



July 16, 2019

The Honorable Steve Hobbs
Senate Transportation Committee
PO Box 40444
Olympia, WA 98504-0444

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

The Honorable Jake Fey
House Transportation Committee
PO Box 40600
Olympia, WA 98504-0600

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

Dear Honorable Steve Hobbs, Jake Fey, and Duane Davidson:

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 also identifies savings remaining at the completion of a Connecting Washington project for which the State Treasurer will transfer from the applicable 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 2019, three Connecting Washington projects were completed and one of these resulted in \$104,444 savings. Two projects were in the Improvement Program, the third was in Local Programs.

Based on the requirements in RCW 47.01.480, WSDOT has identified project savings totaling \$104,444 of Connecting Washington Account funds to be transferred by the State Treasurer's Office from the Connecting Washington Account to the Transportation Future Funding Program Account.

Report Details

Attachment A provides a summary of the conversion of the Legislative project budget to constant dollars for comparison to the engineer's project estimate at the time of construction advertisement also in constant dollars. If the Legislative project budget is larger than the engineer's project estimate, the difference is reported as practical

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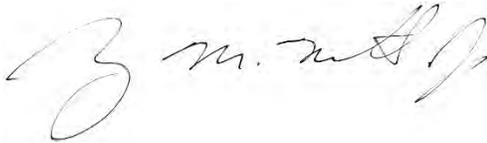
design savings. To keep the report from becoming too lengthy, projects previously reported on this attachment have been removed and are listed in Attachment B. This Attachment A report includes projects advertised or authorized for construction between November 1st, 2018 and April 30th, 2019. Cumulative practical design savings are included in the report.

Attachment B provides a summary of the CW projects advertised and had practical design savings calculated. These projects are in construction and will have actual savings calculated when the projects are complete and closed. Three projects were completed in this reporting period. Both Improvement Projects, SR 150/No-See-Um Road Intersection - Realignment in Chelan County and I-405/NE 30th St & NE 44th St - Ramp Improvements in King County were completed with no available savings. The Local Programs project, Lyon Creek Culvert Replacement on SR 522 in King County, was completed under budget by \$104,444.

Attachment C provides background and assumptions used in preparation of this report.

Please contact Jay Alexander, Director of Capital Program Development and Management at (360) 705-7121 or alexanja@wsdot.wa.gov if you have any questions about this report.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Millar", is written over a light gray circular watermark that contains the text "wsdot.wa.gov".

Roger Millar, PE, FASCE, FAICP
Secretary of Transportation

RM:jd
Enclosure

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				42,014,000
	M00600R	SR 167/SR 509 Puget Sound Gateway	1,875,500,000	1,474,652,000 ¹⁰		
		SR 167/I-5 to SR 509 - Stage 1A		51,092,000	51,092,000	0
		SR 509/28th/24th Ave S - City of SeaTac Lead		3,340,000	3,340,000	0 ^{8,9}
		SR 167/SR 509 Puget Sound Gateway (Additional construction packages yet to be determined)		1,420,220,000		
	M00900R	I-405/Renton to Bellevue - Corridor Widening	1,225,200,000	1,048,940,000 ¹⁰		
		I-405/Renton to Bellevue - Corridor Widening & ETL (Stage 2)		597,079,000	712,209,000 ¹¹	0
		I-405/SR 167 Direct Connector - Widening		274,444,000	274,444,000	0 ^{8,9}
		I-405/NE 30th St & NE 44th St - Ramp Improvements		1,056,000	1,056,000	0 ^{8,9}
		I-405/SR 167 Interchange Catch Basins - Drainage Repair		2,097,000	2,104,000	0 ⁹
		I-405/Renton to Bellevue - Corridor Widening (Additional construction packages yet to be determined)		174,264,000		
	L2000094	I-90/Medical Lake & Geiger Interchanges	26,600,000	24,645,000		
		I-90/Medical Lake I/C to Geiger Field I/C - Reconstruction		16,431,000	16,037,000	394,000
		I-90/Medical Lake & Geiger Interchanges (Additional construction packages yet to be determined)		8,214,000		
	L1000157	SR 14 Access Improvements	7,500,000	6,857,000	6,663,000	194,000
	L2000074	SR 14/ Wind River Junction	5,150,000	4,735,000	7,294,000	0
	L2000201	I-90/Eastgate to SR 900 - Corridor Improvements	73,200,000	67,304,000	57,831,000	9,473,000
Highway Construction - Preservation Program						
		Previously Reported Practical Design Savings				2,399,000
	L2000116	SR 107/Chehalis River Bridge - Structural Rehabilitation	12,500,000	11,646,000	17,063,000	0
Ferry Capital Program						
		Previously Reported Practical Design Savings				578,000
		No projects advertised during this reporting period				
Facilities Capital Program						
		No projects advertised during this reporting period				
Rail Capital Program						
		No projects advertised during this reporting period				

Attachment A

Program	Legislative BIN ¹	Project Title ²	Legislative Project Contribution	Local Jurisdiction Self-Reported Savings ⁷
Local Programs⁷				
	L1000081	Community Facilities District Improvements (Redmond)		
		Community Facilities District Improvements - Stage 2	605,980	0
	L2000133	228th & Union Pacific Grade Separation (City of Kent)		
		228th & Union Pacific Grade Separation - Stage 5	4,895,000	0
	L2000136	Harbour Reach Extension	13,460,000	0
	L2000137	Sammamish Bridge Corridor	7,300,000	0
	L1000094	Issaquah-Fall City Road	3,500,000	0
Summary				
Practical Design Savings in this Report				10,061,000
Cumulative Practical Design Savings by Program				
Highway Construction - Improvement Program				52,075,000
Highway Construction - Preservation Program				2,399,000
Ferry Capital Program				578,000
Facilities Capital Program				0
Rail Capital Program				0
Local Programs ⁷				0
Cumulative Practical Design Savings through April 30th, 2019				55,052,000

NOTE: This semi-annual report reflects delivery information for those projects advertised in the reporting cycle, November 1st, 2018 through April 30th, 2019. 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 deflated by the index in use by the department in December 2014.

⁵ Engineer's estimate of total project cost at advertisement in 2014 dollars. Deflated using the index in use by the department at the time of project AD/RFP

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

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

⁹ Previously reported.

¹⁰ Previously reported in a Practical Design Savings Report. The uninflated cost in 2014 dollars was incorrectly calculated. This report corrects that error.

¹¹ The project will deliver within the BIN amount as directed by the legislature in the enacted project list.

Attachment B

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

Program	Legislative BIN ¹	Project Title ²	Practical Design Savings ³	Unused Contingency ⁴	Retired Risk Savings ⁵	Total Savings Available ⁶	Estimated Savings Available Date ⁷
Highway Construction - Improvement Program							
	T104000	I-82 West Richland - Red Mountain Interchange					
		SR 224/SR 225 - Benton City - Construct Intersection Improvements	0 ⁸	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	M00900R	I-405 Renton to Lynwood - Corridor Widening					
		I-405/SR 167 Direct Connector - Widening	0 ⁸	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2029
		I-405/NE 30th St & NE 44th St - Ramp Improvements	0 ⁸	0	0	0 ¹²	6/30/2029
		I-405/SR 167 Interchange Catch Basins - Drainage Repair	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2029
	M00100R	I-5 JBLM Corridor Improvements					
		I-5/Mounts Rd to Center Dr - Auxiliary Lane Extension	484,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2027
		I-5/Steilacoom-Dupont Rd to Thorne Ln - Corridor Improvements	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2027
	T32800R	SR 518 Des Moines Interchange Improvement	259,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L2200092	SR 150/No-See-Um Road Intersection - Realignment	0	0	0	0 ¹²	6/30/2019
	L1100110	I-5/Marvin Road/SR 510	23,488,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L2000161	US 101/Lynch Road Intersection	2,781,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	L2000123	I-82/ EB WB On and Off Ramps	8,769,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L2000223	I-5/Rebuild Chamber Way Interchange Improvements					
		I-5/Chamber Way Bridge - Emergency Repair and Replacement	0 ⁸	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2027
	L2000163	Dolarway Intersection Improvements	8,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L2000058	US 195/Colfax to Spangle - Add Passing Lane					
		US 195/Colfax to Spangle - Add Passing Lane Stage 1	5,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
		US 195/Colfax to Spangle - Add Passing Lane Stage 2	20,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	M00600R	SR 167/SR 509 Puget Sound Gateway					
		SR 509/28th/24th Ave S - City of SeaTac Lead	0 ⁸	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2033
	T20700SC	I-5/116th Street and 88th Street Interchanges - Improvements					
		I-5/116th St NE Interchange - Tulalip Tribe Lead	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2025

Attachment B

Program	Legislative BIN ¹	Project Title ²	Practical Design Savings ³	Unused Contingency ⁴	Retired Risk Savings ⁵	Total Savings Available ⁶	Estimated Savings Available Date ⁷
	L1000112	SR 20/Sharpes Corner Vicinity Intersection	1,942,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	M00400R	SR 520 Seattle Corridor Improvements - West End					
		SR 520/Montlake to Lake Washington - I/C and Bridge Replacement	2,268,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2027
	M00800R	US 395 North Spokane Corridor					
		US 395/NSC Columbia to Freya	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
Highway Construction - Preservation Program							
	G2000055	Land Mobile Radio (LMR) Upgrade	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
	L2000075	US 12/Wildcat Bridge Replacement	2,399,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
Ferry Capital Program							
	L2000109	#4 - 144 capacity vessel	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	900010L	Seattle Tml Preservation					
		SR 519/Seattle Trm - Terminal Bldg & N. Trestle Replacement	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2025
		SR 519/Seattle Trm Slip 3 - OHL & Transfer Span Replacement	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2025
		SR 339/Seattle Trm - Passenger-Only Ferry Facilities Replacement	578,000	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2025
	952515P	Mukilteo Tml Improvement	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
	L2000166	Clinton Tml Road Improvements	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
Facilities Capital Program							
	L2000079	Euclid Ave Administration Facility Consolidation Project	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	L1000151	Olympic Region Maintenance and Administration Facility	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
Rail Capital Program							
	L1100083	Port of Warden Rail Infrastructure Expansion	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
Local Programs¹⁰							
	L2000200	28th/24th Street Sea-Tac	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	L1000133	Lyon Creek Culvert	0	0	0	104,444 ¹²	6/30/2019
	L1000181	Community Facilities District Improvements (Redmond)					
		Community Facilities District Improvements - Stage 1	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	L1000092	SR 99/Burlington N Overpass Replacement	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021 ¹³
	L2000133	228th & Union Pacific Grade Separation (City of Kent)					
		228th & Union Pacific Grade Separation - Stage 1	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
		228th & Union Pacific Grade Separation - Stage 2	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
		228th & Union Pacific Grade Separation - Stage 4	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021

Attachment B

Program	Legislative BIN ¹	Project Title ²	Practical Design Savings ³	Unused Contingency ⁴	Retired Risk Savings ⁵	Total Savings Available ⁶	Estimated Savings Available Date ⁷
	L2000065	SR 502 Main Street/Widening					
		SR 502 Main Street/Widening Stage 1	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
	L2000132	Duportail Bridge	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
	L2000181	South Lander Street	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2023
	L2000064	Ridgefield Rail Overpass	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L1000087	I-5/Port of Tacoma Road Interchange					
		I-5/Port of Tacoma Road Interchange - Stage 1	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2025
	L2000171	35th Street Mill Creek	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L1000132	SR 163/N 46th St. to N 54th St.	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021
	L2000182	Street Improvements near School for the Blind	0	TBD ⁹	TBD ⁹	TBD ⁹	6/30/2021

Funds to transfer to the Transportation Future Funding Program Account for this reporting period. \$104,444

Previously Identified Funds for Transfer \$2,227,618

Cumulative funds identified for transfer to the Transportation Future Funding Program Account \$2,332,062

NOTE: This semi-annual report reflects delivery information for those projects advertised in the reporting cycle, November 1st, 2018 through April 30th, 2019. 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.

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 Total 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 or BIN 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 for PINs. Actual savings for BINs will be known when all projects in the BIN are complete.

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.

¹³ The anticipated project completion date has changed.

 Indicates updated information since last report.

Attachment C

Practical Design Report Background, Assumptions and WSDOT Efforts to Implement Practical Design

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 submitted July 1 and January 1 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

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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.

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

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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.