

1.5 PROJECT-SPECIFIC DESIGN CRITERIA

1.5.1 GENERAL

This BDM addresses the technical requirements for a Project-Specific Design Criteria (PSDC). A PSDC is a collection of formally codified design criteria covering areas not addressed in design specifications, as defined in *STP 1.1* (Caltrans, 2020), and also exceptions from Structure Technical Policies or design specifications.

1.5.2 DESIGN CRITERIA

A PSDC should address strength, extreme event, service, and fatigue limit states, loads and load factors, structural analyses, resistances, and resistance factors for all bridge components as applicable.

At a minimum and as applicable, the following topics should be considered in the development of a PSDC:

- Analysis requirements such as nonlinearities, soil-foundation-structure-interaction, staged construction, and three-dimensional, dynamic, seismic time history, fault rupture, stability, and time-dependent effects;
- Design methodologies such as performance-based, displacement-based, and probabilistic approaches; and
- Redundancy.

The applicable design requirements specified in Structure Technical Policies or design specifications should be referred to but not repeated in the PSDC.

Any adopted design requirements from other design specifications, such as *AASHTO Guide Specifications*, *ACI Codes*, and *AISC Specifications*, may be referenced with a citation.

1.5.3 PSDC COMMENTARY

A PSDC may include commentary to provide a brief background concerning the development of the PSDC and is not intended to provide a detailed summary of the studies and research data reviewed in formulating the provisions of the PSDC. However, references to some of the research data may be provided for those who wish to study the background material in depth. The commentary directs attention to other documents that provide suggestions for carrying out the requirements and intent of the PSDC. However, those documents and the commentary are not intended to be a part of the PSDC. When commentary is included, the PSDC should explicitly state: “the commentary is not a part of the PSDC”.

1.5.4 PSDC EXAMPLES

The following are good examples of PSDC:

- Panther Creek Bridge Replacement Project Specific Design Criteria (Caltrans, 2019a)
- Shasta Viaduct Project Specific Design Criteria (Caltrans, 2019b)
- Gerald Desmond Bridge Replacement Project Bridge 53 3000 Basis of Design Report (Arup, 2016)
- Devil's Slide Bridge Design Criteria (Caltrans, 2004)
- SFOBB Self-Anchored Suspension Bridge Design Criteria (Caltrans, 2002a)
- Seismic Design Criteria – Retrofit of the West Approach to the San Francisco-Oakland Bay Bridge (Caltrans, 2002b)
- San Francisco-Oakland Bay Bridge West Spans Seismic Retrofit Design Criteria (Caltrans, 1997)

1.5.5 REFERENCES

1. Arup. (2016). *Gerald Desmond Bridge Replacement Project Bridge 53 3000 Basis of Design Report*, Issue 10, Arup North America Ltd, Los Angeles, CA
2. Caltrans. (2020). *Structure Technical Policy (STP) 1.1, Scope, Approval, and Implementation*, California Department of Transportation, Sacramento, CA.
3. Caltrans. (2019a). *Panther Creek Bridge Replacement Project Specific Design Criteria* Version 1.0, California Department of Transportation, Sacramento, CA
4. Caltrans. (2019b). *Shasta Viaduct Project Specific Design Criteria Scope*, Version 12., California Department of Transportation, Sacramento, CA.
5. Caltrans. (2004). *Devil's Slide Bridge Design Criteria*, Version 2.11, California Department of Transportation, Sacramento, CA
6. Caltrans, (2002a). *San Francisco-Oakland Bay Bridge East Span Seismic Safety Project -Self-Anchored Suspension Bridge Design Criteria*, 100% Submittal, prepared by TY Lin International and Moffatt and Nichol Engineers, California Department of Transportation, Sacramento, CA.
7. Caltrans. (2002b). *Seismic Design Criteria – Retrofit of the West Approach to the San Francisco-Oakland Bay Bridge*, California Department of Transportation, Sacramento, CA.
8. Caltrans. (1997). *San Francisco-Oakland Bay Bridge West Spans Seismic Retrofit Design Criteria*, Final Draft, California Department of Transportation, Sacramento, CA.