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

A number of research reports and manuals exist that can provide additional information 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.
- Highway Safety Manual
- 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.

You can do practical design right now using current guidance, processes, and methods.

PRACTICAL DESIGN NOW: IMPLEMENTING PRACTICAL DESIGN WITHIN TODAY’S POLICY ENVIRONMENT

- 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 Manu-

Policy, Standards & Research Section
Development Division

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.

One way to verify the most basic need is to ask “why” the project is there, and repeat the question until the most basic functional need is identified. Additional value and confidence in developing a revised/refined need statement can occur if the “why” exercise is completed with an interdisciplinary roundtable method to either confirm the stated project need or to develop a more accurate and focused need statement. Document your discussion and results.

- What thresholds were the triggers? Why is the project there? Every subgroup has one or more performance thresholds that help govern project creation and prioritization. Understanding what thresholds were the initial triggers for creating a project within the subgroup 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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Contact Information

John Donahue, PE, AICP
Design Policy, & Standards Manager
donahj@wsdot.wa.gov

Chris Schroedel, PE
Policy Research & Publications Engineer
schroe@wsdot.wa.gov

Andrew Beagie, PE
Geometric Engineer
beagiea@wsdot.wa.gov

Practical design calls for innovation and a multidisciplinary effort to evaluate and understand the project need.

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If you found the project need statement to include the proposed solution, it can culminate in 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>
<thead>
<tr>
<th>Project Definition Form</th>
<th>Purpose and Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>The existing structure has been identified as fish passage barrier due to velocity, profile drop, and debris accumulation. Eliminate restrictions to fish passage. Replace with fish passable structure and grade the stream to eliminate the restriction to fish passage.</td>
<td></td>
</tr>
<tr>
<td>Prevent or remedy the existence of fish passage barrier; restore or simulate stream.</td>
<td></td>
</tr>
</tbody>
</table>

**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.

- **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?

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

**PRACTICAL DESIGN NOW: IMPLEMENTING PRACTICAL DESIGN WITHIN TODAY’S POLICY ENVIRONMENT**

- **Evaluate incremental phased solutions and the design year.** It is extremely important to evaluate design alternatives for the Design Year; however, it is equally important 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.

**Review Significant Cost Drivers**

- Right of way and utility impacts
- Widening and earthwork
- Alignment changes
- Structures
- Environmental issues
- Materials, equipment, and labor
- Construction staging

**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. It’s important to understand that there is an expectation for design teams to critically evaluate the outputs of the current design matrix application. Just because your project type on the design matrices identifies elements to address, does not necessarily mean those elements specifically contribute to addressing your project need.

- 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 of 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. Our 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
- Corridor 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 corridor 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.