

CHAPTER 21 – Exceptions to Design Standards

Table of Contents

CHAPTER 21 – Exceptions to Design Standards	21-3
ARTICLE 1 General.....	21-3
Responsibility	21-3
Documentation.....	21-3
Identification of Nonstandard Design Features	21-3
Applicability	21-3
Dispute Resolution Process	21-4
Definitions	21-5
Distribution and Filing.....	21-5
ARTICLE 2 Exceptions to Mandatory Design Standards.....	21-7
Consultation Requirements.....	21-7
Requests for Design Exceptions	21-7
Integration with Project Development Process.....	21-7
Miscellaneous Requirements	21-10
Approvals.....	21-11
ARTICLE 3 Exceptions to Vertical Clearance on Department of Defense Rural and Single Interstate Route System.....	21-12
General.....	21-12
Documentation Requirements	21-12
ARTICLE 4 Exceptions to Delegated Mandatory Standards and Advisory Design Standards.....	21-13
Authority.....	21-13
Documentation.....	21-13

Table of Figures

Figure 21-1 Requirements for Fact Sheet Approval	21-6
--	------

CHAPTER 21 – Exceptions to Design Standards

ARTICLE 1 General

Responsibility

Headquarters Division of Design (DOD) establishes and supports the consistent application of highway design standards (in accordance with the [Highway Design Manual](#)) to ensure optimal safety for the traveling public and those who work to construct, operate, and maintain the State Highway System.

Documentation

The purpose of the fact sheet for exceptions to design standards (also known as a design exception fact sheet or fact sheet) is to document engineering decisions leading to the approval of each exception to a design standard. It is essential that adequate records are prepared and preserved to document such decisions and approvals. This documentation is necessary for Caltrans to maintain design immunity.

Identification of Nonstandard Design Features

The registered civil engineer in responsible charge of the work (as defined by *California Business and Professions Code*, Section 6703), or other licensed professional practicing within the scope of their license, must identify both existing and proposed nonstandard design features. Determination of nonstandard design features should be initiated early in the project development process.

Applicability

The phrase “mandatory design standards” refers to the mandatory standards outlined in *Highway Design Manual*, Table 82.1A, while the phrase “advisory design standards” refers to the advisory standards outlined in [Highway Design Manual](#), Table 82.1B. Headquarters Division of Design is responsible for the mandatory design standards except as noted in Table 82.1A. The exceptions include the

mandatory standards for which responsibility has been delegated to the District Directors and the mandatory standards in [Highway Design Manual](#) Chapters 600 through 670 that are the responsibility of the State Pavement Engineer. Additionally, the responsibility for all advisory standards has been delegated to the District Directors. See Article 4 for conditions on delegation to District Directors. Article 2, Exceptions to Mandatory Design Standards, is applicable to the mandatory standards which Headquarters Division of Design (delegated to the Headquarters Project Delivery Coordinator) is the approval authority.

Dispute Resolution Process

Occasionally, there may be disagreements between the district and the Headquarters Project Delivery Coordinator on the proper course of action. When disagreements cannot be resolved, the following dispute resolution process must be used:

- Pre-elevation: Every effort should be made to resolve disputes between the district and Headquarters Division of Design, at the lowest possible level.
 - District design office chief discusses issue with Headquarters Project Delivery Coordinator.
 - District/region design manager discusses with district design office chief, staff, and project engineer to determine facts.
 - District/region design manager discusses with Headquarters Project Delivery Coordinator.
 - Headquarters Project Delivery Coordinator and district/region design manager may discuss with other district staff or Headquarters Division of Design staff.
 - District/region design manager and Headquarters Project Delivery Coordinator discuss with District Director and other district managers.
- Formal elevation: If there is agreement at the district level and all attempts between the district and Headquarters Project Delivery Coordinator fail to result in concurrence from the Headquarters Project Delivery Coordinator;
 - District Director prepares written justification to Headquarters Division of Design Chief that includes signature of the district/region design manager.

- Headquarters Division of Design Chief will:
 1. Attempt to resolve issue. If no resolution;
 2. Appoint a three member team of subject matter experts to review and make a recommendation to Headquarters Division of Design Chief.
 3. Consider the recommendations of the team and prepare a decision to either support or deny District Director’s request.
 4. If Headquarters Division of Design Chief supports the District Director’s request, the Headquarters Division of Design Chief will sign as the approval authority.
- District Director can appeal to Deputy Director Project Delivery (Chief Engineer) with no further appeals.

Definitions

Design standards risk assessment – is a list of design standards that will likely not be met for each alternative and the probability of approval for each potential exception to a design standard. An example of the design standards risk assessment format can be seen in the project report template associated with [Appendix K](#) – Preparation Guidelines for Project Report.

Geometrically feasible – means project alternatives are designed in accordance with the [Highway Design Manual](#) and specifically, alternatives meet the mandatory and advisory standards in the [Highway Design Manual](#) related to geometric design or have approved fact sheets for exceptions to mandatory and advisory standards.

Distribution and Filing

Once final approval is obtained, the project engineer must send one copy of the approved fact sheet to the Division of Design Division Chief, Attention: Design Exception. Include copies of all correspondence between the district and Federal Highway Administration (FHWA) pertaining to the request for design exception approval.

The signed original fact sheet and when applicable, the FHWA approval letter, must be filed in the project history file. A backup copy should be filed in a separate permanent file or in the district’s central file.

Figure 21-1 Requirements for Fact Sheet Approval

	Interstate	Non-Interstate	
	NHS	NHS	Non-NHS
Mandatory Design Standard - FHWA 13 Controlling Criteria ^{1,2}	1) CT DOD Approval 2) FHWA Approval ²	CT DOD Approval for State Highways	
	Note: Numbered steps imply sequential processing.	Local Agency Approval for Non-State Highways	
Mandatory Design Standard - Vertical Clearance on Rural and Singular Route System ¹	1) CT DOD Approval 2) FHWA Approval 3) SDDCTEA Concurrence Facilitated by FHWA 4) FHWA Final Approval Note: Numbered steps imply sequential processing.	N/A	
Mandatory Design Standard - Caltrans only ¹	CT DOD Approval	CT DOD Approval for State Highways	
		Local Agency Approval for Non-State Highways	
Advisory Design Standard ³	CT DD Approval	CT DD Approval for State Highways	
		Local Agency Approval for Non-State Highways	

CT – Department of Transportation (Caltrans)

DD – District Director

DOD – Division of Design

FHWA – Federal Highway Administration

NHS – National Highway System

SDDCTEA – Surface Deployment and Distribution Command Transportation Engineering Agency (Department of Defense)

¹ – For mandatory design standards where the approval is delegated to the District Director, all requirements remain the same except that “CT DOD Approval” is replaced by “CT DD Approval.” Also see note 3.

² – FHWA approval may be required, see “FHWA Approval” heading in Article 2

³ – See Article 4 for conditions on delegation to District Directors

ARTICLE 2 Exceptions to Mandatory Design Standards

Consultation Requirements

Potential nonstandard design features must be discussed with the Headquarters Project Delivery Coordinator as soon as the need for a design exception is identified.

Depending on the level of FHWA oversight, potential design exceptions may need to be discussed with the appropriate FHWA transportation engineer. See Sub-article “Approvals” near the end of this article.

Requests for Design Exceptions

Once the Headquarters Project Delivery Coordinator determines that there may be sufficient justification to proceed with the evaluation of a design exception, the following steps must be taken:

1. Prepare the draft fact sheet in conformance with the outline in [Appendix BB – Fact Sheets for Exceptions to Mandatory Design Standards](#).
2. Submit the draft fact sheet to the Headquarters Project Delivery Coordinator for review.
3. Resolve all comments to the satisfaction of the Headquarters Project Delivery Coordinator.
4. Circulate the fact sheet for approval signatures. See Sub-article “Approvals” near the end of this article.

Requests to perpetuate existing nonstandard design features within a project’s work limits will be made in accordance with the above procedures, except when the Headquarters Project Delivery Coordinator determines that a different form of documentation is more appropriate.

Integration with Project Development Process

District approval of project initiation documents (PIDs) and project approval documents must follow the conditions outlined in this sub-article.

The Headquarters Project Delivery Coordinator determines if there is sufficient justification to approve mandatory design exceptions and is the approval authority for altering the standard practice as outlined in this sub-article, as context warrants.

If the Headquarters Project Delivery Coordinator identifies significant changes to the conditions supporting the exceptions to design standards when the fact sheet is submitted for approval, the Headquarters Project Delivery Coordinator may determine that the identified changes invalidate the previous justification that supported their approvability.

Standard Practice

Each alternative must be geometrically feasible in all project initiation and project approval documents except for certain situations as provided for in this sub-article.

A discussion of design standards must be included in all project initiation and project approval documents. For alternatives meeting all standards, a statement of this fact should be included in the report. When alternatives propose new nonstandard design features or perpetuate existing nonstandard design features, the report must include: a brief description of the nonstandard features; discussion of issues related to each nonstandard feature; and a reference to all approved fact sheets that includes the approval authority and date.

The design standards risk assessment table is the method to document deferral of fact sheet approval. It must be included in the appropriate report and the risks included in the project's risk register. The project engineer lists the design standards that are likely to not be met for each alternative. The Headquarters Project Delivery Coordinator provides the rating and justification for the design standards risk assessment and summary language for the discussion in the project development report.

Project Initiation Document

For projects with only one Build Alternative, fact sheets must be approved before approval of the PID, except when the PID is a project study report - project development support (PSR-PDS).

It is assumed that projects with multiple build alternatives will use the PSR-PDS process. However, in the rare case where another type of PID is prepared for a project with multiple build alternatives, it is expected that one alternative will be geometrically feasible and the other alternatives use the design standards risk assessment when design standards are not met.

- **Project Study Report - Project Development Support Only**

Fact sheets are not required for the PSR-PDS project initiation document. However, there must be a discussion whether each alternative proposes new nonstandard design features or perpetuates existing nonstandard design features. Alternatives should be discussed with the Headquarters Project Delivery Coordinator early in the project initiation process to identify potential nonstandard design features. Alternatives with insufficient information for fact sheet development must go through a design standards risk assessment to indicate a level of risk for conceptual acceptability of the alternative.

Draft Project Report

For projects with only one Build Alternative, fact sheets must be approved before approval of the draft project report (DPR) or any other type report serving the purpose as a DPR.

For projects with multiple build alternatives, the alternatives with proposed nonstandard design features must go through a design standards risk assessment to indicate the level of risk associated with the probability of approval for each potential exception to a design standard. Based on the associated risks and consideration of any previously approved fact sheets, the District Director can then decide if approval of fact sheets should be pursued for specific alternatives to level the engineering risk prior to approval of the DPR.

Project Report

Fact sheets must be approved before approval of the project report (PR) or any other type of project approval document.

Plans, Specifications, and Estimate

If the need for nonstandard design features is determined after approval of the project approval document, fact sheets should be approved prior to milestone M377 PS&E to DOE and must be approved before milestone M380 Project PS&E.

Construction

During the construction phase of a project, it is the resident engineer's responsibility to ensure that proposed changes to the design meet design standards or have approved fact sheets for nonstandard features. It is the project engineer's responsibility to review proposed changes and prepare and secure approval of fact sheets for proposed nonstandard features. Nonstandard features discovered during construction must

have approved fact sheets before the feature is constructed. Design exceptions will not be considered for nonstandard features after they are constructed. If nonstandard features are constructed based on the contract plans, the project engineer is responsible for resolving the issue so the features meet standards. If nonstandard features are constructed not based on the contract plans, the resident engineer is responsible for resolving the issue so the features meet standards. When issues arise, all appropriate parties need to be involved so timely decisions can be made to minimize the impact to the construction schedule.

Miscellaneous Requirements

- When nonstandard design features are proposed by an encroachment permit applicant, fact sheets are prepared by the applicant’s registered civil engineer. The Caltrans functional unit responsible for preparation of the permit engineering evaluation report (PEER) will facilitate the coordination with the Headquarters Project Delivery Coordinator for draft fact sheet review. If a PEER is not required, the fact sheet processing will be facilitated by the functional unit assisting the district permit engineer.
- A single fact sheet may contain multiple design exceptions.
- Nonstandard design features identified after approval of a fact sheet require the preparation of a supplemental fact sheet. The prior approved nonstandard design features should be enumerated in the supplemental fact sheet.
- Fact sheets should not be attached to any project initiation document, project approval document, or engineering report. They should be summarized and referenced in appropriate reports.
- Approval of design exceptions for projects on the National Highway System, including the Interstate System is a federal action that requires compliance with the National Environmental Policy Act (NEPA). Caltrans has developed a “blanket” categorical exclusion for NEPA compliance when approval of design exceptions is the only relevant federal action on the project. See the [memorandum](#) from the Division of Environmental Analysis for more information.
- Commitments for future work should not be made in design exception fact sheets. If a commitment must be made, a follow-up project is to be programmed and Caltrans must have the authority to define the scope of the project to include the commitment. Additionally, the justification for the commitment must be discussed in the appropriate project development report. The district is responsible for minimizing future commitments, monitoring those commitments, determining if prior commitments were made, and documenting commitments made in design exception fact sheets.

Approvals

Signature, Coversheet Format

The fact sheet outline shown in [Appendix BB](#) provides a recommended format for the signature/cover sheet. The format may be varied to suit each district’s organization; however, each fact sheet must comply with the requirements of [Chapter 2](#), Section 9.

Caltrans Approval

The responsibility for approval of all exceptions to mandatory design standards on the State Highway System and local facilities within State right-of-way rests with the Headquarters Division of Design Division Chief and has been delegated to the Headquarters Project Delivery Coordinator.

Caltrans has delegated the responsibility for approval of design exceptions for local Federal-aid projects, not on the State Highway System, to the public works director or the city or county engineer if the public works director is not a registered civil engineer.

FHWA Approval

Formal FHWA approval may be required for design exceptions to the 13 controlling criteria when the project is identified as one of the “Projects of Division Interest” or “Projects of Corporate Interest,” as outlined in the latest [Stewardship and Oversight Agreement on Project Assumption and Program Oversight](#) between the Federal Highway Administration, California Division and Caltrans. See [Chapter 8](#) – Overview of Project Development and Chapter 80 – Application of Design Standards of the [Highway Design Manual](#) for more information.

Separate FHWA design exception approval is also required for any project that does not provide or maintain a minimum vertical clearance over the Department of Defense Rural and Single Interstate Route system. Additionally, design exceptions for vertical clearances over any Interstate route that is not a rural Interstate or a single routing in an urban area will require special notification. See Article 3 for more information.

Requests for FHWA approval should be made by letter, addressed to the FHWA division administrator, and signed by the District Director or a District Division Chief. Requests must be accompanied by a copy of the approved fact sheet.

ARTICLE 3 Exceptions to Vertical Clearance on Department of Defense Rural and Single Interstate Route System

General

In coordination with the Department of Defense, the FHWA has identified a subset of the Interstate System composed of all rural Interstates and a single routing in urban areas that would meet the most urgent national defense needs. Those routes shown and described in [Highway Design Manual](#) Figure 309.2 and Table 309.2B are given special attention in regard to minimum vertical clearance.

The FHWA has made a commitment to the Department of Defense to maintain a 16-foot minimum vertical clearance where it already exists and to upgrade clearances less than 16 feet as rapidly as is practical. Any project on this system (including resurfacing, restoration, and rehabilitation [RRR] projects) will be closely scrutinized to ensure compliance with this vertical clearance standard; exceptions to this standard will be difficult to obtain, and will be subject to additional federal review.

Documentation Requirements

Exceptions for vertical clearances of less than 16 feet over any portion of this system must be processed separately in the form of a design exception fact sheet. See [Appendix BB](#) for the appropriate format.

The requests will receive internal reviews within Caltrans and the FHWA Division Office. The FHWA Division Office must obtain concurrence from the Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) of the Department of Defense prior to approval. Due to this additional and lengthy step, potential requests for design exceptions must be identified and discussed with the Headquarters Project Delivery Coordinator as early as possible.

Additionally, exceptions for vertical clearances of less than 16 feet over any Interstate route that is not a rural Interstate or a single routing in an urban area will require FHWA and Surface Deployment and Distribution Command Transportation Engineering Agency notification.

Wherever possible, vertical clearances should continue to be designed to comply with the Caltrans standards, as described in the [Highway Design Manual](#).

It is the responsibility of the project engineer to submit the fact sheet to the FHWA Division Office after approval has been obtained from the Headquarters Project Delivery Coordinator. The transmittal should note whether or not a fact sheet for additional nonstandard design features on the proposed project is anticipated.

Once final approval is obtained from FHWA, the project engineer must send one copy of the approved fact sheet to the Headquarters Division of Design Division Chief, Attention: Design Exception. Include copies of all correspondence between the district and FHWA pertaining to the request for design exception approval.

ARTICLE 4 Exceptions to Delegated Mandatory Standards and Advisory Design Standards

Authority

Approval of exceptions to some mandatory design standards, as outlined in [Highway Design Manual](#) Table 82.1A, has been delegated to the District Directors. Also, approval of all exceptions to advisory design standards has been delegated to the District Directors. If the District Director is not a registered civil engineer, written delegation to the district or region manager whose responsibilities include the design function is required.

Documentation

Each district is responsible for formalizing its own procedures for reviewing, documenting, and approving exceptions to delegated mandatory design standards and advisory design standards. The district process should be similar to the process outlined in Article 2 and the fact sheet should cover the same type of project data and justification as that required for the mandatory design standards fact sheet; see [Appendix BB](#). The district may combine the delegated mandatory design standards and advisory design standards into a single fact sheet.