Oregon
Kate Brown, Governor

Oregon Transportation Commission
Office of the Director, MS 11
355 Capitol St NE
Salem, OR 97301-3871

DATE: September 10, 2018

TO: Oregon Transportation Commission

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FROM: Matthew L. Garrett
Director

SUBJECT: **Agenda O** – Cancel the *Interstate 84: Farley Slide* project from the Statewide Transportation Improvement Program (STIP) and allocate unspent funds with other resources to fund construction of the *Intelligent Transportation Systems portion of the Interstate 205: Stafford Road to 99 East, Package C project.*

Requested Action:

Request approval to amend the 2018-2021 Statewide Transportation Improvement Program (STIP) to:

- Cancel the *Interstate 84: Farley Slide project* and re-allocate remaining $3,371,367 to the *Interstate 205: Stafford Road to 99 East* project.
- Create a project, *Interstate 205: Stafford Road to 99 East, Package C Intelligent Transportation Systems (ITS)*, in the amount of $6,200,000 for equipment purchase and construction.
- Combine the *Interstate Operations Improvement* construction project and the new project: *Interstate 205: Stafford Road to 99 East, Package C ITS.*
- Move $838,453 from the *Region 1 Reserve* project to fully fund equipment and construction on the new *Interstate 205: Stafford Road to 99 East, Package C ITS* project.

STIP Amendment Funding Summary:

Project	**Current Funding**	**Proposed Funding**
Interstate 84: Farley Slide	$7,931,114	$4,559,747
Interstate Operations Improvements	$1,990,180	$0
Region 1 Reserve	$1,415,537	$577,084
Interstate 205: Stafford Road to 99 East, Package C ITS (new project)	$0	$6,200,000
TOTAL	**$11,336,831**	**$11,336,831**

Project to reduce, then cancel:

Interstate 84: Farley Slide (KN 18762)			
PHASE	**YEAR**	**COST**	
		Current	**Proposed**
Preliminary Engineering	2015	$1,000,000	$1,000,000
Right of Way	N/A	$0	$0
Utility Relocation	N/A	$0	$0
Construction	2017	$6,931,114	$ 3,559,747
	TOTAL	**$7,931,114**	**$4,559,747**

Project to combine to new project:

Interstate Operations Improvements (KN 20227)			
PHASE	**YEAR**	**COST**	
		Current	**Proposed**
Preliminary Engineering	N/A	$0	$0
Right of Way	N/A	$0	$0
Utility Relocation	N/A	$0	$0
Construction	2020	$1,990,180	$0
	TOTAL	**$1,990,180**	**$0**

Project to contribute funds to new project:

Region 1 Reserve (KN 17207)			
PHASE	**YEAR**	**COST**	
		Current	**Proposed**
Preliminary Engineering	N/A	$0	$0
Right of Way	N/A	$0	$0
Utility Relocation	N/A	$0	$0
Construction	2019	$1,415,537	$577,084
	TOTAL	**$1,415,537**	**$577,084**

Project to add:

Interstate 205: Stafford to 99 East, Package C ITS (KN TBD)			
PHASE	**YEAR**	**COST**	
		Current	**Proposed**
Preliminary Engineering	N/A	$0	$0
Right of Way	N/A	$0	$0
Utility Relocation	2019	$0	$300,000
Other	2019	$0	$1,300,000
Construction	2019	$0	$4,600,000
	TOTAL	**$0**	**$6,200,000**

Background:

Interstate 84: Farley Slide
The Farley landslide is located on Interstate 84 east of Cascade Locks in the Columbia River Gorge. The landslide affects both the westbound lanes and extends into the eastbound lanes. The landslide impacts approximately 300 linear feet of roadway and extends approximately 250 feet to the north, downslope of the highway.

The site was selected for repair in the 2018-2021 STIP due to ongoing maintenance needs associated with landslide-caused pavement damage. In 2000, prior to current STIP funding, Oregon Department of Transportation (ODOT) conducted a preliminary site investigation and installed six inclinometers to monitor movement. When this project was included in the STIP, the design was outsourced to a consultant team comprised of David Evans & Associates and geotechnical engineering sub-consultant Geotechnical Resources, Inc. (GRI). ODOT's internal oversight team was comprised of licensed geotechnical engineers from both Regions 1 and 2. GRI installed three additional inclinometers at the site during project development, to provide additional monitoring and information about landslide geometry. This team developed a tied-back micropile retaining wall design to mitigate the landslide. This design was selected due to the limited site access, the need for a construction method with a small footprint to minimize traffic disruption on Interstate 84 and the ability to efficiently drill through rock, boulder-fill and landslide debris.

The contract for landslide repair was bid in August 2017 and construction began in January 2018. The design included installation of a 58 foot tall retaining wall comprised of 80 micropiles, to be installed to a maximum depth of about 88 feet and laterally supported by tie-backs and walers. This wall design was based on analysis of the landslide geometry using data collected from site reconnaissance, inclinometers and subsurface investigations. The project included continuous monitoring of site conditions including in-place inclinometers throughout construction.

During installation of initial micropiles in May 2018, the inclinometers near the wall location detected movement within the slide plane and near the tip elevation of the micropiles. At that time, micropile installation was put on hold and the ODOT and consultant geotechnical engineering team assessed construction methods, field conditions and inclinometer data. The geotechnical engineering team identified that the contractor's drilling method, which injected a substantial volume of highly pressurized air to remove drill cuttings, appeared to be initiating landslide movement. Additionally, movement was observed near the tip elevation of the micropiles at a depth of about 90 feet below the ground surface, which was deeper than previously observed landslide movement. ODOT and GRI reanalyzed the global stability of the wall design assuming slide movement at a greater depth and determined that the current wall design could not address the identified deeper slide plane and would not perform the design function. In addition, the geotechnical team agreed that the current micropile installation method could not continue to be used, as the volume of air injected into the micropiles has been increased with limited success and was initiating slide movement.

Due to these three factors: 1) initiation of landslide movement by drilling method; 2) potential new slide plane; and 3) potential change in global stability of the wall design, the geotechnical engineering

team agreed that it was most appropriate to discontinue wall construction in order to reevaluate the landslide geometry and appropriate mitigation measures. The construction project manager and the ODOT geotechnical engineering team consulted with Joe Squire, ODOT's Construction and Materials Engineer, and Gene Wilborn, ODOT's Claims Engineer, who cautioned that changing the wall design and construction methods under contract would require substantial additional time and cost and be very high risk to the Agency. ODOT's leadership agreed that terminating the existing contract and installing additional instrumentation for ongoing monitoring were the appropriate steps to manage risk.

Two more inclinometers have be installed within the project area to continue landslide monitoring. ODOT's construction staff has worked with the contractor, Kerr Contractors, to clean up the site, assess reuse of materials on hand, determine project close-out costs and demobilize. ODOT also identified upcoming Region 2 landslide repair projects to utilize the purchased steel pipe micropiles, walers and drill bits, and the materials have been relocated to stockpile sites in Region 2. ODOT and the contractor are negotiating final contract close-out costs. ODOT expects total contract costs to be $3,559,747. This, along with the approximately $1,000,000 spent in the preliminary engineering phase, will leave $3,371,367 of the original construction budget available for use on other projects.

This site is located within the high priority Interstate 84 seismic lifeline corridor and will be evaluated and mitigated during Phase 1 of the Seismic Plus Program. The information on hand today and the information gained from monitoring the newly installed inclinometers over time will inform any future projects in the area.

Interstate Operations Improvements
The purpose of this project is to fund unanticipated operational improvements on the interstate system that were not added to the STIP as part of normal scoping process. The region has determined that funding operational improvements on the new project, Interstate 205: Stafford to 99 East, Package C ITS is a high priority and an appropriate use of these available funds.

Region 1 Reserve
The purpose of the Region 1 Reserve is to fund unanticipated needs on priority projects in the region. The region has determined that funding operational improvements on the Interstate 205: Stafford to 99 East, Package C ITS project is a high priority and an appropriate use of these available funds.

Interstate 205: Stafford to 99 East, Package C Intelligent Transportation System (ITS)
The purpose of this project is to widen Interstate 205 to three northbound and three southbound lanes from the Stafford Road interchange to Oregon 99 East. In addition, auxiliary lanes will be provided between Oregon 99 East and Oregon 213 in the northbound direction. Fourteen bridges on the corridor will be widened or reconstructed and will have seismic upgrades and one bridge will be removed.

A total of seven Active Transportation Management (ATM) investments have been proposed as part of this project and are designed toto reduce crashes, better manage incidents and improve travel time reliability for the road users.

Locations for each of the proposed improvements were selected by ODOT staff from several past studies including the ODOT Region 1 ITS plan, the Metro Regional Transportation Systems Management and Operations (TSMO) Plan and the ODOT ATM Strategy.

The project will be constructed in three separate bid packages:

- Package A includes the Abernethy Bridge widening and widening and highway work to the north.
- Package B includes widening from Stafford Road to the Abernethy Bridge.
- Package C includes construction of the six ATM sites and relocation of a portion of the fiber optic cable.

Package C work will take place in advance of Package A and Package B work in order to 1) assist with traffic control during construction and widening and 2) move the fiber out of the way of grading and bridge work.

Options:

With approval, ODOT will cancel the construction contract and continue monitoring using in-place inclinometers to provide information for the future evaluation of the site during Phase 2 of the Seismic Lifeline Program. Remaining funds would be shifted to the Interstate 205: Stafford to 99 East, Package C ITS.

Without approval, ODOT will cancel the existing construction contract, continue monitoring using in-place inclinometers, and potentially use remaining funds for design of a future repair. However, funding would be insufficient to construct a landslide solution at this location.

Attachments:

- Attachment 1 – Location and Vicinity Maps

Copies to:

Jerri Bohard	Travis Brouwer	Tom Fuller	Bob Gebhardt
Lynn Averbeck	Mac Lynde	Rian Windsheimer	Mandy Putney
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