

MaineDOT Design Exception (DE) Overview Strategy for Implementation (6/13/14)

Introduction

A **Design Exception** is a documented decision to design a highway or other transportation system element to criteria that does not meet established design guidelines.

Designers and Engineers are faced with many complex tradeoffs when designing highways and streets. A good design balances cost, safety, mobility, social and environmental impacts, and the needs of a wide variety of road users. Good design is also context-sensitive resulting in streets and highways that are in harmony with the natural and social environments through which they pass.

Highway design criteria that have been established through years of practice and research form the basis by which roadway designers achieve this balance...The criteria are intended to deliver an acceptable, generally cost-effective level of performance (traffic operations, safety, maintainability, and constructability).

Striving to meet design criteria is important because it is the primary means by which a resultant high quality roadway will be produced thus decreasing the probability that safety or traffic operational problems will develop.

However, to achieve the balance described above, it is not always possible to meet design criteria. An appropriate solution may be to use a design value outside the normal range – but the designer must understand how the design criteria affects safety and operations, and a design exception may need to be considered. A location where a design exception is being considered should be thoroughly analyzed and the potential impacts understood before committing to the design exception. When the decision is made to go forward with a design exception, mitigation measures should be evaluated and, where appropriate, implemented to minimize the potential adverse impacts to the safety and operation of the highway.

Both National Highway System (NHS) and non-NHS Highways have their own sets of design criteria.' *MaineDOT will track exceptions made on either road system.*

(Information above shown in quotes are excerpts from FHWA's 'Mitigation Strategies for Design Exceptions', and although focusing on Highways, the concepts outlined are applicable to all transportation modes and system elements.)

Design Exceptions (DE) are, and will continue to be necessary for a variety of reasons in any construction setting. MaineDOT's objective is to make the best business decisions to determine when such exceptions will be pragmatic, and that there will be a deliberate process in making that determination and any DE's would then be properly recorded.

It is recognized that as this process matures, there will be ongoing issues to iron out – such as: best approval process; are the standards appropriate in the first place; the influence of context sensitive design; etc. This process may identify areas where design standards need to be re-evaluated. Those issues will be worked through as deemed necessary, but does not preclude immediate implementation of basic core DE processes.

The DE process cuts across all disciplines – Highway, Bridge, Traffic Engineering, Multi-Modal and work done through MPO's. All must be consistent in using the standards and involved in the DE process. Design Exceptions must also integrate non - DOT aspects, particularly utilities.

Core Ingredients of DE Process:

- **Extent of DE Monitoring** – NHS, State and Local roads
- **DE Identification Process** - MaineDOT recognizes that DE issues may be raised at any point from initial project scoping to final construction. It is important to identify the DE potential early in the process so that proper scoping/estimating can be accomplished, but even when not identified until the Construction phase, the DE evaluation and reporting process remains the same.
- **Process Flow/Final approval** – The core activity of approval should occur within the Engineering Council. The communications flow should continue to be through distribution of the PDR with expected input within a given timeframe. Based on the Engineering Council's (EC) review, they will seek to reach consensus on a decision.
- **Location ID** – RLM reference will reflect whether this is a specific location or a full corridor need.
- **Tracking** – Capabilities have been built within Projex. Since the necessity of a DE can change until final construction, there will be a final system check as part of project close-out to verify if ultimately, a DE was necessary. The DE decision reached by the Engineering will be entered into Projex.