

DB Section 141.26 - Pavement

(a) Scope - This Section covers the design and construction of new and existing Pavement sections and sampling and testing for Pavement investigations. Design-Builder shall design and construct Pavement sections in accordance with the criteria established in this Section such that the Pavement will perform under the given conditions (climate and loading), for the specified periods. These criteria shall apply to mainline, frontage and access roads, detours, ramps and connections.

(b) Standards and References - Design-Builder shall design and construct all Pavement in accordance with the requirements of this Section 141.26.

(1) Standards

- ODOT *Pavement Design Guide*
- ODOT *Contractor Mix Design Guidelines for Asphalt Concrete*
- ODOT *Standard Specifications for Asphalt Materials*
- AASHTO *Guide for the Design of Pavement Structures*
- **DB Standard Specifications** (Parts 00200 through 03000 of the *Oregon Standard Specifications for Construction*)

(2) References

- ODOT Standard Serials and Drawings
- Distress Manual for the Long-Term Pavement Performance Project, SHRP P-338, SHRP Program, NRC, Washington D.C.

(c) Requirements - All design Work shall be conducted in accordance with the AASHTO *Guide for the Design of Pavement Structures* and the guidelines set forth in the ODOT *Pavement Design Guide*.

(1) Pavement Design Report - Prior to commencement of paving Work, Design-Builder shall submit to Agency PM for Review and Comment a Pavement Design Report. The report shall be prepared by a Design Professional in accordance with the criteria set forth in this Section and the requirements in Chapter 12 of the ODOT *Pavement Design Guide*. The report shall address Pavement performance and maintenance issues related to potential settlement and slide activity, and shall include a detailed statement describing the general approach for sampling and testing, design, construction, and the rationale for selection of the proposed construction and engineered design methods. The report shall incorporate all finalized scope and design information obtained by Design-Builder, and any comments provided by Agency.

(2) Design - All Pavement sections shall be designed and constructed to perform as specified herein for periods of not less than those specified herein. Design-Builder shall provide designs for Pavement sections that meet the following minimum service life requirements:

DB 141.26(c)(2)

- New or reconstruction sections using asphalt concrete Pavement – 20 years
- New or reconstruction sections using Portland cement concrete Pavement – 30 years
- Bridge end panels – 30 years
- Pavement rehabilitation – 15 years

Pavement design sections for Bridge end panels shall be constructed for a minimum distance of 200 feet from each end of the Bridge, and wearing surface of the rebuilt Pavement shall match the existing asphalt concrete Pavement (ACP) surface. When the surface is continuously reinforced concrete Pavement (CRCP), the rebuilt section shall be a minimum of 40 feet and match the existing Pavement. Chapter 8 of the ODOT Pavement Design Guide provides minimum acceptable Bridge end panel design sections for various traffic levels. Design-Builder may, in its discretion, use information regarding subsurface conditions and existing Pavement sections as provided by Agency.

Design-Builder shall provide Pavement sections that accommodate surface and subsurface drainage, giving due consideration to frost and elimination of trapped water.

Design-Builder shall utilize the existing Pavement to the maximum extent possible, provided that in doing so, safety, maintainability, durability, structural adequacy, and driver comfort and safety are not compromised.

Design-Builder shall investigate and design Pavement sections at a minimum in accordance with the requirements set forth in the ODOT Pavement Design Guide for the following conditions:

- Rehabilitation of existing Pavement sections
- Required field investigations – in accordance with Chapter 4 of the ODOT *Pavement Design Guide*
- Anticipated Work Zone traffic volumes (identified by Agency in **DB Special Provisions**, SP 141.31)
- Effects of moisture on overall performance of the Pavement

a. Design Input Parameters - The following input parameters shall be used in developing all Pavement designs associated with the Project.

1. Material Properties

- Asphalt Concrete layer coefficient = 0.42
- Aggregate Base layer coefficient = 0.10
- Aggregate Base resilient modulus = 20,000 psi

2. Subgrade Soil Properties - The Pavement Design Report shall provide for a Subgrade with a minimum resilient modulus value of 5,000 psi. Acceptable methods may include, but are not limited to:

- Provide quality embankment materials
- Subgrade stabilization

- Subgrade treatment specified in **DB Special Provisions**, SP 141.26(c)(2)a-2

In addition, a Subgrade geotextile shall be incorporated into all new or reconstructed Pavement sections.

3. AASHTO Specific Input Parameters:

- Initial serviceability for flexible Pavement = 4.2
- Initial serviceability for rigid Pavement = 4.5
- Terminal serviceability = 2.5

A minimum reliability of 85 shall be used. This is consistent with Table 5.3.1 of the ODOT *Pavement Design Guide*.

Design-Builder shall select the overall standard deviation value based on recommendations found in the *AASHTO Guide for the Design of Pavement Structures*.

b. Materials - The selection of Materials shall be based on the requirements of the ODOT *Pavement Design Guide*, and shall meet or exceed the requirements of this Section and the Standard Drawings.

Design-Builder shall submit all mix designs to Agency PM for review and Acceptance.

c. Ride Quality - The smoothness Specification portion of **DB Standard Special Provisions**, Section 00745 (00745.70, 00745.72, 00745.73, 00745.75, and 00745.96) must be complied with for the Project and will be used to evaluate ride quality.

(3) Submittals - Design-Builder shall submit the following to Agency PM. All submittals shall be prepared in accordance with the requirements of this Section and the ODOT *Pavement Design Guide*.

- **Pavement Design Report** – at Readiness-for-Construction
- **Pavement Plans (cross-sections) and Design-Builder Specifications** – at Readiness-for-Construction
- **Pavement mix designs** - at least 30 Calendar Days prior to the scheduled date of installation for each affected Pavement section

