



WORK PLAN

Design Matrix Review committee

Introduction

In 1994, WSDOT recognized the need to move away from a 3-R (Resurfacing, Restoration and Rehabilitation), based approach to a highway safety and preservation program. The reasoning was simple: safety projects should be driven on the potential to reduce crashes rather than on the need to pave a location. With 3-R procedures, preservation was the primary driver for safety improvement projects. With the 3-R approach, when WSDOT was paving a section of highway, “Standards,” or more correctly, functional class design criteria were applied for the entire section of highway, independent of any identified safety need or lack thereof, this led to projects not achieving benefits in excess of the cost of implementation. With this approach, WSDOT spent significant funds to develop projects to standards, even when the projects were already performing well from a crash experience perspective. WSDOT recognized that the fundamental changes required to move from the previous 3-R approach would be significant.

To accomplish this change WSDOT developed design matrices which identifies the design elements that need to be addressed dependent on the project type. The design matrices were developed to address the issue of project intent being consistent with project implementation, so that WSDOT designs are consistent with the stated need and that benefits were greater than costs. These design matrices have been revised over the years as lessons were learned and programs and standards have changed.

ARRA Matrices

In 2008, FHWA provided ARRA funds to states that had projects ready or that could be ready in an accelerated timeline. HQ design worked on making some revisions to the current design matrices to assist with streamlining the development of projects, reducing unnecessary documentation and also to improve the efficiency of the preliminary engineering phase. These revised matrices were submitted to FHWA for approval of use on the identified list of ARRA projects. One condition for using the ARRA matrices was that WSDOT would complete a

lessons learned/best practices report for the use of the matrices. This report was completed and sent to FHWA. One action item that was in the report was to assemble a design matrices review team to review the current matrices and determine if the revisions that were used in the ARRA matrices should be permanently incorporated into the standard matrices or if other revisions are needed.

WSDOT Safety Projects and Sustainable Safety

Due to the highway safety program needs far outweighing the available resources, WSDOT has over the past few years started to move away from a standards based approach (nominal safety) on its safety projects, and move more towards a substantive safety method. This approach is currently being documented in what the department will be calling sustainable safety. Sustainable Safety calls for the evaluation of project from a substantive, rather than nominal point of view. To accomplish this task the design office will be responsible for the revision of design manual policies that allow for the quantitative analysis and implementation of project solutions. Design deviations will undergo revision to incorporate quantitative safety assessment of project design exceptions. Further, because projects will be quantified for their benefits to crash reduction consideration should be given to development of a worksheet that will provide the necessary documentation of the countermeasure selection and implementation, rather than a more substantial requirement of the current design deviation process. This will present some challenges to designers that have become accustomed to following a matrix line and implementing the standards based approach to the design of a project.

Along with the matrices perspective and sustainable safety approach, WSDOT is adjusting its designs and programs to allow for the tiering of “standards.” In other words, projects are reviewed from a contributing factors point of view, and whether or not a targeted (often lower cost) operational or design modification would address the condition at hand. If these targeted countermeasures address the stated purpose of crash reductions then these lower cost designs are typically chosen.

Committee members

A matrix review committee consisting of HQ Design, Region design and FHWA design members is proposed. The following are the selected members:

Terry Berends (Facilitator) – HQ Design ASDE
Ed Barry – HQ Design ASDE
Mike Frucci – Eastern Region ARA for Project Development
JoAnn Schueler – Olympic Region Project Development Engineer
Jeff Minnick – South Central Region Development Branch Project Engineer
Leslie Barben-Price – Northwest Region Design Documentation Reviewer
Rick Keniston – Southwest Region Project Development Engineer
Matt Neeley – Systems Analysis and Programming
Don Petersen – FHWA Design/Safety Engineer
Dean Moberg – FHWA Area Engineer

Committee meetings

It is expected to take 3 to 4 meetings to review the current matrices, ARRA matrices, current safety project approach, and sustainable safety proposal and recommend revisions. The following is what is expected to be accomplished at these meetings:

1st meeting: Review history of matrices and give everyone understanding of current matrices. Review and discuss ARRA matrices and lessons learned/best practices report, Safety strategies and direction for WSDOT, HSM and how this is used within WSDOT, and other issues and concerns with the existing matrices. The desired approach to this meeting is to be in person, however GOTO meeting capabilities will be offered. Approximate length is 3 hours.

2nd meeting: Brainstorm recommended revisions to the current design matrices (preservation and safety) and discuss the pros and cons of each. Identify revisions needed to design policy and guidance to address WSDOT's new approach to safety projects. Approximate length of meeting is 2 to 3 hours. This meeting will be conducted using both in person and GOTO meeting.

3rd meeting: Evaluate proposed matrix revisions and develop recommended changes. Get endorsement of the revisions.

It is expected that there will be work needed to be done in between each meeting by all committee members.

Schedule

The first meeting is being planned for mid July. Depending on action items monthly meetings will be scheduled which will complete these tasks by approximately mid to late October.

Expected Outcomes

The expected outcomes is for the team to develop recommendations that can be considered for adoption that will reduce documentation, streamline the design process, identify needed safety documentation and assess the applicability and viability of using this approach to reduce documentation for mobility projects covered in the matrices.