Washington State Department of Transportation

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July 1, 2017

The Honorable Duane Davidson
Treasurer, Office of the State Treasurer
PO Box 40200
Olympia, WA 98504-0200

The Honorable Curtis King
Chair, Senate Transportation Committee
PO Box 40414
Olympia, WA 98504-0414

The Honorable Judy Clibborn
Chair, House Transportation Committee
PO Box 40600
Olympia, WA 98504-0600

Subject: Semi-Annual Practical Design Savings Report required by RCW 47.01.480

Dear Treasurer Davidson, Senator King, and Representative Clibborn;

On behalf of the Washington State Department of Transportation (WSDOT), this letter summarizes practical design savings to date on Connecting Washington (CW) funded projects. This report was prepared in a manner consistent with the requirements outlined in RCW 47.01.480.

This report identifies savings remaining at the completion of a Connecting Washington project for which the State Treasurer will transfer from the Connecting Washington Account to the Transportation Future Funding Program Account. Once funding is transferred to the new account, beginning in fiscal year 2024, the Legislature may select additional projects to be delivered through the budget development process.

Since our last report in January 2017, two Connecting Washington projects have been completed. One project, which was funded through the Highway Construction (Improvement) Program, resulted in savings of $14,400 to be transferred to the Transportation Future Funding Program Account. The other project is administered through WSDOT's Local Programs Office with no savings reported by the local jurisdiction. ***Based on the requirements found in RCW 47.01.480, WSDOT has identified $14,400 in Practical Design Savings that must be transferred by the State Treasurer's Office from the Connecting Washington Account to the Transportation Future Funding Program account.***

Background

As part of the Connecting Washington transportation revenue package passed by the Legislature and signed by the Governor in July 2015, Engrossed Substitute House Bill (ESHB) 2012 was enacted and codified as RCW 47.01.480 and RCW 47.01.485. This law provides direction on performance and reporting expectations on implementing practical design for CW-funded projects. The law requires two reports to be prepared; a semi-annual report that was initially submitted July 1, 2016 identifying practical design savings, retired risk and unused contingencies. The second report is required annually with the department's budget submittal and includes the savings mentioned above plus the addition of savings generated through scope changes, associated impacts on risk and changes in the cost of materials.

This letter is in response to the semi-annual report, which requires information on practical design savings, unused risk reserves, unused contingency, and identification of savings for the State Treasurer to transfer from the Connecting Washington Account to the Transportation Future Funding Program Account. If no savings are identified to be transferred at the time of reporting, an estimated date for savings to materialize is provided. The specific language for the semi-annual report is as follows:

> RCW 47.01.480 (2)(b) - *Beginning July 1, 2016, the department must submit a report to the state treasurer and the transportation committees of the legislature once every six months identifying the amount of savings attributable to the application of practical design, retired risk, and unused contingency funding, and report when the savings become available. The state treasurer must transfer the available amounts identified in the report to the transportation future funding program account created in RCW 46.68.396.*

Furthermore, the law outlines the basic methodology associated with how the practical design savings element of the report should be calculated. The following is an excerpt from the law:

> RCW 47.01.480 (1)(c) - *To determine the savings attributable to practical design, each connecting Washington project must be evaluated. For design-bid-build projects, the evaluation must occur at the end of the project design phase. For design-build projects, the evaluation must occur at the completion of thirty percent design...*

Given the above direction, the reporting requirements associated with this semi-annual report include elements which are to be reported at the completion of the project design phase (savings attributable to practical design) and project construction (retired risk and unused contingency funding). Since WSDOT often delivers legislative line-item projects using multiple construction contracts, the final reporting element (savings available to transfer) will not be available until the last construction contract to deliver the legislative line-item project has been completed.

It should be noted that this report does not convey a complete summary of events associated with the quality, efficiency, and/or challenges of project delivery. For example, the report does not include information comparing the winning project bid to the engineers estimate at contract award and the risks, which are either mitigated or materialized. WSDOT assumes that other existing reporting mechanisms will provide this additional information on project delivery.

The report includes Connecting Washington line-item projects in the following programs: Highway Construction Improvement and Preservation, Washington State Ferries Capital, Rail Capital, Facility Capital and Local Programs Capital as reflected on the latest legislative project list once design is completed. Programmatic items included in the legislative project list such as the Highway System Preservation, fish barrier removal, ferry vessel and terminal preservation, grant programs for bicycle/pedestrian, transit and rail projects are assumed to be fixed levels of investment intended to deliver as much of the identified work as possible over the 16-year period. Therefore, programmatic entries will not be included in this report. Additionally, to capture the savings attributable to practical design decisions, WSDOT will remove the impact of inflation from the calculation of project savings. The detailed information in these reports will capture practical design savings based on a constant dollar comparison between the original (uninflated) legislative project budget and the (uninflated) project estimate at the time of advertisement. Furthermore, WSDOT assumes that the issuance of the Request for Proposal (RFP) represents completion of 30 percent design for calculating the savings attributable to practical design on design-build projects. Additional assumptions associated with this report include:

- Projects that have already been designed using non-CW funding and have only construction funded through CW will not have any practical design savings reported. Savings from these projects will be reflected in other currently required reporting elements.
- Projects where CW does not complete the design will be reported at the end of the design phase, or when available funding is used. Other required reporting elements will not be reported on until construction funding becomes available.
- Planning studies for which there is unused funding will be included in this report at the conclusion of the study.
- Local projects will be "self-reported" by the local jurisdiction to WSDOT's Local Programs Office and will be compared to the most recent available project cost estimate.

Report Details

Attachment A provides a summary of the conversion of the legislative project budget to constant dollars for comparison to the engineer's estimate at the time of construction advertisement. To keep the report from becoming too lengthy, projects previously reported on this attachment have been removed. The report shows those projects that have been advertised or authorized for construction from November 1, 2016 to April 30, 2017. The report will still show cumulative practical design savings.

Attachment B provides a summary of the CW projects, which have completed design and have one or more required reporting elements available to report. At this early stage of CW project delivery, most projects are in construction with only the savings attributable to practical design identified for reporting. However, two projects have been completed. The I-5/JBLM to S. 38th St HOV lane Feasibility Study was completed under budget by $14,400. The other project, SR 203/Coe-Clemons Culvert project, is a locally-led project that reported no savings.

Implementing Practical Solutions throughout WSDOT

Practical solutions strategies (which included practical design) are applied throughout the project development and delivery process. Where practical solution refinements are identified in the process will determine if savings are the result of cost avoidance (i.e. an initial lower project estimate to be funded than otherwise anticipated) or a reduction to a project budget (i.e. project savings that occurred after the initial project estimate was funded). Practical design applications begin during the scoping and

pre-design stage of project development. During this stage, agency pre-design efforts are funded from non-project resources rather than from a specific project budget. Practical design savings through cost avoidance are removed from the project estimate prior to establishing the initial project budget. After the initial project budget is established and design begins on that project, practical design can result in reduced costs to deliver the project. Assuming no inflationary increases on the project over its delivery schedule, and assuming no unforeseen project challenges, the reduced delivery cost should result in project savings. It is important to recognize that greater savings are often generated through practical solution and practical design efforts during the earlier stages of project development, prior to the project receiving funding. This concept has been documented, in part, in the 2010 JLARC report on WSDOT scoping and cost estimating for highway construction projects. As WSDOT continues to refine its approach to implementing practical solutions and practical design, we expect to observe a diminishing level of savings. This is due to future projects being developed from their inception utilizing these principles. In other words, we will not have potentially over-designed projects to compare to those projects that were developed using practical design. This will result in fewer savings being available over time from funded projects.

Attachment C, "Practical Solutions for Washington's Transportation System" is provided for your reference. Please contact Jeff Carpenter, State Design Engineer at (360) 705-7231 or CarpenJ@wsdot.wa.gov regarding the implementation of Practical Solutions within WSDOT. For questions on the funding and financial information contained in this document, please contact Jay Alexander, Director of Capital Program Development and Management at (360) 705-7121 or alexanja@wsdot.wa.gov.

Sincerely,

Roger Millar, PE, AICP
Secretary of Transportation

Attachment A

Constant Dollar Conversion Assumptions for Calculating Savings Attributable to Practical Design

Program	Legislative BIN[1]	Project Title[2]	Legislative Project Cost Estimate in YOE $ (inflated)[3]	Cost in 2014 $ (uninflated)[4]	Engineers Estimate at Advertisement in 2014 $ (uninflated)[5]	Practical Design Savings[6]
Highway Construction - Improvement Program						
	Previously Reported Practical Design Savings					0
	L1100069	**I-5/JBLM to S. 38th St HOV lane Feasibility Study**	**200,000**			N/A[9]
	M00100R	**I-5 JBLM Corridor Improvements**	**494,400,000**	**438,900,000**		
		I-5/Mounts Rd to Center Dr - Auxiliary Lane Extension		13,113,000	12,629,000	484,000
		Additional construction packages yet to be determined		425,787,000		
	T32800R	**SR 518 Des Moines Interchange Improvement**	**13,455,000**	**12,532,000**	12,273,000	259,000
	L2200092	**SR 150/No-See-Um Road Intersection - Realignment**	**6,500,000**	**6,096,000**	6,201,000	0
	L2000176	**SR 3/Restriping**	**4,200,000**	**3,923,000**	1,938,000	1,985,000
	L2000223	**I-5/Rebuild Chamber Way Interchange Improvements**	**75,000,000**	**61,984,000**		
		I-5/Chamber Way Bridge - Emergency Repair and Replacement[10]		6,957,000	9,020,000	0[7]
		Additional construction packages yet to be determined		55,027,000		
	L2000163	**Dolarway Intersection Improvements**	**3,100,000**	**2,953,000**	2,945,000	8,000
	L2000058	**US 195/Colfax to Spangle - Add Passing Lane**	**11,650,000**	**10,806,000**		
		US 195/Colfax to Spangle - Add Passing Lane Stage 1		5,632,000	5,632,000	0
		Additional construction packages yet to be determined		5,174,000		
Ferry Capital Program						
	No projects advertised during this reporting period					
Facilities Capital Program						
	No projects advertised during this reporting period					
Rail Capital Program						
	L1000144	**Point Definance Rail Bypass - Lakewood Safety**	**2,000,000**	**1,926,000**	1,926,000	0[7]
	L1100082	**West Vancouver Freight Access**	**1,900,000**	**1,779,000**	1,779,000	0
	L2000172	**West Whitman Railroad Improvement District**	**280,000**	**270,000**	270,000	0
Local Programs[8]						
	No projects advertised during this reporting period					

Summary

Practical Design Savings in this Report	**2,736,000**
Cumulative Practical Design Savings by Program	
Highway Construction - Improvement Program	2,736,000
Ferry Capital Program	0
Facilities Capital Program	0
Rail Capital Program	0
Local Programs[8]	0

NOTE: This semi-annual report reflects delivery information for those projects advertised in the reporting cycle, November 1, 2016 through April 30, 2017. Summary Practical Design Savings will be reflected in each report.

Footnotes:

[1] Legislative project identification number.

[2] Project title from the 2015 Legislative Budget is shown in bold. The legislative project may be delivered using multiple construction projects. In this case, the construction projects are shown below the bolded legislative project. This additional detail is provided as construction projects are advertised.

[3] Total project cost from the 2015 Legislative project list in Year of Expenditure (YOE) dollars.

[4] Project cost portrayed in 2014 dollars.

[5] Engineer's estimate of total project cost at advertisement in 2014 dollars.

[6] Practical Design Savings are reported following construction advertisement in nominal dollars; prior to the completion of construction. Practical solutions are calculated by comparing the legislative uninflated project cost estimate with the uninflated project estimate at advertisement or release of a Request for Proposal (RFP) for design-build projects. The two uninflated project estimates are stated in the same year current dollars for calculating the practical design savings exclusive of inflationary impacts.

[7] Connecting WA funded the construction phase only. No Practical Design Savings are calculated for construction only projects.

[8] Information on Connecting WA projects managed by local jurisdictions is self-reported by the local jurisdiction.

[9] Study only. Practical Design Savings are not calculated for studies.

[10] Project was changed in the 2017 Legislative session. $4.9 million of Motor Vehicle Account - State and federal Emergency Relief funds were added to the project. $10.5 million of Connecting Washington funds were advanced into the 2015-17 and 2017-19 nienniums.

Attachment B

Semi-Annual Project Savings Report
to the State Treasurer and Legislative Transportation Committees

RCW 47.01.480 (2)(b) requires the department to submit a report to the State Treasurer and Legislative Transportation Committees every six months starting July 1, 2016 that identifies the amount of savings attributable to practical design, retired risk and un-used contingencies on Connecting Washington projects. The report also identifies when the savings are expected to be available for the State Treasurer to transfer available amounts to the Transportation Future Funding Program Account.

Program	Legislative BIN[1]	Project Title[2]	Practical Design Savings[3]	Unused Contingency[4]	Retired Risk Savings[5]	Savings Available[6]	Estimated Savings Available Date[7]
Highway Construction - Improvement Program							
		Previously Reported Practical Design Savings	0	0	0	0	
	T10400O	**I-82 West Richland - Red Mountain Interchange**					
		SR 224/SR 225 - Benton City - Construct Intersection Improvements	0[8]	TBA[9]	TBA[9]	0[9]	6/30/2021
	M00900R	**I-405 Renton to Lynwood - Corridor Widening**					
		I-405/SR 167 Direct Connector - Widening	0[8]	TBA[9]	TBA[9]	0[9]	6/30/2029
		I-405/NE 30th St & NE 44th St - Ramp Improvements	0[8]	TBA[9]	TBA[9]	0[9]	6/30/2029
	N01200R	**Schouweiler Road Improvements**	0	TBA[9]	TBA[9]	0[9]	6/30/2019
	L1100069	**I-5/JBLM to S. 38th St HOV lane Feasibility Study[12]**	0[11]	N/A	N/A	14,400	6/30/2017
	M00100R	**I-5 JBLM Corridor Improvements**					
		I-5/Mounts Rd to Center Dr - Auxiliary Lane Extension	0	TBA[9]	TBA[9]	0[9]	6/30/2027
	T32800R	**SR 518 Des Moines Interchange Improvement**	259,000	TBA[9]	TBA[9]	0[9]	6/30/2021
	L2200092	**SR 150/No-See-Um Road Intersection - Realignment**	0	TBA[9]	TBA[9]	0[9]	6/30/2021
	L2000176	**SR 3/SR 304 Interchange Modification**	1,985,000	TBA[9]	TBA[9]	0[9]	6/30/2021
	L2000223	**I-5/Rebuild Chamber Way Interchange Improvements**					
		I-5/Chamber Way Bridge - Emergency Repair and Replacement	0[8]	TBA[9]	TBA[9]	0[9]	6/30/2027
	L2000163	**Dolarway Intersection Improvements**	8,000	TBA[9]	TBA[9]	0[9]	6/30/2021
	L2000058	**US 195/Colfax to Spangle - Add Passing Lane**					
		US 195/Colfax to Spangle - Add Passing Lane	0	TBA[9]	TBA[9]	0[9]	6/30/2023
Ferry Capital Program							
	L2000109	**#4 - 144 capacity vessel**	0	TBA[9]	TBA[9]	0[9]	6/30/2019

Program	Legislative BIN[1]	Project Title[2]	Practical Design Savings[3]	Unused Contingency[4]	Retired Risk Savings[5]	Savings Available[6]	Estimated Savings Available Date[7]
Facilities Capital Program							
	L2000079	**Euclid Ave Administration Facility Consolidation Project**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
Rail Capital Program							
	L2000112	**Palouse Rail Loadout Improvements**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L1000144	**Point Defiance Rail Bypass - Lakewood Safety**	0[8]	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L1100082	**West Vancouver Freight Access**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L2000172	**West Whitman Railroad Improvement District**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
Local Programs[10]							
	NRUCKER	**41st St Rucker/Ave Freight Corridor in Everett**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L2000080	**SR-203/Coe-Clemons Culvert**	0	0[12]	0[12]	0[12]	
	L2000200	**28th/24th Street Sea-Tac**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L1000133	**Lyon Creek Culvert**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L2000218	**Jovita Seismic Wall**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L1000092	**SR 99/Burlington N Overpass Replacement**	0	TBA[9]	TBA[9]	0 [9]	6/30/2019
	L2000133	**228th & Union Pacific Grade Separation (City of Kent)**					
		228th & Union Pacific Grade Separation - Stage 1	0	TBA[9]	TBA[9]	0 [9]	6/30/2021
Funds to transfer to the Transportation Future Funding Program Account for this reporting period						**$14,400**	
Cumulative Funds identified for transfer to the Transportation Future Funding Program Account						**$14,400**	

NOTE: This semi-annual report reflects delivery information for those projects advertised in the reporting cycle, November 1, 2016 through April 30, 2017. Summary Practical Design Savings will be reflected in each report.

Footnotes:

[1] Legislative project identification number.

[2] Project title from the 2015 Legislative Budget is shown in bold. The legislative project may be delivered using multiple construction projects. In this case, the construction projects are shown below the bolded legislative project. This additional detail is provided as construction projects are advertised.

[3] Practical design savings are reported shortly following construction advertisement; prior to the completion of construction. Practical solutions are calculated by comparing the legislative uninflated project cost estimate with the uninflated project estimate at advertisement or release of a Request for Proposal (RFP) for design-build projects. The two uninflated project estimates are stated in the same year current dollars for calculating the practical design savings exclusive of inflationary impacts. Full details of uninflated estimates will be included in the report that accompanies the annual agency budget request.

[4] Contingency funds established with each construction project consistent with WSDOT policy and standard industry practice. Unused contingency funds will be reported at the completion of the project.

[5] Risk reserves are established for larger construction projects for identified potential construction delivery risks, consistent with WSDOT policy and standard industry practice. Risks that are unrealized are retired and the funding remains on the legislative identified project until completion of the entire legislative scope of work is completed. Unused risk reserves will be reported at the completion of the project.

[6] Current savings available represents the unused funding available at the completion of the entire legislative scope of work on a project. This amount reflects the funding that the treasurer must transfer from the Connection Washington Account or the Multimodal Transportation Account to the Transportation Futures Funding Program Account.

[7] Estimate savings available date reflects the anticipated date in which the savings will be available for transfer. It is based on the date in which the project is anticipated to be complete.

[8] Connecting WA funded the construction phase only. No Practical Design Savings are calculated for construction only projects.

[9] The project is currently in construction. Actual savings for unused contingency, unused risk, and savings available to transfer will be known when project is completed.

[10] Information on Connecting WA projects managed by local jurisdictions is self-reported by the local jurisdiction.

[11] Study only. Practical Design Savings are not calculated for studies.

[12] Project is complete.

ATTACHMENT C

Washington State Department of Transportation

PRACTICAL SOLUTIONS FOR WASHINGTON'S TRANSPORTATION SYSTEM

Roger Millar

Secretary of Transportation

Washington State Department of Transportation

January 1, 2017

OVERVIEW

The 2015 Legislature approved the Connecting Washington transportation plan that included an 11.9-cent gas tax increase to improve congestion, enhance economic development and improve safety. This $16 billion investment over the next 16 years includes:

- $9.4 billion for state highways and local roads
- $1.2 billion state highway operations and preservation
- $1.3 billion for non-highway projects such as bike paths, walkways, rail and transit
- $602 million for ferries and terminals
- $300 million for fish barriers
- $100 million for state highway maintenance
- $50 million for state highway traffic operations

A cornerstone of this investment plan is to use Practical Solutions to plan, design, and construct projects. Anticipated cost savings will be used to fund future preservation and improvement needs. Practical Design is an element of Practical Solutions.

In the Connecting Washington legislation (ESHB 2012), WSDOT is asked to provide a detailed summary of how Practical Design has been applied and the associated savings gained, as part of the agency's budget development process. In addition, WSDOT is required to report to the State Treasurer every six-months on: the amount of savings attributed to the application of Practical Design, retired risk and unused contingency funds, and when the savings are available so funding can be transferred to the Transportation Future Funding Program Account.

This report describes the intent of legislation for Practical Design as it applies to specific Connecting Washington projects and WSDOT's efforts to expand the approach to find Practical Solutions in all aspects of our business process: asset management, multimodal transportation systems operations, planning and design, and project construction practices.

BACKGROUND

WASHINGTON CITIZENS OWN A VALUABLE ASSET- OUR TRANSPORTATION SYSTEM

Generations of women and men have worked to plan build, operate and maintain a multimodal transportation system to serve Washington citizens and businesses. These assets include:

- 18,689 total lane miles of state highways
- 3,600 bridge structures
- 118 miles of bike lanes on state highways
- The largest ferry system in the nation moving 23 million passengers and 10 million vehicles a year
- 31 public transportation systems to provide more than 220 million passenger trips a year
- Three Talgo train sets in the Amtrak Cascades fleet and management of the Palouse River and Coulee City Rail systems
- The world's widest tunneling project and the world's longest floating bridge project.

Washington citizens have invested billions of dollars in projects to build and expand the highways to accommodate more people and businesses in our state. The resulting transportation system has been very effective in supporting the state's communities and economy. But we can't keep building our way out of congestion, as the number of drivers continues to increase at about 1 percent per year in our state.

Mid twentieth century transportation decisions were made to keep up with population and economic growth by expanding transportation systems. Today, we have more knowledge and better tools to make smart decisions that give us new, low cost, sustainable solutions. For example, strategies to keep the assets we have in a state of good repair to avoid high replacement/repair costs. Real time Information to give travelers choices. A new era of transportation technology – intelligent transportation systems, driverless vehicles, connected vehicles, drones to deliver products and services – promise to make the existing transportation system operate more efficiently. We use data as the basis for making intelligent decisions. Our methods to communicate are advanced through the Internet and social media.

Given these circumstances, today's transportation managers seek solutions that are practical, innovative and use the best information, data and practices to meet the mobility needs of today, as well as future generations.

Washington's legislature enacted the 2015 Connecting Washington revenue plan requiring Practical Design for projects funded through the 16-year program. WSDOT is implementing this direction through its Practical Solutions approach. Characteristics of Practical Solutions involve:

- Moving to a performance-based approach for solving transportation problems;
- Using data, new tools and best practices to preserve and maintain existing assets so that they last longer;
- Using more comprehensive tools and performance measures to support decision making, rather than using limited data such as the volume of current traffic or safety history;
- Establishing a multidisciplinary, multijurisdictional, collaborative approach to decision making so that we don't just consider highways, but look at the entire transportation system of local roads and streets, arterials, transit, bike and pedestrian facilities, rail, air and marine;
- Enhancing community engagement efforts to craft least-cost solutions within the context of land use;
- Considering operational and demand management strategies before high cost capital projects are committed;
- Implementing low-cost solutions sooner, rather than waiting years for a high-cost project to be funded;
- Using sustainable transportation practices to preserve the environment, promote transportation system efficiency, seek fiscally efficient solutions, improve and protect public health, conserve energy and reduce greenhouse gases.

WSDOT is making significant progress transforming its policies and programs to make this paradigm shift towards managing assets and working with our partners to develop low-cost solutions to improve mobility throughout our state. Of course, there is still more to be done.

While savings for the newly approved projects will take time as projects are completed, we are looking for additional opportunities to use Practical Solutions through cost avoidance and efficiencies throughout the transportation lifecycle.

PRACTICAL SOLUTION OPPORTUNITIES FOR THE TRANSPORTATION SYSTEMS LIFECYLE

Washington State Department of Transportation is a leader among the handful of state transportation agencies in the country to use an approach we call Practical Solutions. This approach creates policies, procedures and practices affecting all aspects of the state's transportation program, targeting investments to improve mobility, safety and access to transportation options. The goal is to achieve savings and efficiencies by making decisions throughout the transportation system's lifecycle, using collaboration to find the lowest cost and effective solutions.

MAINTAINING AND PRESERVING OUR ASSETS

WSDOT is taking a strategic approach to cost-effectively and efficiently preserve the highway, bridges, ferries and other assets that must be maintained for future generations. Investment strategies aim to maintain and preserve transportation infrastructure on an ongoing, systematic basis. This approach will save money while maximizing performance. The State Transportation Asset Management Plan (STAMP) views assets as a system or network, rather than each asset independently. This framework prioritizes spending where it will do the most good and gets the citizens of Washington the best value for their dollars.

Using facility performance criteria, triggers are established to identify when maintenance or preservation is required. Because there is not enough funding, the challenge is to not delay routine maintenance so long that assets continue to age and deteriorate. Delay too long and it may require costly reconstruction or replacement. Our approach is to consider the potential risk of failure along with the historic asset performance evidence to prioritize problem areas before they become critical, rather than wait for the asset to fail. Routine maintenance and preservation activities extend the life of the asset. Any future reconstruction or replacement required is therefore planned and prioritized within funding programs.

OPERATING SAFE AND EFFICIENT MULTIMODAL TRANSPORTATION SYSTEMS

Low cost efficiencies in operating highways, ferries, transit and rail, and reducing travel demand save money and avoid building costly new capacity. Highway traffic operations can be made more efficient with features like ramp meters, driver signs and messages, incident response and, in some cases, re-striping, adding a turn lane, or other enhancement.

Transportation demand strategies help get the most out of the transportation infrastructure and services by encouraging people to use lower cost, high-efficiency transportation options. Active transportation promotes better health and helps reduce the demand for high cost infrastructure. Key to making active transportation a viable option is a system that allows users to move seamlessly between modes. For example, a commuter might ride a ferry, walk to a bus stop, ride a bus and then finally walk the final leg of their journey to work.

Major employers, education, businesses, social services, and residential destinations all affect and are affected by the entire transportation system and the communities that use it. For WSDOT and our local partners, this means a continued evolution from a focus on a single roadway, highway or transit route toward collaboration focused on transportation system performance and thriving communities.

STAKEHOLDER COLLABORATION RESULTS IN PRACTICAL SOLUTIONS

Community engagement is a key factor in helping to develop Practical Solutions. Community engagement facilitates learning about other viewpoints, sharing of information with all the stakeholders so that alternatives can be fully considered, reduces conflicts between interests and helps to gain support for the right solution. The goal is to fully engage partners and the affected community in the decision making process. Practical Solutions are found when we work together to identify the purpose of action, assess data from all parts of the system, and examine a range of options before investment decisions are made.

WSDOT has used a Least Cost Planning approach with communities for the past several years. The first step in the collaboration is to set the performance measures or indicators for how the multimodal transportation system is supposed to perform. For example:

- Safety performance, frequency of accidents
- Operational performance including levels of time delays, increased traffic levels
- The community's sense of place, safety, and public health
- Economic development and revitalization opportunities
- Environmental factors like air quality, open space, public health and greenhouse gas emissions
- Opportunities for affordable housing and mixed income communities
- Land use and growth management plans by local jurisdictions
- Active transportation choices such as walkability, accessibility and other modal transportation choices
- Once the stakeholders define these measures, strategies or alternatives can be analyzed to determine the best value for the money.

WSDOT is also a partner in regional and community-led transportation planning and operations. To assist with their analyses and decisions, WSDOT brings background information on each state highway corridor. A new "Corridor Sketch" process is being used to present a range of strategies developed through least-cost/ performance-based planning. WSDOT is working on developing these sketches across the state to identify practical strategies and solutions that reflect a community's character. Developing the corridor sketches also provides a framework to engage partners and transportation service providers about the needs of their communities and strategies for transportation improvements in the corridor, regardless of mode/jurisdiction. The results will inform the State Highway System Plan to identify long term needs and costs, and also allow transportation funding to be targeted to the right-size solution. Funding for the solutions can then be found in local, regional, state and federal funding sources.

FLEXIBLE PROJECT DESIGN STANDARDS

WSDOT is taking significant steps towards reorganizing how project development proceeds during the design process, making sure that transportation and community needs are translated into performance, and that critical design decisions are based on a more multidisciplinary and collaborative approach. The goal is to find better alignment between community planning and transportation objectives, and prevent the type of reexaminations and rework that has occurred in the design phase of our complex projects in the past.

Recent design policy and technical guidance focuses on creating tools and procedures that better support the type of performance-based decisions that are consistent with the Practical Solutions approach. The 2015 Design Manual update outlines a uniform approach to design and communicates other vital information to engineering staff and consultants. Changes include guidance on examining and confirming the need for a project, considering the context and community input about a project, and an approach to translating these needs and concerns into performance metrics and targets.

In the past, simplifying assumptions made early in design, such as when to increase lane and shoulder widths, may have contributed to increased project costs that are disconnected from the actual need for the project or community. Community engagement and staff recommendations are used to help determine how design elements are best employed, using the agreed upon performance targets to achieve the Practical Design.

WSDOT staff is expected to evaluate and document the tradeoffs associated with difficult design decisions, considering the implications of these decisions, and leveraging early opportunities to identify and incorporate innovative designs. A new documentation tool, called Basis of Design, has been developed to support the focus on Practical Solutions, and is being used across the state on Connecting Washington and other projects. These projects involve collaborating with discipline experts and communities to define the best project, securing partnership opportunities, and identifying Practical Design savings. As these designs advance towards advertisement and construction in 2016 and beyond, more projects will be reporting Practical Design savings and collaborative successes.

BETTER CONSTRUCTION PRACTICES

The traditional method of contracting highway construction projects involves WSDOT taking the role of "engineer of record" and developing a full set of plans, specifications and estimates for the project. The private contractors then bid on the project and the low-bid contractor is selected. This design–bid–build process resulted in more than half of FY2015 WSDOT contracts awarded below estimates.

Another method of contracting called design-build delivery, shifts the role of engineer of record to the contractor. WSDOT uses practical planning and design efforts to create project standards and specifications that define the scope of the project. With a well-defined scope, WSDOT uses a selection process to pick a best value contractor/designer team who will serve as both engineer of record and contractor for the project.

WSDOT is piloting a Practical Design workshop on two upcoming design-build projects. After the contractor selection process is complete, but before design and construction take off, the workshop provides a "pause" in the process where WSDOT and the design-build contractor can meet and discuss Practical Design opportunities on the project. It is envisioned that both the contractor and WSDOT will bring their key design and management staff to this workshop for an open dialog about opportunities to reduce cost, shorten the schedule, lower project risk, etc. incorporating Practical Design principles. The structure of the workshop allows for open dialog and brainstorming that really isn't possible during the selection process or once the design/ construction process begins. WSDOT will monitor these two pilot projects; if the Practical Design workshops add value to these projects, we will expand its use to future design-build projects.

SEMI-ANNUAL PROJECT SAVINGS REPORT

As part of the Connecting Washington (CW) new revenue funding package passed by the legislature and signed by the Governor in July 2015, Engrossed Substitute House Bill (ESHB) 2012 was enacted and codified as RCW 47.01.480.

This law provides direction on performance and reporting expectations on implementing Practical Design for CW funded projects. The law requires two reports to be completed on a recurring basis, the first report is due July 1, 2016 and every subsequent six months identifying any Practical Design savings, retired risk and unused contingencies. The second report is required annually with the budget submittal and includes the savings mentioned above plus the addition of savings generated through scope changes and associated impacts on risk and changes in the cost of materials.

A semi-annual report is due each July 1 and January 1 providing information on Practical Design savings, unused risk reserves, unused contingency, and identification of savings for the State Treasurer to transfer from the Connecting Washington account to the Transportation Futures Funding Program account. If no savings are identified to be transferred at the time of reporting, an estimated date of savings materializing is provided. The specific language for the semi-annual report is as follows:

> *RCW 47.01.480 (2)(b) - Beginning July 1, 2016, the department must submit a report to the state treasurer and the transportation committees of the legislature once every six months identifying the amount of savings attributable to the application of Practical Design, retired risk, and unused contingency funding, and report when the savings become available. The state treasurer must transfer the available amounts identified in the report to the transportation future funding program account created in RCW 46.68.396.*

Furthermore, the law outlines the basic methodology associated with how the Practical Design savings element of the report should be calculated. The following is an excerpt from the law:

> *RCW 47.01.480 (1)(c) - To determine the savings attributable to Practical Design, each connecting Washington project must be evaluated. For design-bid-build projects, the evaluation must occur at the end of the project design phase. For design-build projects, the evaluation must occur at the completion of thirty percent design ...*

Given the above direction, it is important to recognize that the reporting requirements associated with this semi-annual report include elements which are to be reported at the completion of the project design phase (savings attributable to Practical Design), and project construction (retired risk and unused contingency funding). Since WSDOT often delivers legislative line-item projects using multiple construction contracts, the final reporting element (savings available to transfer) would not be available until the last construction contract to deliver the legislative line-item project has been completed.

The semi-annual report includes Connecting Washington line-item projects in the Highway Construction Improvement program, Washington State Ferries Capital program, Rail Capital program, Facility Capital program and Local Programs Capital program as reflected on the latest legislative project list once design is completed.

Programmatic entries such as the Highway System Preservation line item, the ferry vessel and terminal preservation line item, grant programs for bicycle/pedestrian, and transit and rail projects are assumed to be fixed levels of investment intended to deliver as much of the identified work as possible over the 16 year period. Therefore, programmatic entries will not be reported on as part of this semi-annual report.

Additionally, WSDOT believes that to capture the savings attributable to Practical Design the impact of inflation should be removed from the calculation. The detailed information in these reports will capture Practical Design savings based on a constant dollar comparison between the original (uninflated) legislative project budget and the (uninflated) project estimate at the time of advertisement for changes attributed to Practical Design decisions in order to capture the WSDOT driven engineering decisions made during project design.

Furthermore, WSDOT assumes that the issuance of the Request for Proposal (RFP) represents completion of 30% design for calculating the savings attributable to Practical Design on design-build projects.

Additional assumptions associated with the semi-annual reporting include:

- Projects that have already been designed using non-CW funding and have only construction funded through CW will not have any Practical Design savings reported, but will reflect the other required reporting elements.
- Projects where CW does not fully complete the design of a project (including all CW funded planning studies) will not be included in the report detail reported until the time comes that funding for design is provided and completed for the project to be advertisement ready. Other required reporting elements will not be reported on until construction funding becomes available.
- Local projects will be "self-reported" by the local jurisdiction to Local Programs.

IMPLEMENTING PRACTICAL SOLUTIONS THROUGHOUT WSDOT

Practical solutions strategies are applied throughout the project development and delivery process. Depending on where in the process the Practical Solution refinements are identified will determine whether the savings are cost avoidance (i.e. an initial lower project estimate to be funded than otherwise anticipated) or a reduction to a project budget (i.e. project savings which occurred after the initial project estimate was funded).

Practical design applications begin during the scoping and pre-design stage of project development. During this stage, agency pre-design efforts are funded from non-project resources rather than from a specific project budget. Practical design savings through cost avoidance are removed from the project estimate prior to establishing the initial project budget. After the initial project budget is established and design begins on that

project, Practical Design results in reduced costs to deliver the project. Assuming no inflationary increases on the project over its delivery schedule, the reduced delivery cost will manifest itself as project savings.

It is important to recognize that greater savings are often generated through Practical Solution and Practical Design efforts during the earlier stages of project development, prior to the project receiving funding. This concept has been documented, in part, in the 2010 JLARC report on WSDOT scoping and cost estimating for highway construction projects. As WSDOT continues to refine its approach to implementing Practical Solution and Practical Design, we believe that more savings will be accounted for prior to a project's initial funding than after it becomes funded. This will result in fewer savings being available over time from funded projects.

KEEP PROGRESS MOVING FORWARD

The Practical Solutions approach will continue to evolve as WSDOT works with our partners, communities, citizens and businesses to find ways to bring low cost, effective solutions to keep transportation vital for generations to come. WSDOT has implemented supporting policies and training for our workforce and is using new tools to keep our existing assets in good condition. New technology and innovations continue to be used to operate highways, rail and ferries, giving more options for safe and reliable travel. More savings will be realized in the delivery of the projects outlined in the Connecting Washington legislation, which will result in more funds available to address unmet needs. This generation's era of transportation management is lean and empowered to find better, faster and cheaper solutions than ever before.

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