *Terminal Design Manual*.

**Division 2 – Project Development:** Discusses the project scoping process, and how scoping decisions impact design.

- **Chapter 200 – Capital Project Scoping:** Outlines project scoping procedure including the requirements for a predesign study.
- **Chapter 205 – External Project Scoping and Review Requirements:** Describes requirements and information to be provided by and to WSF sections external to Terminal Engineering during project scoping projects.
- **Chapter 210 – Design Matrix Procedures:** Includes design matrices used to determine which design elements need to be considered in a project and how to document the design decisions.
- **Chapter 220 – Design Documentation, Approval, and Process Review:** Discusses building the Project File (PF) and the Design Documentation Package (DDP) and recording the recommendations and decisions that lead to a project by presenting the documents from the planning, scoping, programming, and design phases.
- **Chapter 230 – Quality and Constructability:** Includes expectations for design deliverables, quality assurance/quality control, and constructability reviews. Also details federal requirements and contract documents.

**Division 3 – General Design Criteria:** Provides design criteria that is common to numerous elements within a ferry terminal.

- **Chapter 300 – Accessibility:** Summarizes federal ADA accessibility requirements for transportation projects involving pedestrian facilities.
- **Chapter 310 – Security:** Discusses Maritime Security (MARSEC) levels, vessel security requirements, security functions, secure areas within a terminal, access control, and the handling of sensitive security information in design documents.
- **Chapter 320 – Environmental Considerations:** Provides an overview of potential environmental impacts and environmental regulatory obligations as they relate to ferry terminal design.
- **Chapter 330 – Marine:** Identifies the major marine structures associated with a ferry terminal and the general criteria necessary for their design. Includes vessel routes and terminal locations, vessel and tidal data, slip requirements, and berthing and mooring criteria. Also discusses long lead time items, corrosion mitigation, scour and mudline, and geotechnical requirements for marine structures.
- **Chapter 340 – Civil:** Identifies the major civil elements associated with a ferry terminal and general criteria necessary for their design. Discusses project datum, site preparation, grading and erosion control, roadway design and channelization, paving, and traffic control.

- **Chapter 350 – Buildings:** Identifies the main buildings at WSF terminal facilities along with the codes and requirements for design of the building structures, building foundations, and building utilities.
- **Chapter 360 – Electrical:** Summarizes content provided in the stand alone *WSF Terminal Design Standards, Specification, and Procedures - Electrical Engineering* manual (*Electrical Engineering Manual*).

**Division 4 – Terminal Buildings:** Provides design criteria for the terminal buildings – passenger buildings, terminal supervisor buildings, maintenance building, enclosures and support areas – in addition to architecture, landscape architecture and public art criteria.

- **Chapter 400 – Passenger Buildings:** Identifies building spaces associated with passenger functions and amenities and provides guidance for their design.
- **Chapter 410 – Circulation and Passenger Waiting:** Describes the level of service standards for passenger circulation within the terminal building as well as provides guidance for designers on the sizing requirements for the passenger waiting areas.
- **Chapter 420 – Passenger Amenities, Business Case:** Describes the approach to developing a business case for the inclusion of passenger amenities such as retail and concessions at a terminal.
- **Chapter 430 – Terminal Supervisor Buildings:** Identifies building spaces typically located within the terminal supervisor building and provides guidance for their design.
- **Chapter 440 – Maintenance Buildings, Enclosures and Support Areas:** Identifies building spaces typically located within the terminal and vessel maintenance buildings along with support areas, including storage areas and utility enclosures.
- **Chapter 450 – Architecture:** Discusses architectural considerations associated with the design of WSF terminal buildings including building code requirements, building permits, WSF architectural guidelines, and LEED certification.
- **Chapter 460 – Landscape Architecture:** Discusses the landscape architecture components of a ferry terminal including pedestrian paving/hardscape, landscaping, site lighting, and site furnishings.
- **Chapter 470 – Public Art:** Describes the public art requirement associated with public government buildings and provides guidance on meeting this requirement.

**Division 5 – Landside Development:** Landside development includes design criteria for all terminal elements other than the marine structures and the terminal buildings.

- **Chapter 500 – Access, Approaches and Exits:** Describes design considerations for ferry terminal access, approaches, and exits.
- **Chapter 510 – Toll Plaza:** Provides design guidelines for approach zone and queuing area, toll lanes, tollbooths, and departure lanes.
- **Chapter 520 – Vehicle Holding and Support Areas:** Describes the guidelines for sizing and locating the vehicle holding areas.
- **Chapter 530 – Parking:** Summarizes the types of parking associated with WSF facilities along with guidelines for the design of these areas.

- **Chapter 540 – HOV and Transit:** Provides guidance and information for designing high-occupancy vehicle and transit facilities.
  - **Chapter 550 – Site Circulation:** Includes criteria for pedestrian, bicycle, and vehicular circulation within a ferry terminal.
  - **Chapter 560 – Site Utilities:** Provides guidelines for potable water, fire protection, sewer, stormwater, natural gas, power, lighting, and communications utilities.
  - **Chapter 570 – Signage and Wayfinding:** Provides guidance on sign functions, sign types and sign placement within a ferry terminal.
  - **Chapter 580 – Sustainability/Low Impact Development:** *<future chapter>*
- Division 6 – Waterside Development:** Waterside development applies to specific structural, mechanical, and electrical elements that are associated with vessel berthing and loading.
- **Chapter 600 – Trestle:** Provides civil and structural guidelines for the trestle which provides vehicle access from the landside to the vehicle transfer span.
  - **Chapter 610 – Vehicle Transfer Span:** Design guidelines for the structural, mechanical, and electrical elements of the VTS.
  - **Chapter 620 – Passenger Overhead Loading:** Provides guidance on the design of the OHL fixed spans, pedestrian transfer span, overhead loading cab, and drilled shafts.
  - **Chapter 630 – Wingwalls:** Provides guidance on the design of wingwalls, the primary structures used to stop and hold vessels in place for loading, unloading and overnight tie-up.
  - **Chapter 640 – Fixed Dolphins:** Design guidelines for fixed dolphins used to guide ferries into the berthing area, provide a leaning surface during loading and unloading, protect adjacent properties or other WSF structures, and provide mooring for overnight tie-up.
  - **Chapter 650 – Floating Dolphins:** Provides guidance on the design of floating dolphins used to guide ferries into the berthing area, provide a leaning surface during loading and unloading, and provide separation between ferry slips for protection of the vessels from one another.

**Division 7 – Miscellaneous:** Includes design information on a variety of topics that are not specific to WSF terminal elements but that may be relevant to their design.

This section covers the following topics:

- **Chapter 700 – Maintenance:** *<future chapter>*
- **Chapter 710 – Overweight Vehicle Check:** *<future chapter>*
- **Chapter 720 – Scour:** *<future chapter>*
- **Chapter 730 – Bridge Rating:** *<future chapter>*

**Division 8 – CADD Standards and Procedures:** Provides instruction and guidance for the preparation of contract drawings.

**Appendices:** Includes acronyms, abbreviations, definitions, and a variety of reference information relevant to WSF terminal facilities.

- **Appendix A – Acronyms and Abbreviations:** An alphabetical listing of acronyms and abbreviations within the *Terminal Design Manual* along with their definitions.
- **Appendix B – Definitions:** An alphabetical listing of key ferry terminal vocabulary used in the *Terminal Design Manual* along with definitions for the terms.
- **Appendix C – Comment Review Form:** The standard document used to capture and communicate all comments generated from a PS&E or Constructability review process.
- **Appendix D – Quality Audit Sign-Off Sheet:** The standard form used to document the quality audit process.
- **Appendix E – Quality Control Color Code:** Identifies the established color code used in the quality control process.
- **Appendix F – Project Management Plan:** A formal approved document that defines how a project is executed, monitored and controlled.
- **Appendix G – Checking Process Flow Chart:** Identifies the checking process for all PS&E documents for contract advertisement and associated calculations, permit documents, and documents to be presented to the public prepared by Terminal Engineering.
- **Appendix H – DQC Sign-Off Sheet:** The cover sheet accompanying all quality review/check documents that contains signatures of all individuals that contributed to the quality process.
- **Appendix I – Deliverables Expectations Matrices:** Matrices developed for use on Terminal Engineering Projects that attempt to demonstrate components of what may be required within each different project type. There are four deliverables expectation matrices, one each for H-Span, Wingwall, Dolphin, and Toll Booth/Terminal Building Projects.
- **Appendix J – Project Status Report:** A status report produced weekly for all projects that will be, or have been, advertised in the following 90 days.
- **Appendix K – PS&E Turn-In QA/QC Process:** Process and checklist for turning contracts into the Contract Ad and Award office for advertisement and bid opening.
- **Appendix L – Review Checklist Templates:** Discipline specific checklists used as a guide for the PS&E review process.
- **Appendix M – Instructions for Advertisement:** The step by step process which project managers are to follow when preparing to submit a package for Advertisement.
- **Appendix N – Environmental Compliance Plan:** WSF's Environmental Compliance Plan developed to ensure projects are designed, constructed and maintained in accordance with environmental commitments made through the environmental documentation and permitting process.
- **Appendix O – Vessel Fleet Information:** WSF vessel fleet particulars used in the design of marine structures.

- **Appendix P – Route Information:** A collection of data for each terminal including terminal history, facility statistics, geographic data, and terminal contact information.
- **Appendix Q – Terminal Reference Data:** A summary of reference data by terminal including state route, NHS or non-NHS roadway designation, functional class code, control section, legislative district, congressional district, area designation (urban/rural), and other miscellaneous information.
- **Appendix R – Terminal Site Plans:** Aerial photos and color illustrations depicting the site layout and key features for each of WSF’s existing terminals.
- **Appendix S – Terminal Building Programs:** Matrices identifying the existing terminal building spaces at each of WSF’s facilities along with the anticipated future requirements and preliminary sizing guidelines.
- **Appendix T – Terminal Signage Plan:** Draft signage plan for the Southworth Ferry Terminal.
- **Appendix U – Design/Project Development Approval Templates:** Cover Sheet Templates for Design and Project Development Approval efforts described in [Chapter 220](#).
- **Appendix V – Memorandum of Understanding Arts in Public Places Washington Arts Commission and Washington State Department of Transportation Copy of the Memo of Understanding between WSDOT and the Washington Arts Commission:** contains the Memo of Understanding between WSDOT and WAC regarding incorporating art in public projects. See also [Chapter 470](#).
- **Appendix W – Trestle Pavement Depths:** Depth of the pavement on WSF Trestles.
- **Appendix X – Terminal Tidal Information:** Describes the means, methods and sources for developing [Exhibit 330-11](#) Terminal Tidal Datums and [Exhibit 330-12](#) Design Tidal Ranges.
- **Appendix Y – Vacant**
- **Appendix Z – Terminal Vertical Datums:** tabulates the elevations (referenced to NAVD 88 and to MLLW) of all of the vehicle transfer span bridge seats located at the nineteen terminals and the Eagle Harbor Maintenance Facility.
- **Appendix AA –** Tabulates data used to determine vehicle transfer span gradients.

