

Chapter 7

Bridges and Walls

7-1 Bridges

Design of bridges shall be coordinated with the County Engineer in order to receive specific design direction and parameters.

Bridges shall be designed and constructed to meet the following criteria:

Deck Width: The minimum bridge deck width shall not be less than the design roadway width for the road being served. Roadway width includes lane width plus shoulder width. Bridge roadway width shall be measured between curbs or between face of rails, whichever is less, but in no case shall be less than 28 feet. Pedestrian facilities shall be provided on the bridge if the adjoining roadway has or will have sidewalks or walkways. Additional widening shall also be provided for bicycles if the road is an established bicycle route.

Live Loading: HL-93

Other Loading: AASHTO LRFD Bridge Design Specifications (Current Edition)

Vehicular Railing: AASHTO LRFD Bridge Design Specifications (Current Edition)

Pedestrian Railing: AASHTO LRFD Bridge Design Specifications (Current Edition)

Approach Railing: AASHTO Crash Tested Rail, or Approved Crash Tested Rail

Vertical Clearance: 16.5-foot minimum over roadways; 23.5-foot minimum over railroads, unless additional clearance is required by railroad company. Clearances shall also be in accordance with Pierce County Flood Hazard regulations. Additional clearance may be required by the County Engineer.

Requirements for future resurfacing shall be duly considered.

Utility accommodation shall be in accordance with the *Manual on Accommodating Utilities in Pierce County Rights-of-Way*, as published by Pierce County.

The aesthetic aspects of the bridge will be reviewed on a case-by-case basis.

7-2 Walls

Wall installations in the public right-of-way will be discouraged, and every effort should be made by the design engineer to grade the property in such a way as to avoid the installation of walls. If a wall is determined to be necessary, consideration shall be given to the design and placement of the wall to maximize the clear area, including placement of the wall outside of the right-of-way on private property. Any wall constructed within the roadway clear area shall have the appropriate barrier protection provided as determined by the Engineer.

A chain link fence or acceptable alternative shall be required at the top of a new or reconstructed wall if the height of the exposed face of the wall exceeds 30 inches. For walls less than 30 inches, the County Engineer may require a fence or other protection.

7-2.1 Retaining Walls

All retaining walls and reinforced slopes within Pierce County R/W or walls or slopes that may affect Pierce County R/W shall be designed in accordance with the WSDOT Geotechnical Design Manual and the following documents:

- WSDOT Bridge Design Manual
- WSDOT Design Manual
- AASHTO LRFD Bridge Design Specifications

The most current versions or editions of the above referenced manuals including all interims or design memoranda modifying the manuals shall be used. In the case of conflict or discrepancy between manuals, the hierarchy shall be those manuals listed first shall supersede those listed below them in the above list.

Geotechnical design criteria shall be provided by a geotechnical engineer. Plans and specifications for each retaining wall to be located within the County road right-of-way shall be designed, stamped, and signed by an engineer.

Any retaining wall constructed for a roadway fill section shall provide a minimum one-foot setback from any portion of the wall to the right-of-way to allow for wall maintenance and inspection activities.

7-2.2 Rock Walls

Rock Walls may be used for the containment of cut slopes or fill embankments up to a maximum wall height of five feet (including one foot of embedment) if stable and appropriate soil conditions exist.

All rock walls shall be constructed in accordance with Section 8-24 of the Washington State Department of Transportation *Standard Specifications for Road, Bridge, and Municipal Construction*.