



New ADOT Design Decision Guide

Chris Cooper <ccooper@azdot.gov>

To: "Deitering, Thomas (FHWA)" <thomas.deitering@dot.gov>, Jerry James <JJJames@azdot.gov>, "Todd A. Emery" <TEmery@azdot.gov>, Gregory Byres <GByres@azdot.gov>, Hiren Shah <hshah@azdot.gov>, Paul O'Brien <PO'Brien@azdot.gov>, Bill Fay <bfay@azdot.gov>, Victoria Bever <vbever@azdot.gov>, Doug Smith <dsmith2@azdot.gov>, Michael Culp <mculp@azdot.gov>, Raul Amavisca <RAmavisca@azdot.gov>, "Acuna, Jennifer (FHWA)" <jennifer.acuna@dot.gov>, David Locher <dlocher@azdot.gov>, Anthony Brozich <abrozich@azdot.gov>, Steve Boschen <SBoschen@azdot.gov>, Susan Anderson <seanderson@azdot.gov>, Paul Patane <PPatane@azdot.gov>, Bret Anderson <banderson@azdot.gov>, James Windsor <jwindsor@azdot.gov>, Paula Gibson <pgibson@azdot.gov>, Barry Crockett <bcrockett@azdot.gov>, Kerry Wilcoxon <kwilcoxon@azdot.gov>, Steve O'Brien <SO'Brien@azdot.gov>, Matt Moul <MMoul@azdot.gov>, Susan Stumfoll <sstumfoll@azdot.gov>, Adam Bieniek <abieniek@azdot.gov>, Audra Merrick <amerrick@azdot.gov>, Kirstin Huston <khuston@azdot.gov>, David Benton <dbenton@azdot.gov>, Randy Everett <reverett@azdot.gov>, James Wilson <jwilson@azdot.gov>, Jesus Sandoval-Gil <jsandoval-gil@azdot.gov>, Anthony Casselman <acasselman@azdot.gov>, Michael DenBleyker <mdenbleyker@azdot.gov>, Brenden Foley <BFoley@azdot.gov>, Shane Alden <salden@azdot.gov>

SENT ON BEHALF OF MICHAEL DENBLEYKER, STATE ROADWAY ENGINEER

TO ALL ADOT AND CONSULTANT DESIGN PERSONNEL

RE: NEW ADOT DESIGN DECISION GUIDE

Effective January 1, 2025, Federal Highway Administration has assigned responsibility to the Arizona Department of Transportation for review and approval of non-interstate roadway design features on the National Highway System that vary from the published design controlling criteria per 23 CFR 625.3(f). FHWA and ADOT have established new guidance related to the documentation and approval of design features that vary from published design values, criteria or standards. Previously known as "design exceptions" and "variances", ADOT will now refer to these as "design decisions".

Planners and Engineers shall follow the guidance and requirements outlined in the new *ADOT Design Decision Guide* attached below and located on the Roadway Engineering webpage at <https://azdot.gov/business/engineering-and-construction/roadway-engineering/roadway-design-standards-and-guidelines>. The *ADOT Design Decision Guide* and accompanying *Design Decision Document* shall replace the *Design Exception and Design Variance Process Guide* dated December 14, 2009 for all project design decisions initiated after January 1, 2025.

Please distribute this notice to all design personnel, project managers, consultants and other affected parties within your Groups and Districts. Contact Hiren Shah, Predesign & Standards Team Manager at 602-712-7794 if you have any questions.

--



Chris Cooper
ROADWAY STANDARDS ENGINEER
**ARIZONA DEPARTMENT
OF TRANSPORTATION**

205 S 17th Ave
Phoenix, AZ 85007

602.712.8365



MEMORANDUM

TO: Roadway Design and Project Delivery Personnel - ADOT and Consultants

FROM: Michael J DenBleyker, PE - ADOT State Roadway Engineer

CC: Greg Byres, State Engineer - Arizona Department of Transportation

Karla S. Petty, Division Administrator - Federal Highway Administration

DATE: January 8, 2025

RE: Implementation of ADOT's Design Decision Guide & Documentation

Consistent with the Stewardship and Oversight Agreement between FHWA and ADOT (executed July 23, 2024), effective January 1, 2025, Federal Highway Administration (FHWA) has assigned responsibility to the Arizona Department of Transportation (ADOT) for review and approval of non-interstate roadway design features on the National Highway System (NHS) that vary from the published design controlling criteria. **[23 CFR 625 (f)]**

ADOT supports the consistent approach and application of design standards for projects on the national and state highway system. For projects on the national and state highway system, the ADOT Roadway Design Guidelines (RDG) serves as the principal source of design guidance and criteria for Roadway Planners and Designers. For roadway design features on the NHS, the Code of Federal Regulations (23 CFR 625.4A9a) lists additional design guidance to be used in conjunction with the RDG. Inherent to guidance provided in ADOT's Roadway Design Guidelines and AASHTO's "A Policy on Geometric Design of Highways and Streets", sufficient flexibility is permitted and planners and designers are encouraged to use the Performance Based Practical Design (PBPD) approach to develop designs tailored to particular situations and needs, while emphasizing the need to meet project and system objectives, including safety and operational performance. Planners and designers are encouraged to consider a range of factors when determining and applying design criteria in developing designs.

FHWA and ADOT have established guidance related to the documentation and approval of design features that vary from published design values, criteria or standards.¹ Planners and Engineers shall follow the guidance and requirements outlined in "**ADOT's Design Decision Guide**". The "ADOT Design Decision Guide" and "Design Decision Document" replace the following previous guidance document on all projects initiated after this document's implementation date:

- Design Exception and Design Variance Process Guide - December 14, 2009

¹ Previously known as Design Exceptions (DE) or Design Variances (DV), ADOT will now refer to these as Design Decision(s) (DD).



U.S. Department
of Transportation
**Federal Highway
Administration**

Arizona Division

January 2, 2025

4000 N. Central Ave, Suite 1500
Phoenix, Arizona 85012-3500
(602) 379-3646
(602) 382-8998 (FAX)
<http://www.fhwa.dot.gov/azdiv>

In Reply Refer to:
Implementation of ADOT's Design Decision Guide & Documentation
ENGI 15

SENT ELECTRONICALLY

Jennifer Toth
Director
Arizona Department of Transportation
206 South 17th Avenue
Phoenix, AZ 85007
Via Email: mdenbleyker@azdot.gov

Attention: Michael Denbleyker

Dear Ms. Toth:

This letter serves to document the FHWA Arizona Division's acceptance of the 2025 ADOT Design Decision Guide & Documentation process. With this acceptance the Arizona Division concurs that ADOT has a process in place to accept delegation to approve exceptions to design standards for Non-Interstate NHS projects as documented in Attachment A in the Stewardship and Oversight Agreement signed July 2024. This concurrence is effective as of January 1, 2025.

Please contact Jennifer Acuña at 602-382-8976 if you have any questions.

Sincerely,

Karla S. Petty
Division Administrator

By: Jennifer Acuña
Senior Urban Engineer

cc: Greg Byres, Steve Boschen, Hiren Shah, Matt Moul, Chris Cooper, Anthony Sarhan,
Thomas Deitering

ADOT Design Decision Guide *in support of* Performance Based Practical Design (PBPD)

This document has been prepared to provide guidance on required documentation of design decisions made during the development of a project (specifically rehabilitation, reconstruction and new construction projects), including evaluations of different design alternatives, decisions about retaining existing features, or the design of new roadway features that vary from published design values, criteria or standards. ADOT supports incorporating flexibility in applying design values, criteria and standards and supports the engineer's use of the Performance Based Practical Design (PBPD) approach in diligently evaluating design decisions and alternatives that meet the project and system objectives and needs. When conditions warrant, approval may be granted for a project design that proposes one or more design features/elements to have or retain design values that vary from published design values, criteria or standards. Consistent with engineering best management practices, documentation of planning and design decisions, including those associated with features that vary from published design values, criteria and standards within the project work limits must be identified, quantified, evaluated, justified and approved in accordance with FHWA and ADOT requirements.

In support of ADOT's Performance Based Practical Design initiative, and to standardize required documentation for project specific design decisions, ADOT has created a project-specific "**Design Decision Document**" to record key decisions related to design standards utilized on a project (specifically those that deviate from established design guidance or fall outside the range of values provided for that element in the design manual(s)). The "**Design Decision Document**" is a process and a tool used to document not only decisions made, but also the justification (including data, evaluations, etc.) supporting design decisions. Planners and Engineers are encouraged to use this process and tool for all design decisions, but it is required to be used for all decisions to use design values that vary from values published in accepted design guidance published by AASHTO and ADOT (exemptions from this requirement are listed below). The designer shall prepare and submit a **Design Decision Document** prior to, or along with the Stage II (30%) project milestone for all projects, except as described below (however, the process and documentation does not change regardless of what stage a project is in). The **Design Decision Document** provides a uniform method for considering and evaluating design standards, controlling criteria, alternatives, and for documenting design decisions and standards used. The form shall be completed in its entirety by the Engineer of Record, who is responsible for all the documentation, analysis, recommendations and decisions outlined in the document. Upon completion, and based on the design feature evaluated, the form shall be submitted for acceptance and approval by the State Roadway, Bridge and/or Traffic Engineer (as applicable to the design feature), and retained as part of the project design documentation.

Design Decision Document Guidance

Effective January 1, 2025, FHWA and ADOT have established the following guidance related to the approval of design features that vary from published design values, criteria or standards. :

- In support of retaining existing features or the design of new or modified roadway features on the National Highway System (NHS) and State Highway System (SHS) that vary from established controlling design criteria by FHWA or documented in AASHTO Guidelines and ADOT's Roadway Design Guidelines (RDG), the designer shall complete, submit and obtain approval of the required "**Design Decision Document**" , including all supporting required analyses and documentation. Approval by the State Roadway, Bridge and/or Traffic Engineer is required (based on the applicable design feature) prior to any request for authorization of construction of the project.
- This guidance replaces the following previous guidance document on all projects initiated after this document's implementation date:
 - o Design Exception and Design Variance Process Guide - December 14, 2009

- The following types of projects are exempt from the need to prepare and submit a Design Decision Document:
 - Roadway & Bridge Maintenance Projects **
 - Roadway & Bridge Preservation Projects **

**** In order to claim these exemptions:**

- The objective and need of the project must be solely for system preservation of the roadway or bridge surface. No change to three dimensional elements of the roadway or bridge (horizontal and vertical geometry and profile) are included as part of the project's scope of work, including changes to striping configuration.
- Projects do not change the structural pavement section or strength of the existing roadway.
- A crash analysis within the project limits must not indicate any apparent geometric feature that is resulting in higher crash/safety risks or that require safety improvements to be included as part of the project's scope of work.

ADOT Accepted Design Documentation

The following documents provide the established design criteria or standards:

AASHTO's A Policy on Geometric Design of Highways and Streets (Green Book), 2018

AASHTO's A Policy on Design Standards - Interstate System, 2016

ADOT's Roadway Design Guidelines (RDG), in effect at the time of design.

ADOT's Roadway Design Memorandums (RDMs), in effect at the time of design.

ADOT's Bridge Design Guidelines, in effect at the time of the design.

ADOT Project Types & Definitions

ADOT Project Type	Project Type Description & Examples
Maintenance	Planned upkeep and reactionary work performed to repair an asset or respond to specific conditions, incidents or events. <u>Pavement Maintenance Project Examples:</u> Concrete Repair, Flush Shoulder/Edge Repair, Leveling with premix, Patching, Pothole Repair, Slide removal and rock patrol, Spot Filling Cracks/Crack Seal, Spot Pavement profiling/grinding, spot mill/fill. <u>Bridge Maintenance Project Examples:</u> Approach Overlay, Barrier Repair, Drainage/Hydrovac, Channel Work, Cleaning, Minor Crash Repair, Pipe/Culvert Repair, Scour Repair (existing), Slab Jacking, Spall/Pothole Repair, Structure Maintenance, Washing.
Preservation (aka: Surface Treatment)	Improvements that extend the service life of an existing asset. <u>Life Extension Projects & Pavement Preservation Project Examples:</u> AC Grinding/milling less than 2.5" (see LE Guidance for further information on Life Extension project scope), Cape Seal, Chip Seal, Crack Seal/Fill, Fog Seal/flush, Friction Course mill & fill or overlay of friction course, Micro Surface, PCCP Cross Stitching, PCCP dowel-bar retrofit, PCCP Diamond Grinding, Slurry Seal, Spot Repair, Thin Bonded Overlay <u>Bridge Preservation Project Examples:</u> Deck Joint/Seal replacement, Deck Overlay, Deck Seal, Major Channel Repair, Painting, Scour Retrofit, Seismic Retrofit
Rehabilitation	Structural improvements that extend the service life of an existing asset, re-establish load-bearing capacity and bring it back to a fully functioning system as originally designed and constructed. <u>Pavement Rehabilitation Project Examples:</u> Major AC Overlays, Mill & Fill (existing AC) - Equal to or greater than 2.5" <u>Bridge Rehabilitation Project Examples:</u> Major Bridge Element Rehab/replacement, Major Crash Repair, Superstructure Replacement
Reconstruction	Completely rebuilding an existing road, bridge or other transportation asset. <u>Pavement Reconstruction Project Examples:</u> Removal and Replacement of existing Roadway Section, Spot Reconstruction <u>Bridge Reconstruction Project Examples:</u> Bridge/Culvert (over 20ft) replacement
Modernization	Improvements that upgrade efficiency, functionality and safety. <u>Modernization Project Examples:</u> ADA/Pedestrian, Bicycle Lane/Shoulder, Climbing/Passing Lanes, Drainage, Fence, Guardrail (new/replace), Intersection/interchange enhancement, ITS, Pedestrian Crossings, Rockfall Mitigation, Safety Modifications/enhancements, Tree Removal/recovery area, Traffic Control/management, widening or narrowing existing lanes/shoulders (construction or restriping), Wildlife crossings/mitigation
Expansion	New construction work planned and performed to add capacity to the state transportation system. <u>Expansion Project Examples:</u> New Grade-separated overpass/underpass, New Lanes, New Rail, New routes/bypass

Special Note - AASHTO Design Controlling Criteria

As of May 5, 2016, the FHWA identified that design features on high-speed roadways (i.e. Interstate Highways, other freeways, and roadways with design speed ≥ 50 mph) on the NHS that vary from the following 10 published design controlling criteria require approval:

- **Design Speed**
- **Lane Width**
- **Shoulder Width**
- **Cross Slope**
- **Maximum Grade**
- **Stopping Sight Distance** (Vertical and Horizontal Curves)
- **Horizontal Curve Radius**
- **Superelevation Rate**
- **Vertical Clearance**
- **Design Loading Structural Capacity**

On low-speed roadways (i.e. non-freeways with design speed <50 mph) on the NHS, only the following two controlling criteria apply: **Design Speed** and **Design Loading Structural Capacity**.

Effective January 1, 2025, FHWA has assigned responsibility to ADOT for review and approval of non-interstate roadway design features on the NHS that vary from the published design controlling criteria (See above)**. FHWA approval is still required for use of design features on interstate roadways on the NHS that vary from the published design controlling criteria (See above). Approval of design features on the NHS, regardless of the roadway classification, that vary from the ten published design controlling criteria remains a federal action and requires an appropriate NEPA clearance **prior** to final approval.

Special Note - Arizona Department of Transportation - Design Guidelines

Approval is required for existing features to remain or the design of new roadway features on the NHS and SHS that vary from the design criteria or standards documented in ADOT's Roadway Design Guidelines (RDG) and ADOT Design Memorandums. *Similar Project Type Exemptions and requirements for AASHTO Controlling Criteria apply.*

Additional Notes:

1. ADOT will retain records of all approved Design Decision Documentation. ADOT will provide FHWA with copies of approved Design Decision Documentation for non-interstates on the NHS.
2. Approval of design features on the NHS that vary from the published design controlling criteria is considered a federal action which requires compliance with the National Environmental Policy Act (NEPA). Required clearances must be approved prior to final approval of the Design Decision Documentation by either ADOT or FHWA. Design teams remain responsible for obtaining all required clearances for work as required by ADOT and FHWA.
3. Encroachment permits submitted by a local public agency or private entity for work on the NHS or SHS that includes requested design features that vary from the published design criteria, will require the applicant to submit completed ADOT Design Decision Documentation as part of their permit application. Acceptance and approval of this documentation is required prior to approval of the encroachment permit.
4. The current version of the "Design Decision Guide" and "Design Decision Document" is available on ADOT's website. It is the responsibility of the engineer preparing the documentation to confirm and utilize the latest version as part of their submittal.

Design Decision Documentation and Approval Process

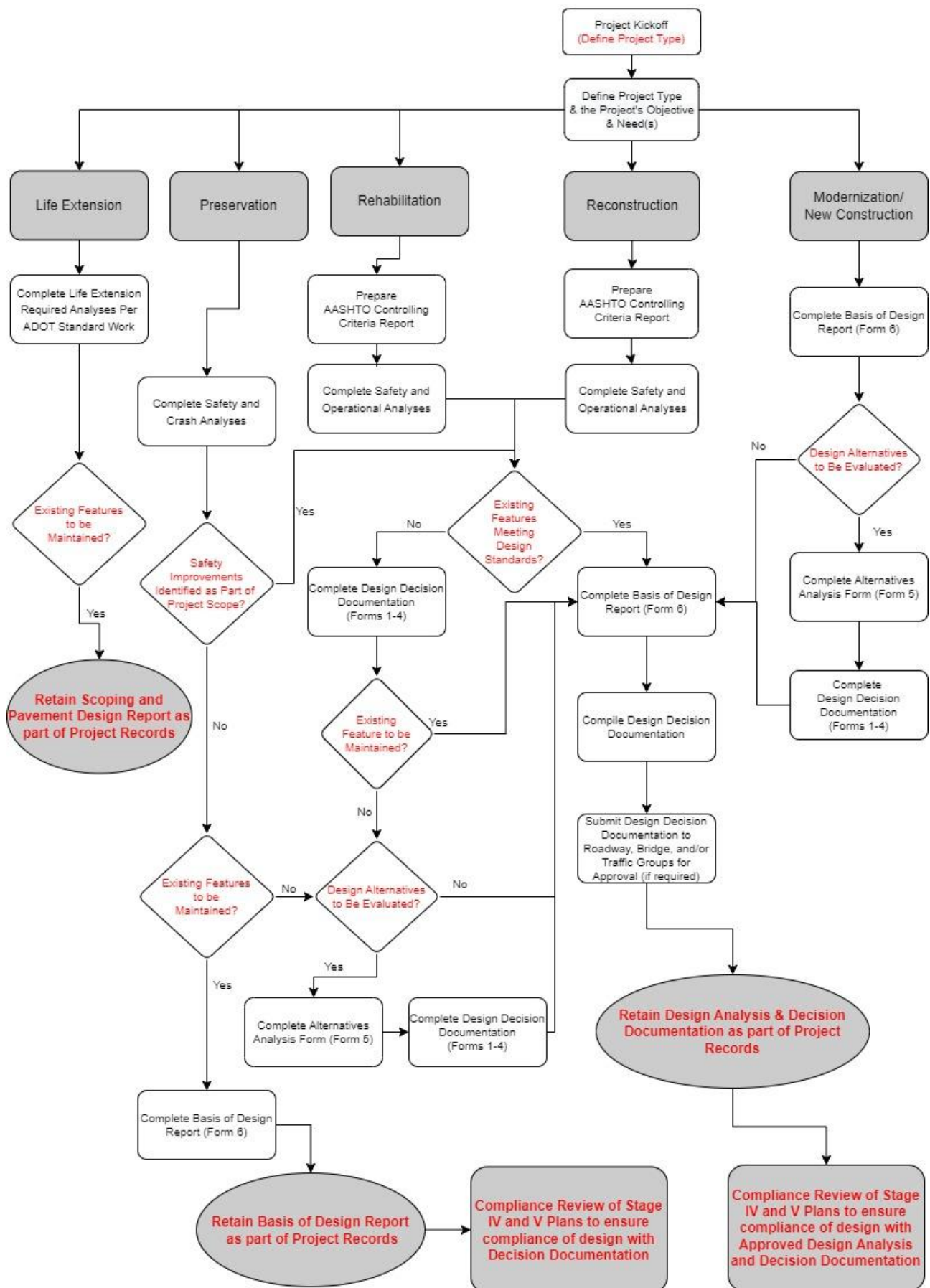
The process for requesting and obtaining approval of Design Decision does not change regardless of what stage a project is in. However, it is best if requests for approval for features to be constructed or retained should occur at the earliest stage feasible, so as to minimize any impact to a project's scope, schedule or budget. The designer shall prepare and submit a **Design Decision Document** prior to, or along with the Stage II (30%) project milestone for all projects, except as described in this document (however, the process and documentation does not change regardless of what stage a project is in). All requests for approval of Design Decision Documentation must use and follow the requirements of the "Arizona Department of Transportation – Design Decision" forms (see attached). Content and information required is summarized below, but is further explained in the "**Design Decision Document**" form.

1. Project Data and Description (Form 1)
 - a. Project Name, Number Type, Scope and Location
 - b. Project Data & Criteria
 - c. Baseline Project Description
 - d. Primary Objective & Baseline Need Statements
 - e. Project Scope Statements, Performance Metric(s), and Potential Risks
 - f. Safety & Traffic Operational Analyses
2. Summary of Design Features (Form 2)
 - a. Identification of Design Features that Require Design Justification
3. Analysis & Justification Form (Form 3)
 - a. Design Feature - Detail Information Table
 - b. Justification & Supporting Recommendation Supported by Analysis
 - i. Traffic Analysis
 - ii. Crash Analysis
 - iii. Alternatives Considered and Evaluated
 - iv. Other Impacts and Considerations
 - v. Mitigation Measures Evaluated & Proposed
 - vi. Supporting Documentation
 - c. Conclusion & Recommendation
4. Design Decision Signature Form (Form 4)
 - a. Engineer of Record Information and Signature
 - b. Approval Agency Signature(s)
5. Design Alternatives Analysis (Form 5)
 - a. Design Feature Name
 - b. Alternatives Considered
 - c. Preferred Alternatives Analysis & Recommendation
6. Basis of Design Report (Form 6)
7. Sample Cover Letter/Memorandum (Form 7)

**** As part of the engineer's approach to support approval of design analyses and decisions, appropriate consideration should be given and documentation provided on the impacts to the traveling public, the environment, and available budget, functional classification, transportation mode, traffic characteristics, existing conditions and performance (operations and safety), alternatives, future projects, mitigations measures and the type of project. The objective and need of the (Type of) project should determine the level of justification required for the analysis. For all Design Decisions, an existing and proposed conditions operational and safety analysis shall be performed based on the Highway Capacity Manual and Highway Safety Manual or other relevant methods. The extent of the feature being analyzed and its impact on the project or future projects within the corridor should be considered, as well as, the proximity and impact of the feature with respect to others.**

A copy of all approved **Design Decision Form** shall be retained as part of the project design records in accordance with records retention requirements. Prior to completion of Stage IV & V design documentation, the Project Manager and Design Engineer shall review the designs to ensure they comply with the approved Design Decision Form documentation (including applicable mitigation measures). If plans do not comply with the Design Decision Form documentation, the applicable Design Decision Form documentation must be revised and reapproved before the project may be advertised.

Design Analysis & Decision Standard Workflow



Design Decision - Project Data and Description (Form 1)

Project Name:					Project Number:	
District Name:					Hwy/Route No.:	
Highway/Route Name:					Highway No.:	
County Name:		Begin MP		End MP		Classification:
Municipality Name:						
Type of Project:						

PROJECT DATA

Functional Classification:							
Current AADT (Year):				Design AADT (Year):			
% Trucks and Truck DHV:		Vertical Clearance Route:	☐ Yes ☐ No				
Posted Speed:		Design Speed:		Bid Date:			
Programmed Year and Funding Source:							
Current Estimate:				Additional Cost to Meet Standard:			
Federal Highway Approval Required:	Yes ☐ No ☐	Alt. Modal Considerations	Yes ☐ No ☐	NHS:	☐	SHS:	☐
				Non NHS:	☐	Non SHS:	☐

BASELINE PROJECT DESCRIPTION

Primary Objective of the Project	<i>Statement summarizing the desired outcomes/goals that ADOT intends to fulfill as part of the successful design and construction of the project - specifically identifying performance and/or safety objectives that are targeted to be achieved by the successful completion and construction of this project.</i>
Baseline Need(s)	<i>Identify the problem or problems that the proposed action (design and construction) is intended to address and explain, to the extent possible, the underlying cause(s) of those problems.</i>
Safety Analysis	Yes ☐ No ☐ (If Yes, enter the title and date. If NO, enter why it was not needed.) <i>Document source and results/recommendations from the "Basic" or "HSM-Based Safety Assessment" of existing conditions. Crash Analysis shall include 5-yr crash history (including collision data like type, severity, time of day, cause, MP limits). Analysis shall document patterns, contributing factors, types of crashes that could be attributed to substandard features, field observations, and conclusion based on crash history. Crash/Safety Analysis shall be prepared or reviewed/concurred with by ADOT's Traffic Safety Section.</i>
Traffic Operational Analysis	Yes ☐ No ☐ (If Yes, enter the title and date. If NO, enter why it was not needed.) <i>Document source and results/recommendations from the Traffic Operational Analysis of existing conditions. All appropriate traffic data (and sources) should be included.</i>
AASHTO Controlling Criteria Report	Yes ☐ No ☐ (If Yes, enter the title and date. If NO, enter why it was not needed.) <i>Required for all Rehabilitation, Reconstruction, Modernization and Expansion Projects.,</i>
Environmental Clearance Required	CE ☐ EA ☐ Other ☐ _____ Date: _____



Project Name:		Project Number:	
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Design Feature(s) Analyzed		
FHWA-10 Controlling Criteria	RDG Chapter 100 – Design & Criteria	RDG Chapter 400 – At-Grade Intersections
☐ Design Speed	☐ Level of Service	☐ Use RODEL Software Model
☐ Lane Width	RDG Chapter 200 – Elements of Design	☐ Skewed Intersections Exceeding 20 degrees
☐ Shoulder Width	☐ Superelevation Transition Length	☐ Access Openings on Freeways
☐ Cross Slope	☐ Ramp and Lane Taper Cross Slope	☐ Crossovers
☐ Maximum Grade	☐ Horz. Align. Control Coincident to Axis	☐ Private Road Connections
☐ Stopping Sight Distance	☐ Use of Spiral Curves	☐ Intersection Stopping Sight Distance
☐ Horizontal Curve Radius	☐ Profile Grade Line Coincident to Axis	☐ Intersection Sight Distance
☐ Superelevation Rate	☐ Minimum Highway Grade over 4000ft	☐ Intersection Grades
☐ Vertical Clearance	☐ Maximum Grade Break w/o Vert. Curve	☐ Free Right Turns
☐ Design Loading Structural Capacity	☐ Separate Grade Lines for Div.Highway	RDG Chapter 500 – Traffic Interchanges
	RDG Chapter 300 – Cross Section Elements	☐ Crossroad Grade at Ramp Termini
	☐ Horz. Clearance to Obstruction	☐ Paved Gore Crossover Rates
	☐ Shoulder Wedge Steeper than 6:1	☐ Loop Ramp Minimum Radius
	☐ Min. Median Width w/o Barrier (Rural Highway)	☐ Ramp Taper and Ramp Gore Crossover Rate
	☐ Median Barrier Warrants	☐ Ramp Width
	☐ Median Curb Types (Urban Highways)	☐ Parallel Exit Ramps in Urban Areas
	☐ Guard Rail at Embankment Curbs	☐ No Curbed Gores
	☐ Long. Barrier End Treatment	☐ Parallel Entrance Ramps in Urban Areas
	☐ Rural Cross Section – Section RA	☐ No Curbed Gores
	☐ Fringe Urban Section – Median Width	☐ Maximum Ramp/Crossroad Intersection Angle
	☐ Sidewalk Ramps Conform to ADA	☐ Access Control Limits
	☐ Right of Way Fence	RDG Chapter 600 - Highway Drainage Design
	☐ Detour Horizontal Alignment	☐ **See Note 1 Below
	☐ Detour Stopping Sight Distance	RDG Chapter 700 – Earthwork Design
	☐ Detour Sidewalks have Temp. Concrete Barrier	☐ Ground Compaction App. To Embankment

Design Features requiring Design Decision Approval have been identified at the following locations:

Dated: January 1, 2025

Design Decision Document - Analysis & Justification Form (Form 3)

For Each Design Feature Type identified in Form 2, complete the following table and provide the required Justification and Supporting Documentation.

Design Feature Type:						
Feature Number	Location and Direction (Station and Milepost)	Type Guidance Source (AASHTO or ADOT RDG)	Published Design Value	Existing Condition (Y/N) (If Yes, provide data)	Provided (Proposed Project Conditions)	Difference (from Published Design Value)

***This is an example of a table that contains minimum required information. The Design Engineer may customize to add or adjust data types based on relevant Design Feature Elements.*

Justification and Supporting Recommendation supported by Analysis:

• **Traffic Analysis - Existing Conditions (if feature is existing) & Proposed Conditions:**

Include operational and safety analysis of both existing and proposed conditions, including analysis and recommendations that support the change from standard.

• **Crash Analysis (Existing Conditions):**

Include 5-year crash safety analysis of existing conditions (type, severity, time of day, cause, MP limits, etc.). Include analysis that identifies patterns, contributing factors, substandard features, field observations, and conclusion(s) based on crash history.

• **Alternatives Considered and Evaluated (Operational, Performance and Safety Comparison):**

Document design alternatives considered and evaluated.

- *Include costs, practicality, existing operational safety and performance results and predicted operation and safety performance results from alternatives evaluated and selected.*
- *The Predictive Safety Analysis for alternatives shall include no-build, full standards (with recommended design standard), and alternatives. Include discussion on anticipated safety performance - speed, severity, lane continuity, weaving, types of crashes, etc..*
- *Operational Analysis (if applicable) of alternatives evaluated.*

• **Other Impacts and Considerations (Compatibility, Cost, Environmental, ROW, etc.):**

Additional considerations may include ROW or environmental constraints, impact to community, project costs, other modes of roadway use, etc. If appropriate, include B/C analysis or other analyses performed (compatibility with adjacent sections of road, future planned and/or programmed improvements or reconstruction, maintenance, added cost to make/meet standard, and other risks) in support of design the alternative recommended and selected.

• **Mitigation Measures & Strategies Evaluated & Proposed (Not Included & Included):**

Include a list of all safety mitigation measures that will be implemented on this project. Include analysis of predictive safety performance results by including the mitigation measures as part of this project and quantitative analysis that supports implementation of the mitigation measure and proposed improvements. Designers should review and evaluate applicability and effectiveness of "FHWA's "Design Decision Documentation and Mitigation Strategies for Design Exceptions" as a helpful guide and resource. If none, provide a reason why.

• **Supporting Documentation**

Include appropriate Plan Section(s), Maps, Exhibits, Cross Section(s), Alignment Sheet(s), Plan Detail(s), IHSDM Analysis, and Previously approved design documentation, including Design Standard/Criteria Change(s).

Conclusion and Recommendation:

Document the engineer's reasons and recommendation(s) for approving the change from standard instead of using established design guidance. Include a statement that supports the recommendation based on maintaining or improving the system's operational and safety performance if the change is approved and its alignment with the project's documented objective and need.

****Add additional pages for additional Design Features Analyzed (Design Feature No. 2, No. 3, etc.)**



ARIZONA DEPARTMENT OF TRANSPORTATION
DESIGN DECISION DOCUMENT
(In Support of Performance Based Practical Design)

Design Decision - Signature Form (Form 4)

Signatures

Prepared By: _____

Date: _____

(Engineer of Record)

Print Name:		Phone:	
Company/Agency Name:			
Company/Agency Address:			
City:		ST:	
Email Address:			

(AZ PE Sign/Seal)

Approved By: _____

(if required**)

Date: _____

(ADOT State Roadway Engineer)

(Print Name)

Approved By: _____

(if required**)

Date: _____

(ADOT State Bridge Engineer)

(Print Name)

Approved By: _____

(if required**)

Date: _____

(ADOT State Traffic Engineer)

(Print Name)

**ADOT Review and Approval only required for designs not meeting ADOT or AASHTO Design Guidelines, Standards, Values or Criteria.

Agency Review Comments	
ADOT/FHWA Name & Department:	Comment(s):

Design Decision - Alternatives Analysis Form (Form 5)

Design Feature Analysis		
<u>Design Feature Name:</u>	<u>Alternative Name & Description</u>	
<u>Alternatives Considered (circle the preferred alternative)</u>	A	<i>Provide a brief description of each alternative considered. Talk about key elements of the alternative that came into consideration when selecting the preferred alternative (include cost).</i>
	B	
	C	
	D	
	E	
Preferred Alternative _____ was selected because: <i>Describe why (reasons) you selected the preferred alternative. Attach copies or provide information regarding alternatives analysis, cost comparisons, operational analysis, safety performance analysis, or similar exercises that have been completed for this project. Any mitigation measures anticipated or proposed as part of the alternatives being evaluated and selected should be included. If the prime considerations for selecting an alternative were documented in another document, you do not need to go into detail here but document where that information can be found. Instead, provide a summary, reference the document, and include it in the Design Approval.</i>		

Basis of Design - Design Standards For (Form 6) (DRAFT EXAMPLE ONLY)

Project Info:		Route County Milepost Tracts Name																			
Terrain		Type, New Reconstruction, Rehabilitation, Preservation																			
AADT, K, D, T		DHV, TDHV																			
Posted Speed Limit																					
Design Year Construction Year																					
Freeway - Controlled Access - Mainline																					

Design Decision - Sample Cover Letter/Memorandum (Form 7)

(Date)

To: (Name), ADOT State Roadway Engineer

Through: (Name), ADOT Project Manager

From: (Name), Title & Company/Agency (Engineering of Record)

Re: Design Decision Documentation

Project Name, Route/Location, Limits, ADOT Project Number, Federal ID No. (if applicable)

This letter, along with the accompanying Design Decision documentation, is being submitted to you in support of the above referenced project, which is a *{Provide brief project description}*.

These improvements are intended to address the project objectives of *{Provide brief description of the documented project objectives and needs}*.

The accompanying Design Decision documentation has been prepared and is being submitted for approval in support of using *(or maintaining)* the following design features within the project limits that vary from published design values: *{List Design Features that are documented in the Design Decision Documentation}*.

This letter, along with the enclosed Design Decision Document and supporting information identifies the specific design features, evaluations, and recommendations in support of this request to approve the Design Decision Documentation. Based upon the information contained in the attached Design Decision documentation, the proposed improvements and the associated design decision meets the project objectives and is anticipated to result in a net improvement in the operations without having an adverse effect on the safety performance of the system at this location. ADOT is requesting approval of these Design Decisions.

ADOT Environmental Planning approved a Categorical Exclusion (CE) *(or other appropriate type of NEPA Clearance)* on *{date}* for the Design Decision.

Please advise if further action is required on the above matter.

Attachments: *Include Design Decision Documentation*

cc: ADOT Pre-Design Section Manager