

DESIGN BULLETIN #72/2010 (Revised September 2017)

Design Exception Request Process

Background

This Bulletin is issued to inform practitioners of the Department's process for obtaining a Design Exception.

Design Exceptions are defined as instances where a designer has chosen or is requested to use a parameter, guideline, principle or product which is different from the currently published standards and/or practices. The intent of a Design Exception is to determine, justify and document that good engineering judgment is being exercised, with risks identified and mitigated. A Design Exception may be initiated by the Consultant or by the Department.

Consultants are encouraged to suggest innovative designs and/or value optimizing adaptations to designs. Examples where flexibility in design has been accepted in the past include:

- Reduced exposure/risk on low volume roads;
- An unconventional barrier layout (Ontario standard);
- Reduced design speed;
- An unconventional layout to accommodate log haul vehicles at an intersection;
- Median acceleration lanes;
- Stopping sight distance on directional ramps;
- Steep gradients in rolling or mountainous terrain;
- Intersection sight distances and/or stopping sight distances on existing paved roads, etc.

A listing of previously submitted Design Exception summaries is available on the Department's website at: <http://www.transportation.alberta.ca/4921.htm>.

If the Department triggers a Design Exception, this should be clearly recorded with supporting documentation provided by the department. The Department may trigger a Design Exception due to a constraint in the budget, schedule, or possibly because the Department is aware of an unconventional solution that should be considered for the project. Therefore, the Department may request unconventional options to be assessed, and/or an option not recommended by the Consultant. The Department should identify contemplated Design Exceptions in the Terms of Reference for projects where possible. However, in some cases the need for a Design Exception may not become apparent until later in the process. Some examples of Department-initiated Design Exceptions include: using a single lane bridge, deferring construction on an interchange, limiting pavement structure thickness, undertaking a trial project, installing a trial product, allowing overlay of narrow pavement, etc.

Design Exception requests may be accepted at either the functional planning, special studies initiated by the Department (e.g. Geometric Assessments, Safety Assessments, Road Safety Audits etc.) or detailed design stage. The acceptance of all Design Exceptions shall be documented for future reference.

Note: If there emerges an ongoing recurrence of similar types of Design Exceptions being

received, the Department may consider the need to change their standards.

In order to obtain a Design Exception, the following process shall be followed to ensure that the submitted request is adequately documented. A Design Exception request must be submitted with project details, rationale and justification to support why the established standard cannot or should not be used.

Process and Supporting Documentation

It is prudent that the proponent of a Design Exception have a dialogue with the appropriate person in TSB and the Project Sponsor in advance to ensure that the submission addresses pertinent issues that the Department is aware of (in addition to issues that the consultant is aware of). This step is expected to result in a less onerous and more timely process overall.

The following is a list of documentation / information that may be required (if applicable) to support and to justify a Design Exception request.

- Description and details of the project including the type of project (functional planning, new construction, 3R/4R projects, bridge, pavement surfacing, etc.), the location of the project, length and limits of the project including the Km posts, highway service class or level, design speed, posted speed, cross-sections, and other improvements to be considered.
- Site plans, profiles, sketches, detailed drawings, and/or photographs of the Design Exception and the alternatives considered.
- Current and future projected traffic volumes, growth rate, traffic composition, Turning Movement Diagrams (if applicable).
- Description of the proposed or planned work(s) requiring a Design Exception.
- Description of the degree to which the standard is being modified. The values of the current standards and/or practice and the recommended proposed values that are to be used instead shall be provided.
- Information on what impact, if any, the exception may have on other standards or practices.
- Information on implications to future planned improvements to the roadway or corridor that may need to be considered.
- Summary of the current standards/practices that are not being followed and what alternatives were considered and evaluated. Detailed rationale and/or justification to support the recommendation. If the Design Exception has been initiated by the Department, the Department shall provide the supporting rationale. If the Consultant is aware of a better than standard option while doing the assessment or conceptual design, presenting that option (at a high level – minimal detail) is part of the basic expectations of delivery from a skilled, professional partner.

- A detailed review of the collision history within the project limits. Address and summarize the safety and operational implication and/or collision experience related to the proposed work(s) for the Design Exception. Review and assess if the exception to the standard significantly impacts the safety and/or operation in the specific area or the overall project.
- Cost estimate to build to standard versus Design Exception. Cost estimates of alternatives. Depending on the economic impact of the proposal on the amount or timing of capital, maintenance, road user or other costs, an economic analysis may be warranted. This is not a mandatory requirement but rather is dependent on the project and the nature of the Design Exception. In many cases a simplified benefit cost analysis may be appropriate. In all cases the principles used should be consistent with the department's Benefit Cost Guide even though use of the Guide's spreadsheet is not mandatory.
- Assessment of the exposure and risk with respect to traffic volume, location, severity (worst case scenario), duration, etc. The evaluation may involve an assessment beyond the project limits. The evaluation may also include a Road Safety Audit (RSA). Normally if a Road Safety Audit (RSA) has been completed on a project, this would be submitted together with the Design Exception request. In the event that an RSA has not been done and the Executive Director of Technical Services Branch (TSB) feels it is needed to support the request, an RSA may be required. The performance of an RSA at the Design Exception stage is not the usual practice and can be expected to delay the process beyond the usual response time of three weeks.
- Evaluation and mitigation measures. Description of any proposed mitigations (safety enhancements such as signing, markings, barriers, etc.) to reduce the potential impact and/or risk of not meeting the current standards and practices. Practices implemented in other jurisdictions may be recommended as a potential solution if warranted by the conditions in a particular design.

Design Exception requests may occur at the planning stage. Current information on planning practices in the Department is not readily available for some of the subject areas. Please contact the Executive Director responsible for Planning or the appropriate Regional Director where clarification is needed.

Requests may be submitted with the Design Exception form attached. The form can be modified as required to suit the request. Regardless of the format used for the submission, the important thing is that the issues referenced in the process are addressed by the party preparing the Design Exception request.

Recommendation and Acceptance

If a Design Exception request has been prepared and advanced by a consultant to the Region (or other Project Sponsor), the supporting documentation shall be stamped by the appropriate professional in advance of submission to the Department. Depending on the nature of the Design Exception, an appropriate professional may include areas of other practicing disciplines from other professional associations, societies and/or organizations recognized in the Province of Alberta.

If a Design Exception has been accepted at the planning stage or through Geometric Assessment, Safety Assessment or Road Safety Audit, the need to revisit that decision at the design stage is to be determined by the Department and would be stated in the Terms of Reference. Planning decisions often warrant a re-visit for various reasons such as: the time elapsed since the planning work was undertaken, evolution of standards and practices, changes in adjacent development and urbanization etc.

In some cases, the Department may request a consultant to prepare a Design Exception. The Department shall provide time constraints and financial constraints if they exist. Examples of those cases will be DEs triggered by funding limitations, unresolved utility issues between the Department and third parties, inadequate right-of-way resulting from unsuccessful expropriation or regulatory requirements. The Consultant has the right to refuse the work if they are uncomfortable with the Department's request.

All requests for Design Exceptions must be submitted by the Project Sponsor and the appropriate Executive Director, to the Executive Director of TSB for acceptance.

If the Design Exception is accepted, the acceptance shall be signed off on the Design Exception form by a Professional Engineer representing Alberta Transportation. When the Design Exception is accepted, the Department considers it to be the standard for that element of that particular project.

The Department understands that there may be a change in the risk level when Consultants are working outside of the normal standards and practices. Consequently, the Department is willing to evaluate each Design Exception on a case by case basis. If the Design Exception is accepted, the Province would expressly agree to the deviation from normal standards/practices for that particular instance on that particular project.

Appeal Process (between Consultant and Department)

If the Consultant is in disagreement with the Design Exception as requested by the Department, they may appeal to the Department in a process as follows:

- Communicate to the Project Sponsor (typically the Region) the rationale/justification for the disagreement with the Design Exception.
- The Project Sponsor shall set up an appeal meeting with the Consultant and representatives from TSB and/or Planning, whichever is applicable. The purpose of the meeting will be to discuss the concerns of all parties involved, and to establish a joint solution that is generally agreeable to all, subject to fiscal and time constraints. The meeting shall be recorded and the minutes shall be provided as supporting documentation to facilitate the acceptance process of the Design Exception. If an agreement cannot be reached in the appeal meeting, the decision may be elevated to the Executive Director of TSB. Alternately, the Consultant may choose not to proceed with the project, or the Department may choose to remove the work in question from the overall scope of the project; in both cases another party will have to be solicited to perform the unfinished work.

- If an agreement is reached, proceed with the solution established at the appeal meeting, providing all required documentation as per the usual Design Exception request process (including the minutes from the appeal meeting).

Timeframe for Response

If the Design Exception application is fully documented (including a rationale, drawings, risk analysis etc. as applicable), the normal timeframe for response from TSB is three weeks. In the interest of getting a timely response, it is prudent for the Consultant or Project Sponsor to engage in initial discussions with TSB on the concept and clarification of required information prior to the formal submission.

Dispute Resolution (internal to the Department)

In the event that an agreement cannot be reached between the Executive Director, TSB, and the sponsoring Executive Director on the Design Exception, then it may be elevated to the Assistant Deputy Minister (ADM) of Transportation Services (TS) for a final decision.

All requests must be fully documented (including the decision of the Executive Director, TSB) and submitted by the sponsoring Executive Director to the ADM of TS. The Executive Director, TSB should be copied on the request.

Effective Date: August 3, 2010.
Revision (1): September 15, 2017

Contact: Bill Kenny or Peter Mah, Technical Services Branch, Alberta Transportation.

Attachment

1. Design Exceptions Request Form. Version: September 2017

The attached Form is available in Microsoft Word format on Alberta Transportation's webpage. [Click here for MS Word document.](#)

Recommended:



Bill Kenny, P.Eng.
Director,
Road Geometric Design

Accepted:



Des Williamson, P.Eng.
Executive Director,
Technical Services Branch

DESIGN EXCEPTION REQUEST FORM

Date:
Project:
Region:
Project Sponsor:
Consultant:

NOTE: complete, modify and/or provide additional information as required.

Project Stage

Functional Planning Preliminary Design Detailed Design Construction
 Traffic Impact Assessment (development) Access Management Other _____ Please specify

Project Type

Functional Planning New Construction Reconstruction Paving/Surfacing Bridge
 Operations Geotechnical Environmental Other _____ Please specify

Project Data (typically required for all projects):

Project Description			
Highway No.		Control Section	
Km Posts	From:	To:	
Length of Project			
Chainage (if applicable)	From:	To:	
Chain Direction	South to North	West to East	
Design Designation			
Service Classification			
Basic or Existing Right-			
Existing Traffic Vol.	AADT	ASDT	
Projected Traffic Vol. (years)	AADT	ASDT	
Design Vehicles		Vehicle Distributi	
Design Speed		Posted	

Example of information required for geometric design:

Cross-Section:	Existing Width		Width after Overlay	
	3R/4R (Suggested Min. Width)		Current Standards	
	Backslope		Sideslope	
	Ditch Width			
Level of Service:	Existing		Projected	
Horz. Alignment	Min. Radii		Proposed Radii	
Vert. Alignment	Min. K Crest Curve		Proposed K Crest Curve	
	Min. K Sag Curve		Proposed K Sag Curve	
	Max Grade		Proposed Grade	
Existing Passing/Climbing Lanes				

DESIGN EXCEPTION REQUEST FORM

Collision History (if applicable): (Period Year to Year)

()Segment ()Interchange ()Intersection ()Bridge ()Other _____ Please specify

Collision Data	Non Animal	Animal	Total
Collision Rate			
Collision Frequency			
Collision Severity Breakdown	# Fatal	# Injury	# PDO
Other (Type): Please specify			

Other Criteria - Please Specify

Details and Supporting Documentation of Design Exception

Provide drawings, analysis, evaluations, cost estimates, rationale, justification, mitigation, etc. and supporting documentation as required.

Recommended:

Project Sponsor/Date

Recommended (for Design/Construction):

Regional Director or Executive Director of
Delivery Services or Operations and Program
Management Branch/Date

Recommended:

Technical Services Branch/Date

Recommended (for Planning, if applicable):

Executive Director of Network and Capital Planning or
Region/Date

Accepted:

Executive Director of Technical
Services Branch/Date