### Future Policy Changes

Multiple areas of design policy are currently being developed that will better complement performance-based practical design at WSDOT. See Policy, Standards & Research Folio, Issue No. 2, for additional information on these upcoming policy changes.

### Additional Information and Research

There already exist a number of research reports and manuals that can provide additional information about practical design or assist with your justification needs as you implement practical design now. Below are a few to review and consider:

**Informational:**
- WSDOT Best Practice in Practical Design: Synthesis
- NCHRP Synthesis 443 – Practical Highway Design Solutions
- WSDOT Design Manual Chapter 100
- WSDOT Practical Solutions Website
- FHWA’s Performance-Based Practical Design Website

**May help support practical design decisions:**
- Understanding Flexibility in Transportation Design – Washington
- ITE Designing Walkable Thoroughfares: A Context Sensitive Approach
- NACTO Urban Street Design Guide
  Note: WSDOT Endorsed this guide December 2013.
- NACTO Urban Bikeway Design Guide
  Note: Check this FHWA website for MUTCD approval status of some treatments presented in the guide.
- NCHRP Report 642 – Quantifying the Benefits of Context Sensitive Solutions
- NCHRP Report 783 – Evaluation of the 13 Controlling Criteria for Geometric Design
  Note: This document is extremely technical, and findings apply to particular highway conditions. Ensure your conditions reflect those identified when using for justification. Most findings are expressed in terms of both safety and operational performance.

### Clarify the Need for the Project

This step is an important kickoff to your practical design effort. As simple as it sounds, fully understanding the fundamental need for the project can be challenging. This effort may seem redundant, as work done previously (supporting scoping or environmental processes) has already considered the question. However, a fresh look can be both valuable and productive no matter what the stage of project development. The basic process for determining need is to repeatedly ask “why,” preferably with an interdisciplinary team of peers. The earlier this exercise can be performed, the better. However, it’s valuable to repeat the exercise to check for scope creep.

### Contact Information

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### Issues to consider in the process of revisiting project need include:

- **Does the stated project need include a description of the solution?** Is there a clear problem statement? Have you asked the question “why” to target the specific problem that generated the project? This can happen at some point during the project creation process, and it may discourage creative thinking about alternative design options. Practical design calls for a creative and multidisciplinary effort to evaluate and understand the project need.
- **What thresholds were the triggers?** Why is the project there? Every subprogram has one or more performance thresholds that help govern project scoping and prioritization. Understanding what thresholds were the initial triggers for creating a project within the subprogram is another way to identify the most basic need. After developing the revised need statement, it is necessary for region Program Management and Capital Program Development and Management (CPDM) to ensure the agreement is understood, and update any documentation needed.

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**Note:** This document is extremely technical, and findings apply to particular highway conditions. Ensure your conditions reflect those identified when using for justification. Most findings are expressed in terms of both safety and operational performance.
Has a “no-build” solution been evaluated? Have incremental solutions been explored? Review previous work on project alternatives. Consider how one or more noncapital investment solutions (such as operations, transit, and commute trip reduction strategies) could meet the need. In some cases, the actions necessary to correct the identified need are simply too costly, and it may be appropriate to defer the project so limited funding resources can be shifted to address more needs on the system. This is a critical decision to make. If it’s being considered, the design team should elevate their findings to Region Management and Region Program Management to complete the coordination necessary to transform the project into a noncapital project or defer the project.

Is 20-year design needed? The 20-year design can be useful in protecting our investment. However, a larger, longer-term investment may not be the most prudent choice given all the needs across our system. If your HQ contacts, region, and other stakeholders agree on a desired level of performance instead, it’s appropriate to design based on that goal, while at the same time not precluding later improvements for the 20-year solution.

If you found the project need statement to include the proposed solution, it can convolute an understanding of the specific need that generated the project location. The following is an example of a recent project need statement that was refined using this approach:

<table>
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<tr>
<th>PURPOSE AND NEED</th>
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<tbody>
<tr>
<td><strong>Project Definition</strong> Form</td>
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<tr>
<td>The existing structure has been identified as a fish passage barrier due to velocity, profile drop, and debris accumulation. Eliminate restrictions to fish passage. Replace with fish passable structure and regrade the stream to eliminate the restriction to fish passage.</td>
</tr>
<tr>
<td><strong>Refined</strong></td>
</tr>
<tr>
<td>Prevent or remedy the existence of fish passage barrier; restore or simulate stream.</td>
</tr>
</tbody>
</table>

We can’t change the natural laws of physics that comprise the basis of civil engineering. What we can change, and where we find flexibility, is how we select the design control inputs to the science-based equations we use.

**Establish Appropriate Design Controls**

Practical design depends on a thorough understanding of the project in terms of the transportation and land use context, as well as future plans, projects, and other constraints in the natural and built environments. These factors help justify your selection of design controls appropriate for the situation.

Two important design controls that really impact your project footprint, cost, and modal integration are design speed and design vehicle.

- **Select the most appropriate design speed.** Is the design speed set at the posted speed? If not, what was the reason? Is the speed appropriate for the context? Is speed a contributing factor associated with the targeted need?
- **Select the most appropriate design vehicle.** Has the selected design vehicle caused you to over-design intersections or impacted modal integration? What are the specific reasons behind your selection?
- **Evaluate incremental phased solutions and the design year.** It is extremely important to evaluate design alternatives for the Design Year; however, it is relevant to acknowledge the assumptions needed to predict the future. It is equally important to evaluate shorter-term solutions that may make a significant and targeted performance impact now. Shorter-term solutions may provide positive results for a lower cost, allowing limited funding to address other locations on the system. These solutions could be operational, demand management, or capital in nature.

**Reconsider Project Scope and Design Matrix**

Once the need is clarified, reevaluate whether the Design Elements and Design Levels specified in the Design Matrices are truly necessary in order to address the need. In performing this review, the following questions may be helpful:

- Does the project solution clearly address the stated project need? Focus designs on those project features and design elements that specifically address the need. Where application of certain element standards will go beyond what’s required to address the need, then those elements should be reconsidered.
- Is the current operational and safety performance acceptable? Use tools, research, and data like the Highway Safety Manual, NCHRP Report 783, and WSDOT data warehouse to evaluate which design level outputs are relevant to the need.
- Can design elements be eliminated or reduced to reduce cost without compromising safety or operations? Evaluate design matrix outputs for consideration for optional approaches that will still meet the need. Use the Highway Safety Manual and related technical tools to document adequate safety performance in line with WSDOT’s Sustainable Highway Safety Program.

**Document Your Practical Design**

Design analysis, diagnostics, and documentation are all necessary. Your current design policy requires a “design-down” approach, where you need to document the standards you won’t be applying. The current tools for documentation include:

- Design Deviation
- Deviation to AASHTO
- Context Analysis
- Project Analysis

Your Assistant State Design Engineer and the staff at the HQ Design Office are ready to help you work through the process and justify your practical approach. Justification should include references to the need for the project, and an analysis supporting the safety of the solution and its consistency with the context (community, transportation, environment). A retro or project analysis will often be the most appropriate and expedient method for justifying selections across multiple criteria based on project need.

**WSDOT Tools and Guidance Available**

The following additional tools and policy are in place to support practical design objectives:

- **Practical Design Workshop** – A workshop that will employ value engineering techniques to evaluate practical design issues and opportunities.
- **Practical Design Evaluation Form** – A one-page form that identifies common outcomes from the application of practical design.
- **Design Speed Policy Update** – The initial phase to eliminate current guidance that identifies design speeds in excess of posted speeds as being “desirable.” Design Manual Chapters 1130 and 1140 contain updated guidance.
- **Context and Modally Integrated Design (Phase I)** – Design guidance provides design flexibility based on context and modally integrated objectives. Phase I focuses on lower-speed, lower-volume facilities covering specific context recognized as “traditional main streets.” See Design Manual Chapter 1150.
- **Sustainable Safety (Phase I)** – Initial effort to incorporate Sustainable Highway Safety practices, including application of the Highway Safety Manual (HSM) and associated tools within project design. This guidance is reflected in Design Manual Chapter 321.