



ENGINEERING & OPERATIONS DEPARTMENT

PO Box 1110, Tampa, FL 33601-1110
813-635-5400 | Fax: (813) 272-5811

TRANSPORTATION DESIGN BULLETIN 21-13

DATE: January 11, 2021

TO: County Director of Capital Programs Department,
County Manager of Construction Services,
Division Director of Transportation Maintenance,
County Project Managers and Project Engineers of Record

FROM: County Engineer,
County Director of Engineering & Operations Department,
County Director of Technical Services Division,
County Manager of Transportation Services Section

COPIES: County Director of Geospatial & Land Acquisition Services Department

SUBJECT: DESIGN EXCEPTIONS AND DESIGN DEVIATION MEMORANDUMS METHODOLOGY

This bulletin announces the implementation of a standardized procedure for processing and documenting Design Exceptions and Design Deviation Memorandums. A Design Exception or Design Deviation Memorandum serves as documentation of a decision to allow the acceptance of a value, for a specific design element, that is less than the stated minimum design criteria value established by Hillsborough County standards.

REQUIREMENTS

A Design Exception or Design Deviation Memorandum is required when the Hillsborough County's standards and criteria are not met. When it becomes necessary to deviate from Hillsborough County's criteria, early documentation and approval are required. The level of detail for Design Exceptions or Design Deviation Memorandums should be commensurate with the complexity of the design element and the relevance of information to engineering decisions. Sufficient detail and explanation must be provided to those reviewing the request in order to justify approval.

Each Design Exception and Design Deviation Memorandum request must be submitted independently, unless the controlling elements work in concert with one another. The approved Design Exceptions or Design Deviation Memorandums submittal must be included in the project file to clearly document the action taken and the approval given.

To allow time to research alternatives and begin the analysis and documentation activities, it is critical that Design Exceptions and Design Deviation Memorandums be identified as early in the

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process as possible to avoid major project changes in the final phases of the project. This is preferably done during the planning phase of a project or as soon as possible during initial design. Submittal of Design Exceptions and Design Deviation Memorandums should be provided with the **60% Phase** design submittal.

When the Engineer of Record (EOR) determines a need for a Design Exception or Design Deviation Memorandum, the EOR must coordinate with the Hillsborough County Project Manager and the Technical Services Division Director or Designee to obtain conceptual concurrence. Once agreement is received from the County representatives to move forward with the Design Exception or Design Deviation Memorandum, the EOR will need to formally submit the necessary documentation described below for approval by the County.

Design Exceptions:

Design Exceptions are required when existing or proposed design elements do not meet both the Hillsborough County Standards and American Association of State and Highway Transportation Official's (AASHTO) new construction criteria for the 12 Controlling Design Elements. Sufficient detail and justification for each Design Exception must be documented by the EOR and submitted to the Technical Services Division Director and County Engineer for approval.

The 12 Controlling Design Elements below will apply to all Hillsborough County Arterial Roads and Collector Roads inclusive of all design speeds.

1. Design Speed
2. Lane Widths
3. Shoulder Widths
4. Clear Zone
5. Horizontal Curve Radius
6. Superelevation Rate
7. Stopping Sight Distance
8. Maximum Grade
9. Cross Slope
10. Vertical Clearance
11. Design Loading Structural Capacity
12. American with Disabilities Act (ADA)

Hillsborough County Local Roads will require Design Exceptions for the following two Controlling Design Elements:

1. Design Speed
2. Design Loading Structural Capacity

Design Deviation Memorandums:

Design Deviation Memorandums are required when existing or proposed design elements, other than the Controlling Design Elements, do not meet the Hillsborough County Standards. Sufficient detail and justification of such deviations must be documented, as described below, by the Responsible Professional Engineer as Design Deviation Memorandums and submitted to the Technical Services Division Director for approval.

Submittal Requirements for Design Exceptions:

All Design Exceptions must include the following documentation to justify the request:

- 1) Complete Design Exception Approval Cover Letter (see Page 6).
- 2) Project Description: General project information, location map, project limits, context-based classification, functional classification, design speed, design vehicle, existing roadway characteristics, objectives of Exception, and obstacles. Include any associated or future limitations that exist as a result of public or legal commitments.
- 3) Project Schedule and Lifespan: Include the expected date that plans are to be completed and the proposed date that construction is to begin. Explain why the proposed Design Exceptions are either a temporary or permanent condition. Include any future work planned or programmed to address the condition.
- 4) Design Exceptions Documentation:
 - a) All documentation is to be provided in one comprehensive report signed and sealed.
 - b) Detailed explanation of why the criteria or standard cannot be complied with or is not applicable.
 - c) Provide the following data in a table format:
 - i. Manual name and specific chapter or section that states the design criteria:
 1. Value of the design criteria that will not be met (Hillsborough County Standards and AASHTO standards)
 2. Value of the existing design element
 3. Value of the proposed design element
 - ii. Location(s) of all instances of the Design Exception by station and offset (including left/right side). Include all locations individually.
 - d) Explanation of why the proposed value is appropriate.
 - e) A plan view, plan sheet, or aerial photo of the Design Exception location, showing the posted speed, right of way lines, and property lines of adjacent property.
 - f) A photo(s) of the area(s) of the deficiency.
 - g) Typical section and/or cross-sections of the Design Exception location(s).
- 5) Alternative Designs Considered: meeting County criteria, meeting AASHTO criteria, partial correction, and the no-build (existing) condition.
- 6) Impacts of the Exceptions
 - a) Safety Performance:
 - i. Summary of the most recent completely processed 5 year crash history including any pertinent crash reports related to the Design Exception element.
 - ii. Description of the anticipated impact on safety, both long and short term effects. Description of any anticipated cumulative effects.
 - iii. For non-existing or proposed conditions, a comparison of the predicted or expected crash frequency should be included along with a discussion of the 5-year crash history. Some resources that are available for this comparison include:
 1. Clearing house crash modification factors
 2. Highway Safety Manual (HSM)
 3. Interactive Highway Safety Design Model (IHSDM)
 4. Roadside Safety Analysis Program (RSAP)
 5. Roadway Safety Fundamentals (FHWA)

- b) Operational Performance:
 - i. Description of the anticipated impact on operations, both long and short term effects. description of any anticipated cumulative effects.
 - ii. Traffic information: Current and Design Year AADT and 24-hour truck volume.
 - iii. Compatibility of the design with adjacent sections of roadway.
 - iv. Effects on capacity (proposed criteria vs. AASHTO) using an acceptable capacity analysis procedure and calculate reduction for design year, level of service.
 - c) Right-of-way Impacts
 - d) Community Impacts
 - e) Environment Impacts
 - f) Usability by all modes of transportation
- 7) Costs: Description of the anticipated costs associated with the Design Exceptions. Provide a Benefit-Cost (B/C) ratio.
- 8) Mitigation Measures: Description and explanation of practical mitigation measures or alternatives that were considered and selected treatments implemented on the project.
- 9) Summary of Conclusions
- 10) Recommendations

Submittal Requirements for Design Deviation Memorandums:

All Design Deviation Memorandums must include the following documentation to justify the request:

- 1) Complete Deviation Memorandum Approval Cover Letter (see Page 6).
- 2) Project Description: General project information, location map, project limits, context-based classification, functional classification, design speed, design vehicle, existing roadway characteristics, and explanation of required criteria versus proposed criteria.
- 3) Design criteria versus proposed criteria:
 - a) Description of Applicable Criteria presented in a table format:
 - i. Manual name and specific chapter or section that states the design criteria:
 - 1. Value of the design criteria that will not be met
 - 2. Value of the existing design element
 - 3. Value of the proposed design element
 - ii. Location(s) of all instances of the Design Deviation by station and offset (including left/right side). Include all locations individually.
 - b) Explanation of why the proposed value is appropriate.
 - c) A plan view or plan sheet of the Design Deviation location, showing right of way lines and property lines of adjacent property.
 - d) Typical section and/or cross-sections of the Design Deviation location(s).
- 4) Explanation of why the criteria or standard cannot be complied with and is not appropriate.

- 5) Impact of the Deviation:
 - a) Design Deviation’s anticipated long and short-term effects on safety and potential compromises to the safety and welfare of the travelling public
 - i. Review and evaluate the most recent 5 years of crash history (location, type, severity, relation to the Design Deviation element).
- 6) Justification of why the proposed design criteria is appropriate.
- 7) Recommendations

BACKGROUND

Previous Design Exceptions request have not followed a standardized methodology. Not all County Transportation Projects have had the same level of documentation justifying Design Exceptions leading to inconsistencies in project documentation. The inconsistencies developed because the Design Exceptions are a very formal process to address the controlling design elements and there was no less formal process to address noncontrolling design elements. The Design Deviation Memorandum allows for addressing variations for noncontrolling design elements. The implementation of this bulletin reinforces the County’s requirement to have standardized supporting documentation for Design Exceptions and Design Deviation Memorandums.

IMPLEMENTATION

Effective Immediately from this date forward for all new Design Exceptions and Design Deviation Memorandums applications.

CONTACT

Please use the email link below to address any questions or comments in reference to this Design Bulletin:

[PW-Standards_Inquiry](#)

Recommended / Date:

Approved / Effective Date:

Leland Dicus, Professional Engineer
Technical Services Division Director

Michael J. Williams, Professional Engineer
County Engineer



ENGINEERING & OPERATIONS DEPARTMENT

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SUBJECT: APPROVAL COVER LETTER **DESIGN EXCEPTION** **DESIGN DEVIATION MEMORANDUM**

TO: _____ **DATE:** _____
County Engineer and/or Technical Services Division Director

County Street Name and/or Road Number: _____
Project Description (limits): _____
County Capital Improvement Program Number: _____
Context-Based Classification: _____

TYPE OF CONSTRUCTION: (check all that apply)

- | | | | | |
|--|---|---|--|--|
| <input type="checkbox"/> Corridor Reconstruction | <input type="checkbox"/> Pavement Preservation and Roadway Resurfacing | <input type="checkbox"/> Trails | <input type="checkbox"/> Drainage Retrofit | <input type="checkbox"/> Other Safety Projects |
| <input type="checkbox"/> New Construction | <input type="checkbox"/> Intersection Modifications and Signalization Updates | <input type="checkbox"/> Bridge Repair and Replacements | <input type="checkbox"/> Safe Routes to School | |

DESIGN EXCEPTION FOR THE FOLLOWING ELEMENT: (check one)

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Design Speed | <input type="checkbox"/> Clear Zone | <input type="checkbox"/> Stopping Sight Distance | <input type="checkbox"/> Vertical Clearance |
| <input type="checkbox"/> Lane Widths | <input type="checkbox"/> Horizontal Curve Radius | <input type="checkbox"/> Maximum Grade | <input type="checkbox"/> Design Loading Structural Capacity |
| <input type="checkbox"/> Shoulder Widths | <input type="checkbox"/> Superelevation Rate | <input type="checkbox"/> Cross Slope | <input type="checkbox"/> American with Disabilities Act (ADA) |

DESIGN DEVIATION MEMORANDUM FOR THE FOLLOWING ELEMENT:

Include statement identifying location, project limits, key controlling criteria, existing roadway characteristics, and required criteria versus proposed criteria:

Attach all supporting documentation to this form in accordance with Transportation Design Bulletin 21-13.

SIGNATURES AND APPROVALS:

Recommended by / Date: _____	Recommended by / Date: _____ (For Design Exceptions)	Approved by / Date: _____ (For Design Exceptions Only)
	Approved by / Date: _____ (For Design Deviations)	

_____ Responsible Professional Engineer	_____ Leland Dicus, Professional Engineer Technical Services Division Director	_____ Michael J. Williams, Professional Engineer. County Engineer
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