

MEETING AGENDA

Date: Thursday, July 14, 2022

Time: 1:00 pm—3:30 pm

Location: <https://us02web.zoom.us/j/83755031485>

Call-in Number: 1-253 215 8782

Meeting ID: 837 5503 1485





Contacts: Henry Heimuller, Chair: 503.397.4322 or

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Sarah Lu Heath, Staff: 971.328.2877 or

SarahLu@nworegon.org

NWACT meetings are open to the public and accommodations will be provided to persons with disabilities. If a sign language interpreter is needed, please call Sarah Lu Heath at 971.328.2877 at least 48 hours prior to the meeting.

Item 1 1:00 p	Welcome and Introductions		Henry Heimuller
Item 2 1:15 p	NWACT Minutes/Updates <ul style="list-style-type: none">  May 2021 Meeting Minutes (attached)  Public Comment (Limited to 5 minutes per person)  ODOT Region 2 Updates  Washington County Transportation Update 		Henry Heimuller Bill Jablonski/ Ken Shonkwiler
Item 3 1:35 p	Oregon Federal Lands Access Program Needs Assessment Project		Jamie Lemon
Item 4 1:55 p	Oregon Highway 6 Geologic Survey Fundings		Tony Michaelson or Mike Tardiff
Item 4 2:30 p	Oregon Highway 6 Broadband & Communications		Ayreann Colombo
Item 6 3:00 p	NWACT Business/Member Updates		Henry Heimuller All

Attachments:

May 2021 Meeting Minutes

Note: A complete meeting packet is available on the NWACT website at NWOregon.org/NWACT

**Northwest Area Commission on Transportation
Meeting Minutes, May 12, 2022**

Item 1

Welcome: The meeting was called to order by Marsha Kirk, Vice Chair at 1:04pm. The following members and guests attended:

NWACT Members in Attendance are denoted with an asterisk:

Clatsop County

Commission (v) Lianne Thompson*
Commission (a) Ted Mclean
Large City (v) Bruce Jones*
Large City (a) Steve Wright*
Small City (v)
Small City (a)
Citizen-at-Large Kathy Kleczek*
Citizen-at-Large Jim Knight

Columbia County

Commission (v) Henry Heimuller
Commission (a) Mike Russell*
Large City (v)
Large City (a)
Small City (v) Bob Brajcich
Small City (a)
Citizen-at-Large Rosemary Lohrke
Citizen-at-Large Ryan Pearson

Tillamook County

Commission (v) Erin Skaar*
Commission (a) Bill Baertlein
Large City (v)
Large City (a)
Small City (v)
Small City (a) Juliet Hyams*
Citizen-at-Large
Citizen-at-Large

Others in attendance:

Rachael Barry, City of St Helens
Jon Paul Bowles, Salmonberry Trail
Mark Buffington, ODOT
Ayreann Colombo, ColPac EDD
Terre Cooper, Tillamook EDC

Citizen-at-Large Patrick McIntire

Washington County

Commission (v) Jerry Willey*
Commission (a) Joe Younkings*
Large City (v) Marsha Kirk*
Large City (a) Jolynn Becker
Small City (v)
Small City (a)
Citizen-at-Large Mike Borresen*
Citizen-at-Large

Transit Districts

Columbia Co (v) John Dreezen
Columbia Co (a)
Clatsop County (v) Tracy MacDonald*
Clatsop County (a) Jeff Hazen
Tillamook Co (v)
Tillamook Co (a) Doug Pilant

Ports

Port of Astoria (v) Frank Spence*
Port of Astoria (a) Will Isom
Port of Columbia Co (v)
Port of Columbia Co (a)
Port of Tillamook Bay (v) Michele Bradley*
Port of Garibaldi (a) Mike Saindon

Geoff Crook, ODOT
Jeff Harrington, City of Astoria
Bill Jablonski, ODOT
Mary Johnson, City of Wheeler
Meg Leatherman, City of Astoria
Dave Sakau, City of Scapoose
Ken Shonkwiler, ODOT

Item 2

Minutes: Reviewed with one amendment; the name of the person giving public comment at the February meeting will be sought and updated.

Public Comment: Jesse Boroughs of Washington County: Is interested in the NWACT as a long haul trucker and resident. An area of concern is Highway 6 safety.

ODOT Region 2 Updates:

HB4053 is studying safety on a concerning 50 mile corridor of Highway 6. This will be a condition and needs analysis and will include public comment. The report to the legislature is due in September 2023 and will take previous studies into consideration. Liane Welch volunteered to be on the technical advisory committee.

Nehalem, Wheeler, and Bay City are accepting public comment on their joint TSP until mid-June. The Gearhart facilities plan is wrapping up this summer. Connect Oregon grant awards have been announced and include a travel lift at Hyak Tongue Point and extended rail siding in Westport for the Teevin Brothers in our area. The new Youngs Bay Bridge has new guardrail and will experience night closures in June. Seaside paving project continues. In Arch Cape, bridge work is underway. Garibaldi has a project under design. Jon Paul Bowles remarked his interest in working in aligning this project with goals for Salmonberry Trail construction. Mark Buffington is filling pot holes.

Staff changes at ODOT include hiring two inspectors. Ken Shonkwiler has been promoted to Senior Transportation Project Manager. Bill Jablonski has been promoted to Area 1 Manager.

In Columbia County work continues at Mallard & Bennet, currently working on new track surfaces. Work should largely be wrapped up this September. Highway 47 will be closed until October. Detours are in place but members voiced concern for local businesses affected by extended closure.

Washington County Update:

Haag Lake area slide repair construction will continue until summer. Highway 47 at Banks and Forest Grove intersections project is in the permitting phase. Stringtown Road is scheduled for 2023 construction. East Fork Dairy Creek bridge replacement is progressing. Michele Bradley noted that folks should be aware of rail funding deadlines.

Item 3

Presentation from ODOT Climate office

Geoff Crook from ODOT's Climate Office presented a slideshow outlining his office's mission and goals. There was a question and answer session where Jon Paul Bowles inquired if non-motorized transportation projects might be funded out of the Climate Office. Mr. Crook said not at this time. Marsha Kirk inquired about solar powered charging stations in the case of predictable disasters that would disable the electric grid. Mr. Crook believes this is in R & D and not currently available. Ken Shonkwiler notes that there is DLCD funding for technical assistance for planning purposes.

Item 4

IIJA ODOT Updates: Ken Shonkwiler presented slides on the OTC's allocations of flexible funding. Ken noted that while many existing programs would be receiving additional funding, ODOT would also be standing up at least two new programs from the ground up and updates on those would be

forthcoming. Jesse Borough asked about the funding allocation for climate projects and how the \$27m breaks down. Bill Jablonski said he would inquire.

Item 5

Member Updates: Jon Paul Bowles notes that the Salmonberry Trail is working in Barview to Garibaldi on a Safe Routes to School Project. Liane Welch notes that Bay City has a Highway 101 crossing that needs a safe pedestrian crossing option. Kathy Kleczek is excited about funding opportunities to manage tourist transportation and has concerns about Region 2 cutting funding for alternative transportation initiatives. Dave Sakau reports that safety on Highway 30 was a big concern at the City of Scapoose's annual meeting, as well as rail crossings and electric vehicles. Mike Russell shared the Columbia County continues to work on storm damage from February; also concerned about the time cost of completing portions of IJA funding applications. Rachael Barry shared St Helens shares concerns about safety on Highway 30 and that they're working on a riverfront redevelopment plan. Steve Wright noted that Seaside's next funding priority will be a seismic retrofit of the S Street bridge. Michele Bradley shared that she has an FAA weather reporting grant in the works, the POTB is having their preparedness plans audited, and Tillamook County is working on their hazard mitigation plans. Jeff Harrington notes that pedestrian flashing lights will be added to 23th and Marine Drive in Astoria, paving projects are underway, and OR 202 sidewalk project is out to bid. Erin Skaar shares that Neskowin's additional egress will open this May and work on the Capes Meares loop is underway. Mike Borreson shared concerns about how long Highway 47 would be closed and feasibility of detours.

Meeting adjourned at 2:48pm.

July 14, 2022



Wilson River Highway (OR6) MP 32 to 37 Landslide Investigations and Planning

Larry Robinson, *Project Lead, Engineering Geologist, R.G., C.E.G.*

Michael Tardif, *Senior Engineering Geologist, R.G., C.E.G.*

Tony Robinson, *Senior Geotechnical Engineer, Ph.D., R.G., C.E.G., P.E., G.E.*

Region 2, Geo/Hydro/HazMAT Unit

Meeting Agenda

- **Overview of the Problem Area**
- Data from the Statewide Unstable Slopes Program
- Past Repair Efforts
- Results from the Current Investigation
- Repair Options for the Active Failures at MP 34.8
- Corridor Realignment

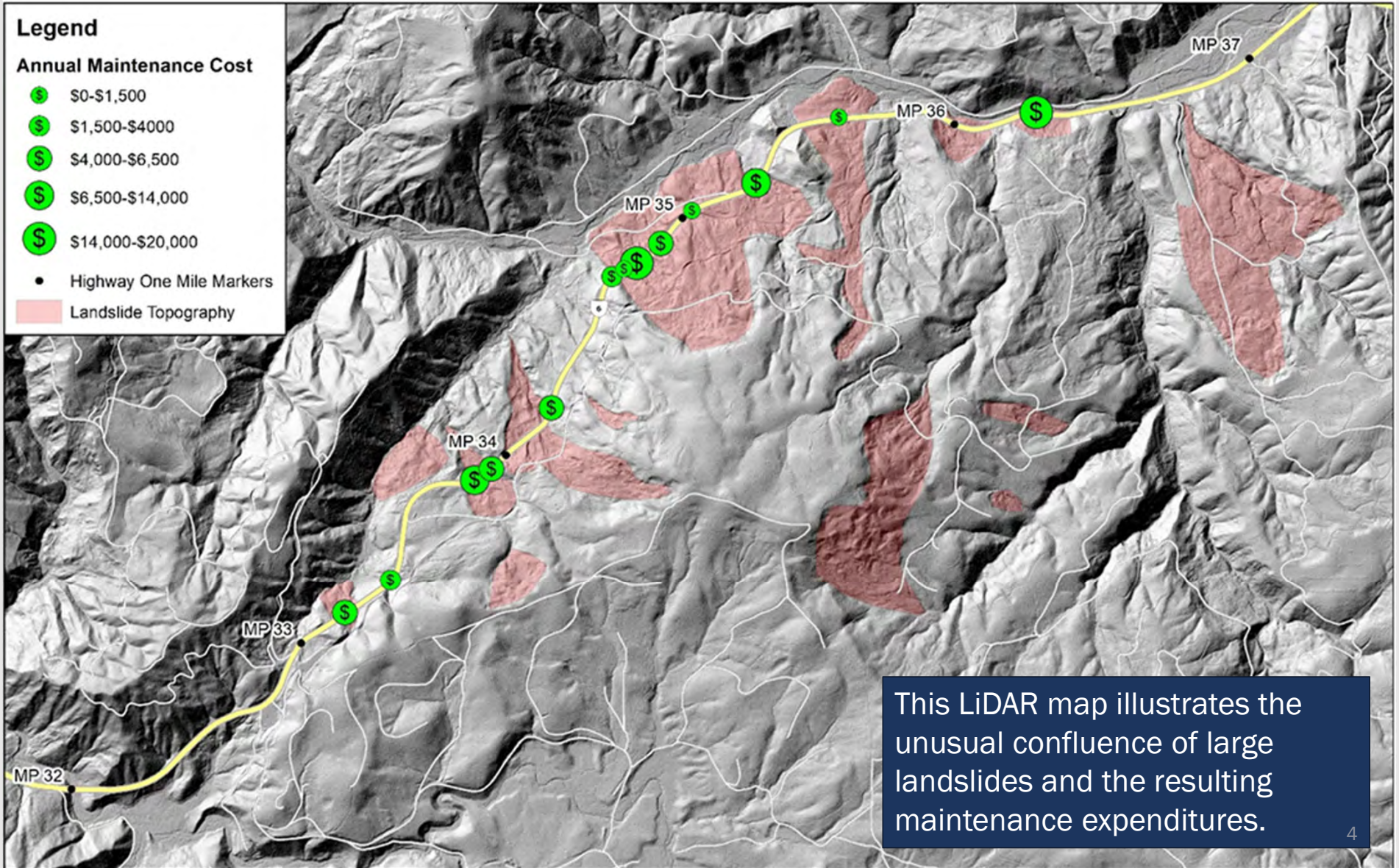
Problem Area: Wilson River Highway (OR6) MP 32 to 37

- Wilson River Highway, major route between Tillamook and Metro Portland (73 miles).
- The alternative route is via US101 to US26 (119 miles), which adds over an hour of travel time on average.

Legend

Annual Maintenance Cost

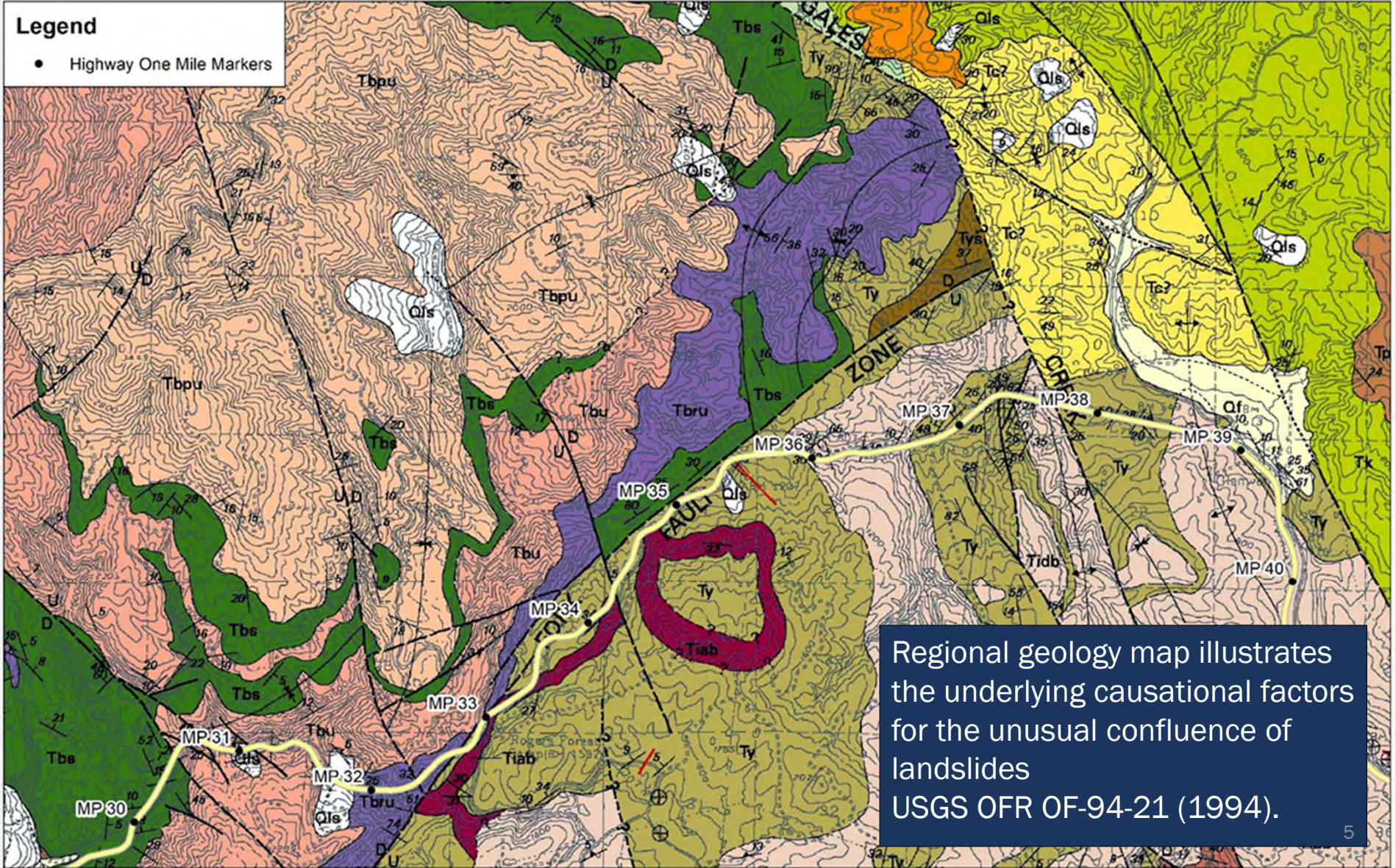
-  \$0-\$1,500
-  \$1,500-\$4,000
-  \$4,000-\$6,500
-  \$6,500-\$14,000
-  \$14,000-\$20,000
-  Highway One Mile Markers
-  Landslide Topography



This LiDAR map illustrates the unusual confluence of large landslides and the resulting maintenance expenditures.

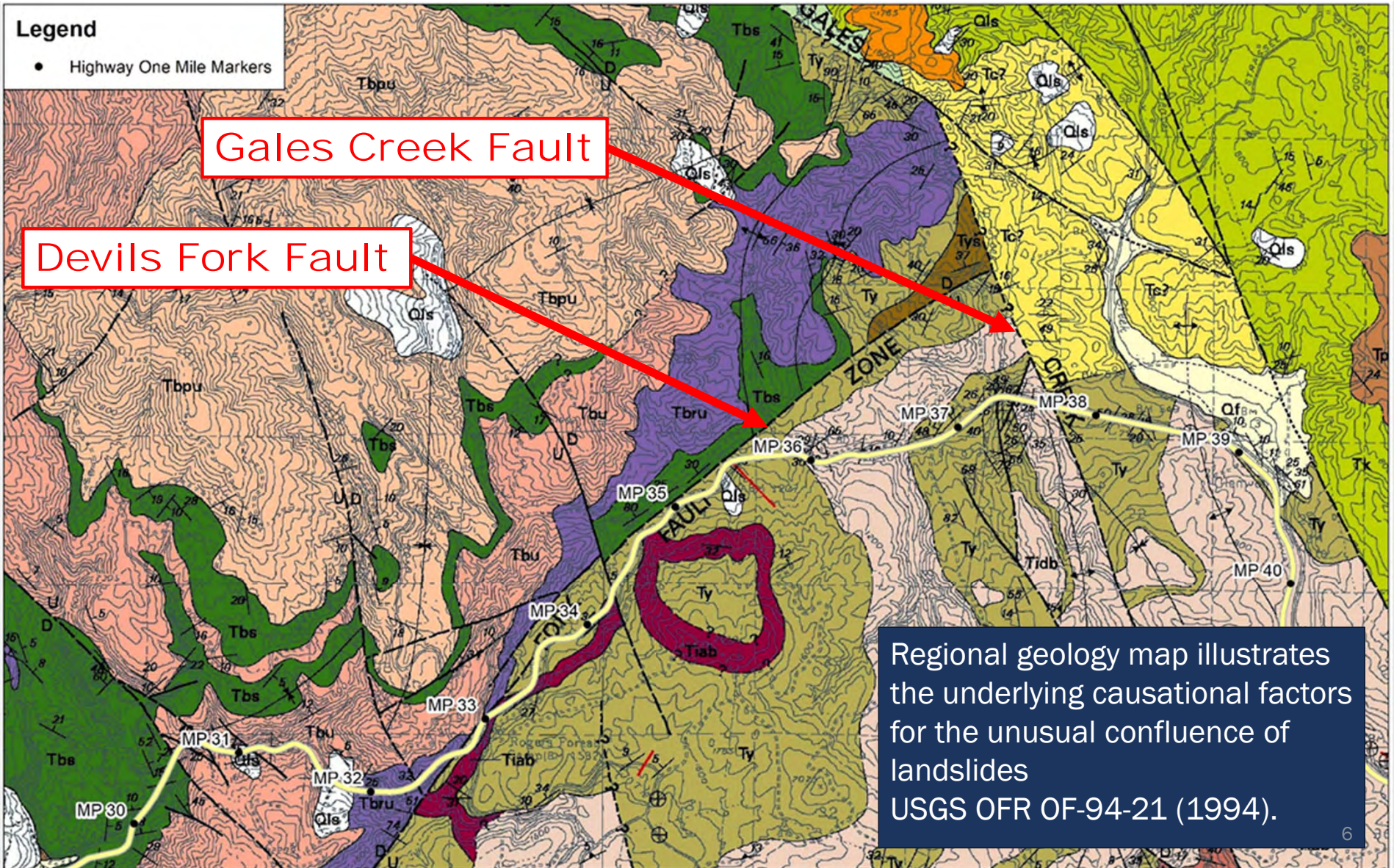
Legend

- Highway One Mile Markers



Legend

- Highway One Mile Markers



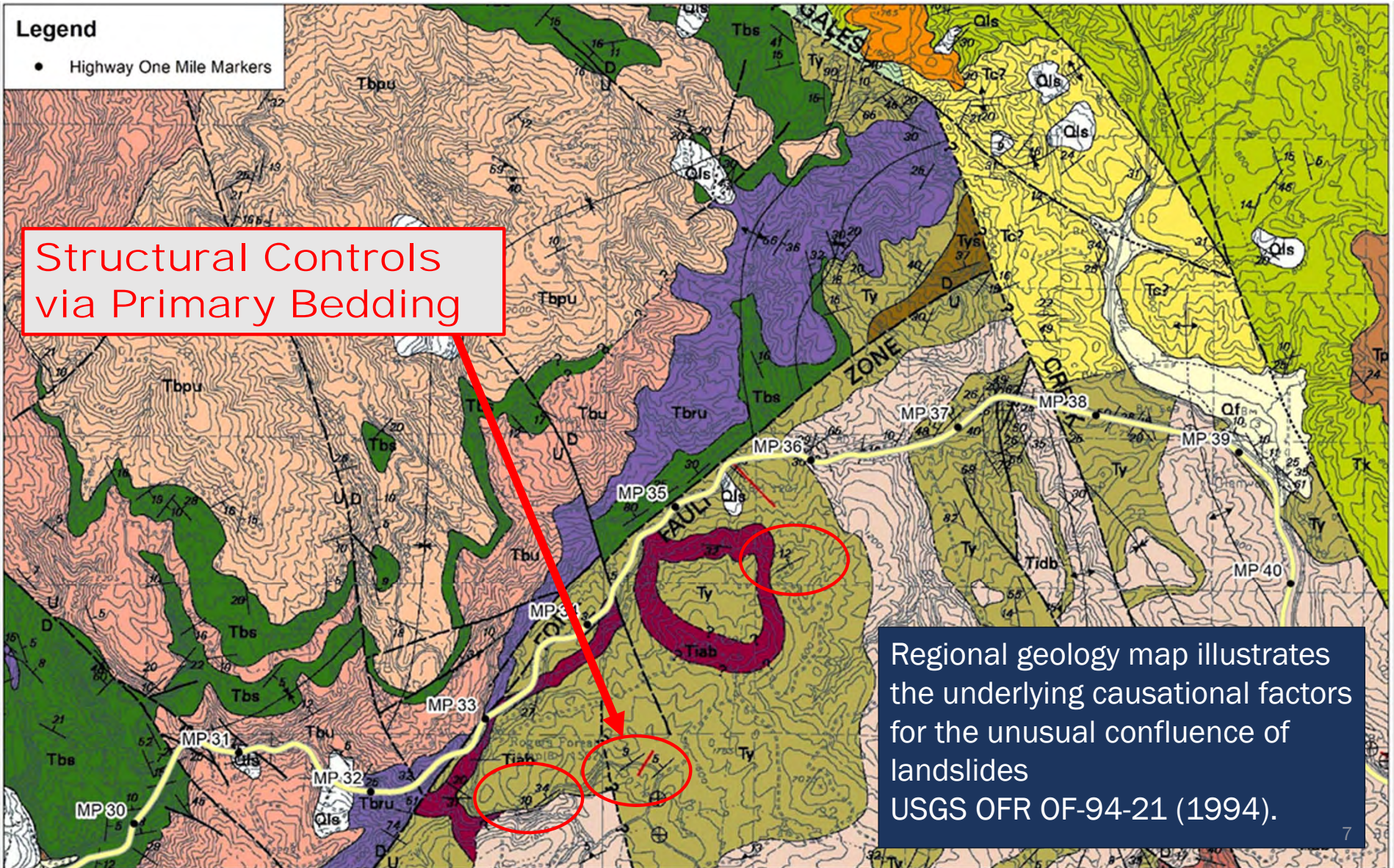
Gales Creek Fault

Devils Fork Fault

Regional geology map illustrates the underlying causal factors for the unusual confluence of landslides
USGS OFR OF-94-21 (1994).

Legend

- Highway One Mile Markers

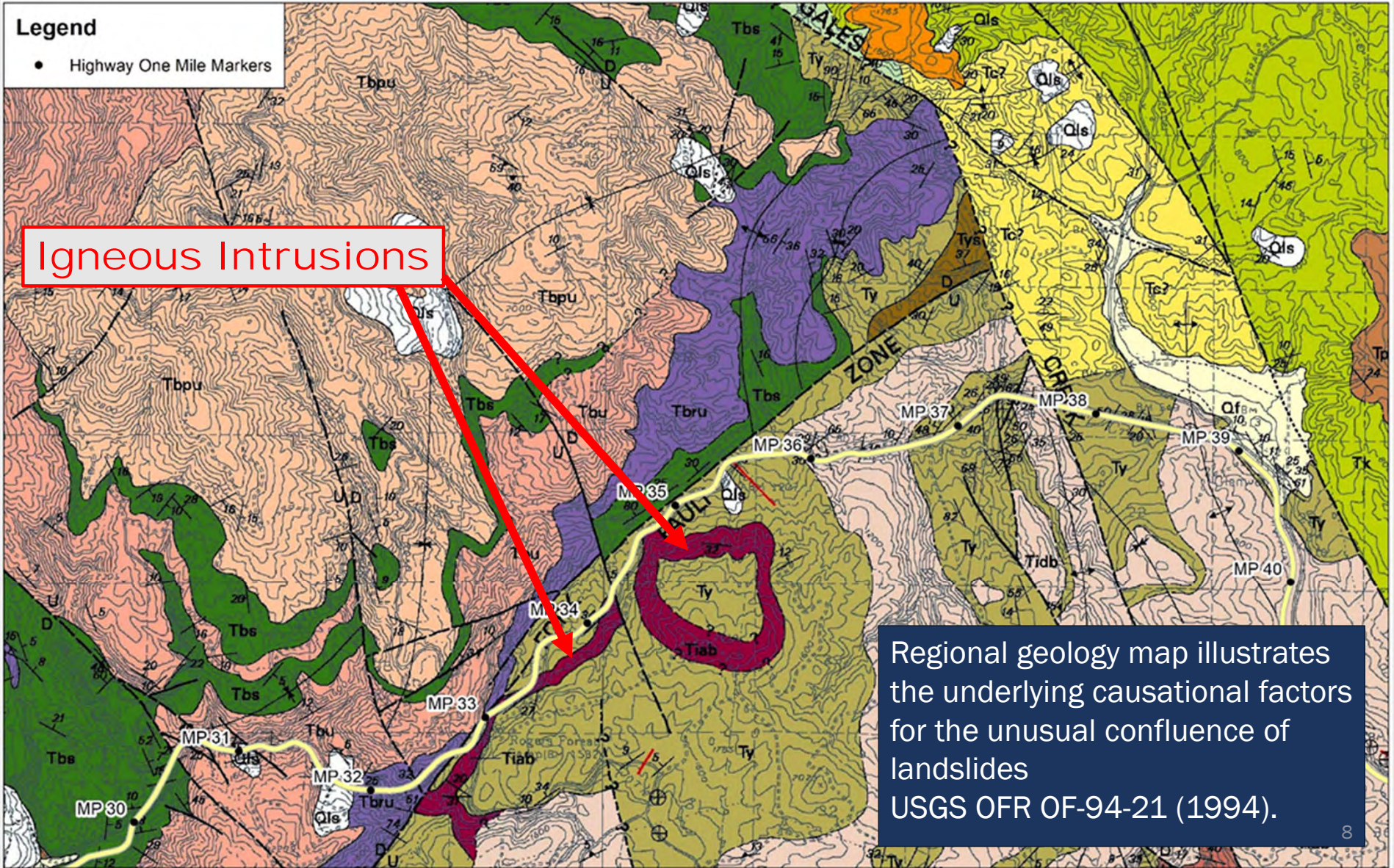


Regional geology map illustrates the underlying causal factors for the unusual confluence of landslides
USGS OFR OF-94-21 (1994).

Legend

- Highway One Mile Markers

Igneous Intrusions

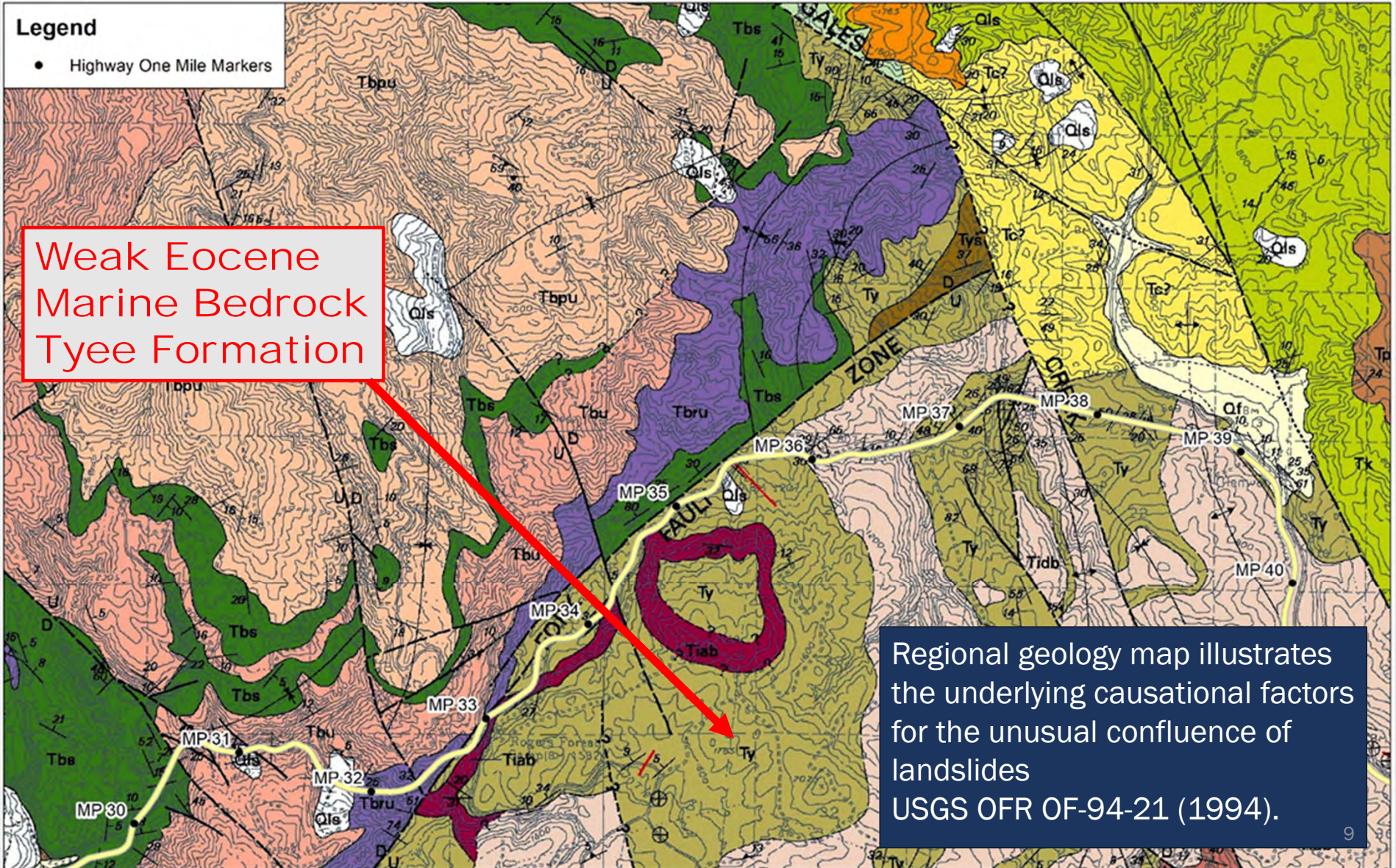


Regional geology map illustrates the underlying causal factors for the unusual confluence of landslides
USGS OFR OF-94-21 (1994).

Legend

- Highway One Mile Markers

Weak Eocene
Marine Bedrock
Tye Formation



Regional geology map illustrates the underlying causal factors for the unusual confluence of landslides
USGS OFR OF-94-21 (1994).

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Statistics from Statewide ODOT Unstable Slopes Program

- The Statewide Unstable Slopes Program (USP) tracts 1,847 sites in Region 2.
- Two of the top 50 ranked STIP sites along OR6.
 - STIP score of 32 at MP 33.89 (fill failure).
 - STIP score of 49 at MP 33.96 (fill failure).
- OR6 corridor annual maintenance costs reported at \$100,293.98 (2020).
- OR6 corridor geotechnical mitigation costs estimated at ~\$21 M (2020).
- Considering a 3x multiplier for all elements to construct, actual costs estimated at ~\$63 M.



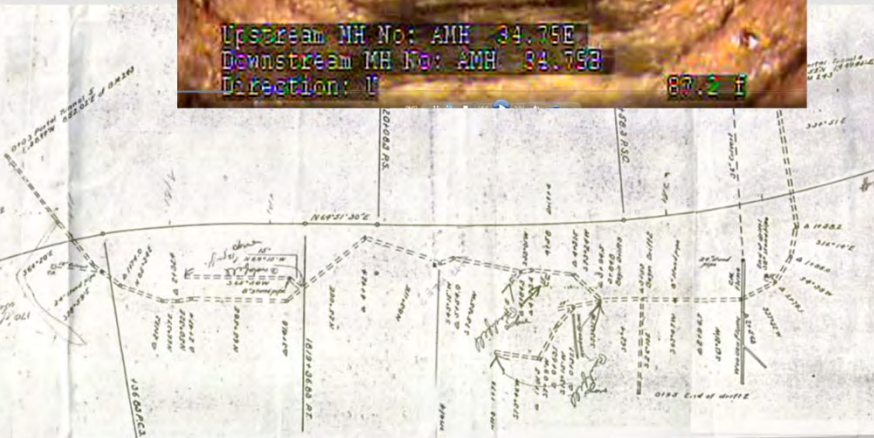
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Past Repair Efforts in this Area

- Failures mapped as far back as 1939. Tillamook Burn 1933 to 1951. Highway developed during this time.
- Hand-excavated drainage tunnels at MP 34.8 circa 1956, now collapsing.
- Historic 1996 Floods caused extensive damage along the corridor (side image).
- Soldier Pile Walls installed at MP 33.25, 33.75 and 34.25 circa 2010 (total cost est. \$4.1 M).
- Light weight fill (i.e. sawdust) used to reduce soil loading in several locations. Sawdust fills now decomposing causing widespread settlement.





1956 Drainage Tunnels

- Drainage tunnels installed by specialty mining crews to facilitate drainage around the active landslides at MP 34.8.
- Tunnels lined with concrete and corrugated pipes.
- Tunnels now collapsing forming sink holes at the surface.
- Effectiveness of these drainage tunnels is now reduced.



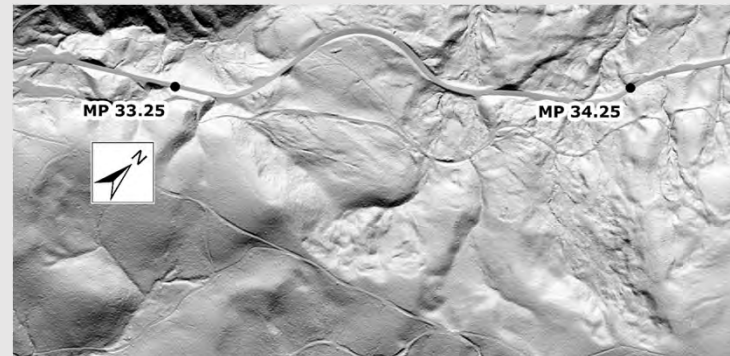
1996 Flood Damage

- 1996 associated rain events caused widespread damage along the OR6 corridor.
- Several partial roadway collapses occurred.
- Example images from MP 33.3.



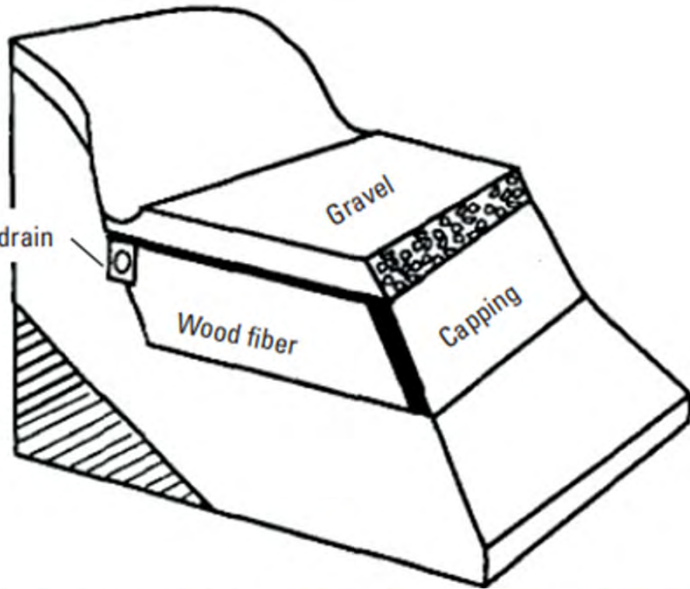
2010 Soldier Pile Walls

- Soldier Pile Walls installed circa 2010 for a total cost of ~\$4.1 M.
- MP 33.25 – 250 feet of wall.
- MP 33.75 – 230 feet of wall.
- MP 34.25 – 200 feet of wall.

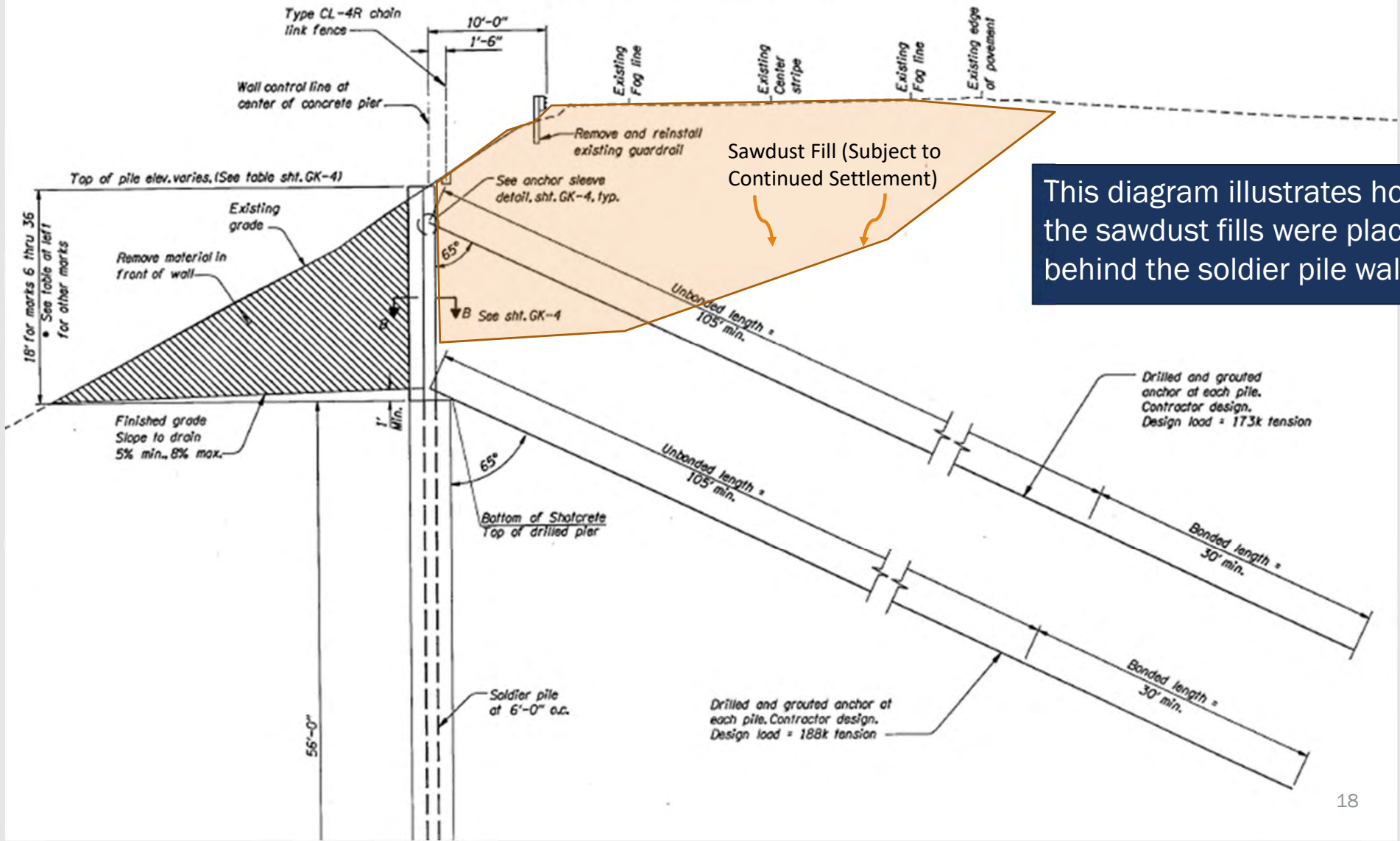


Lightweight Fill Repairs

- Lightweight fill materials used to reduce loading on these landslide features during repair efforts circa 1996 and 2010.
- In accordance with standard practice of the time, lightweight fill composed of wood fiber or sawdust was used.
- This material is now decomposing causing continued settlement of the pavement.



ANCHORED SOLDIER PILE WALL



This diagram illustrates how the sawdust fills were placed behind the soldier pile walls.

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Legend

Annual Maintenance Cost

● \$0-\$1,500

● \$1,500-\$4,000

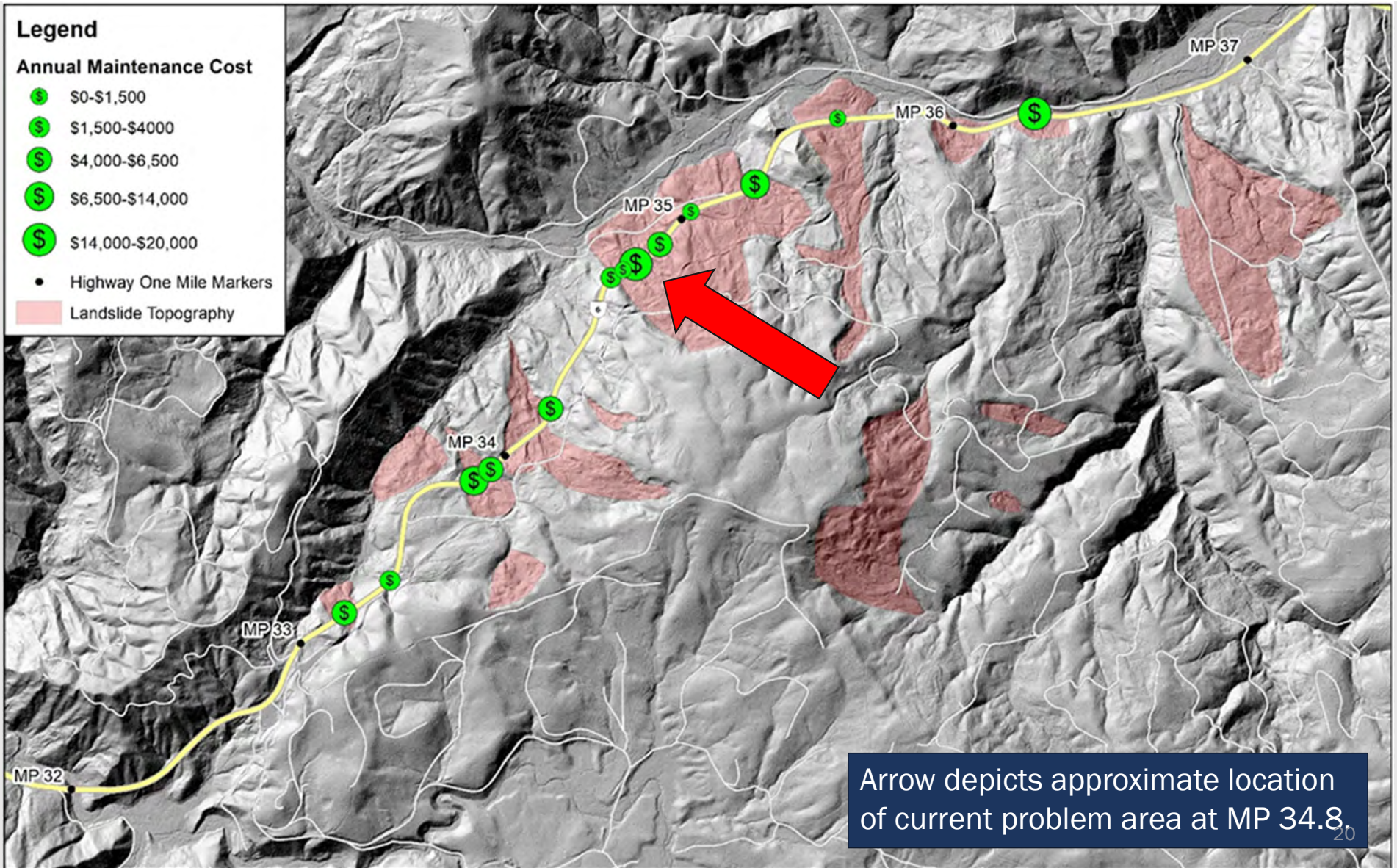
● \$4,000-\$6,500

● \$6,500-\$14,000

● \$14,000-\$20,000

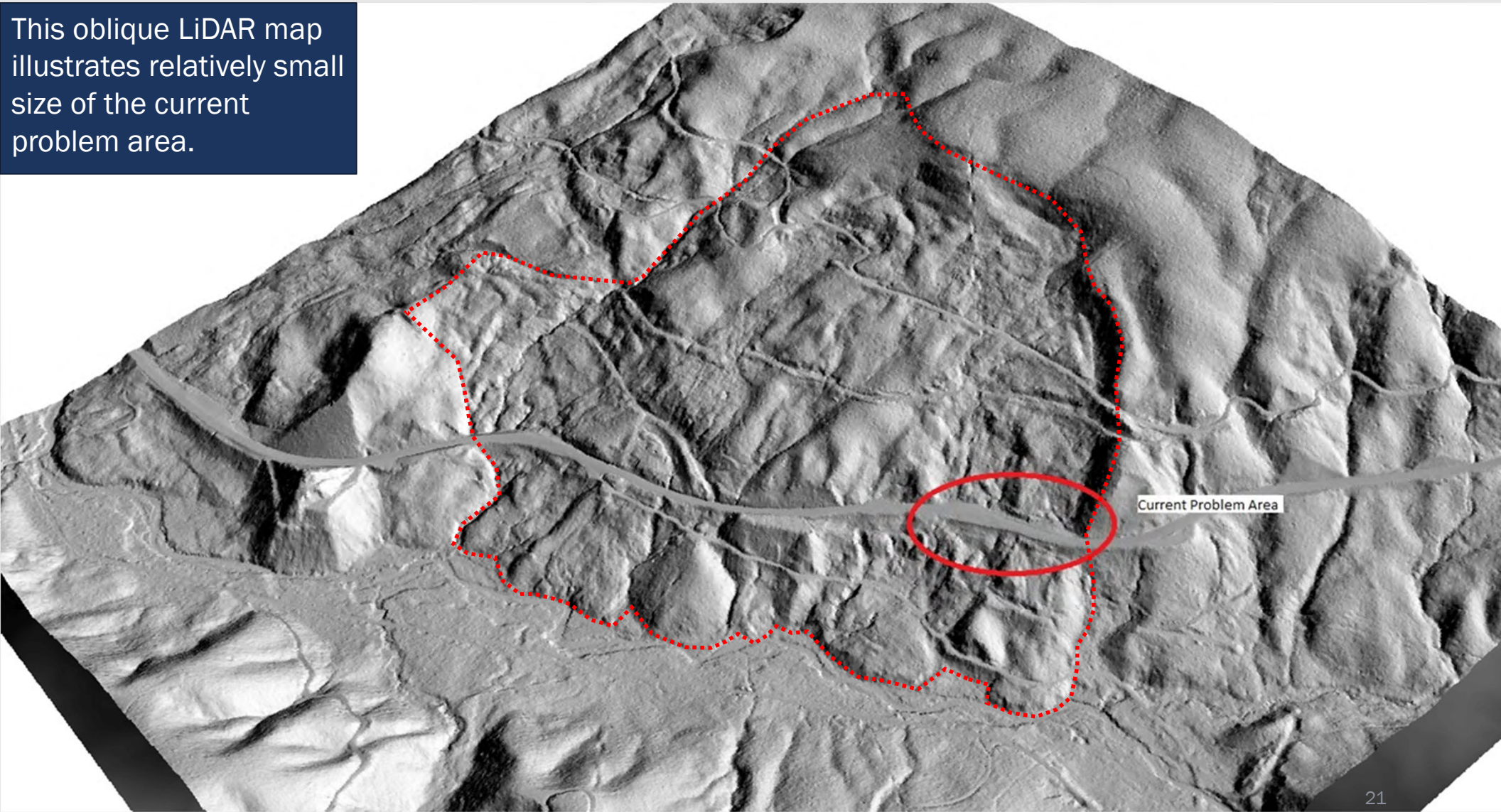
● Highway One Mile Markers

■ Landslide Topography

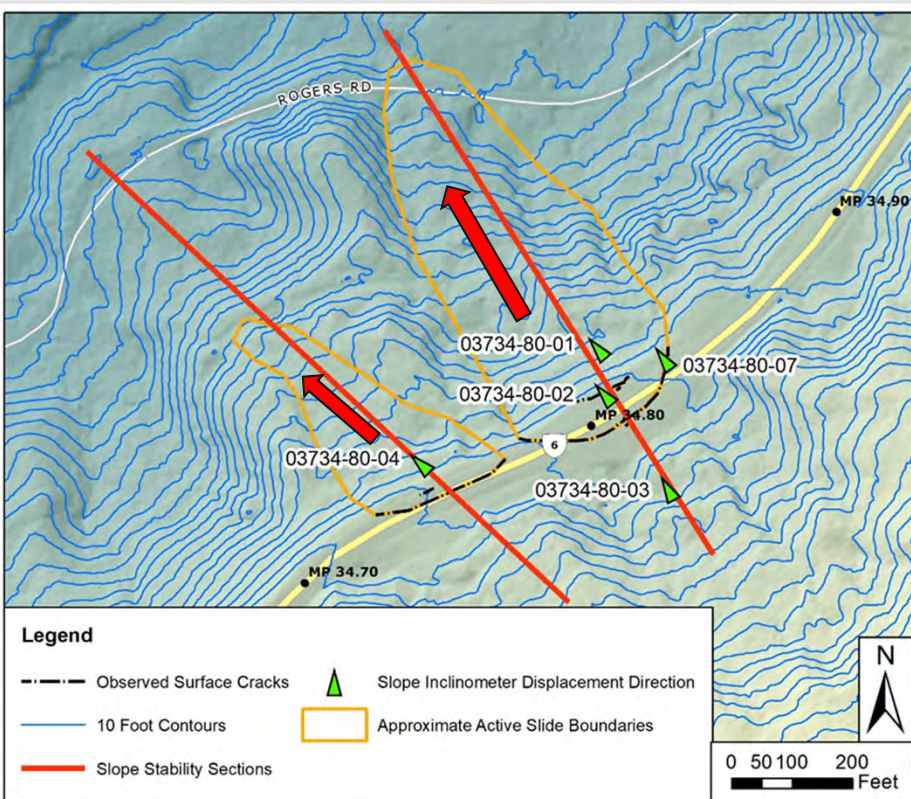


Arrow depicts approximate location of current problem area at MP 34.8

This oblique LiDAR map illustrates relatively small size of the current problem area.



Results from the Current (2021) Investigation (MP 34.8)



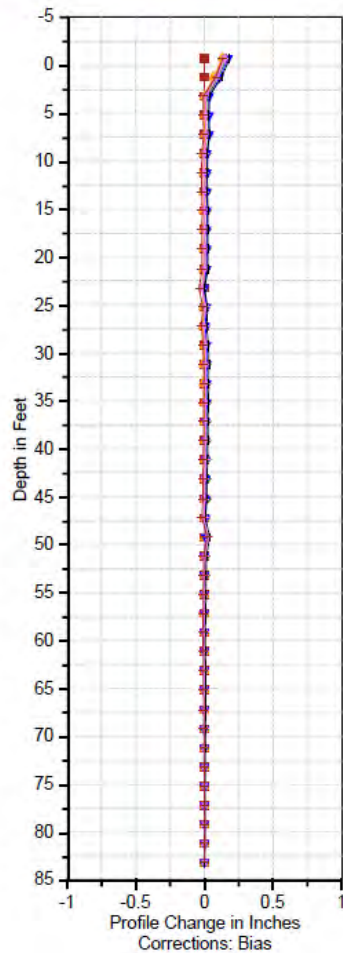
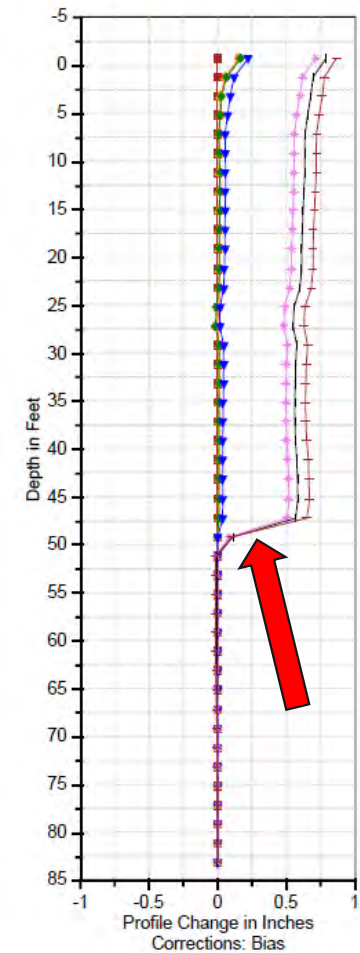
- Slide comprised of two active lobes.
- West lobe is about 275 feet wide.
- East lobe is about 310 feet wide.
- West slide instrumentation indicates depth of movement at 32 feet bgs, just above contact with landslide debris and bedrock.
- East slide instrumentation indicates depth of movement at 37 feet bgs, and 48 feet bgs, just above contact with landslide debris and bedrock.
- Deep basal shear zone (i.e. >30 ft.) dramatically increases repair costs.

OR6 03734-80-02 A

OR6 03734-80-02 B

9/23/2021 9/29/2021 10/1/2021
 10/14/2021 11/1/2021 11/17/2021
 12/1/2021 12/16/2021

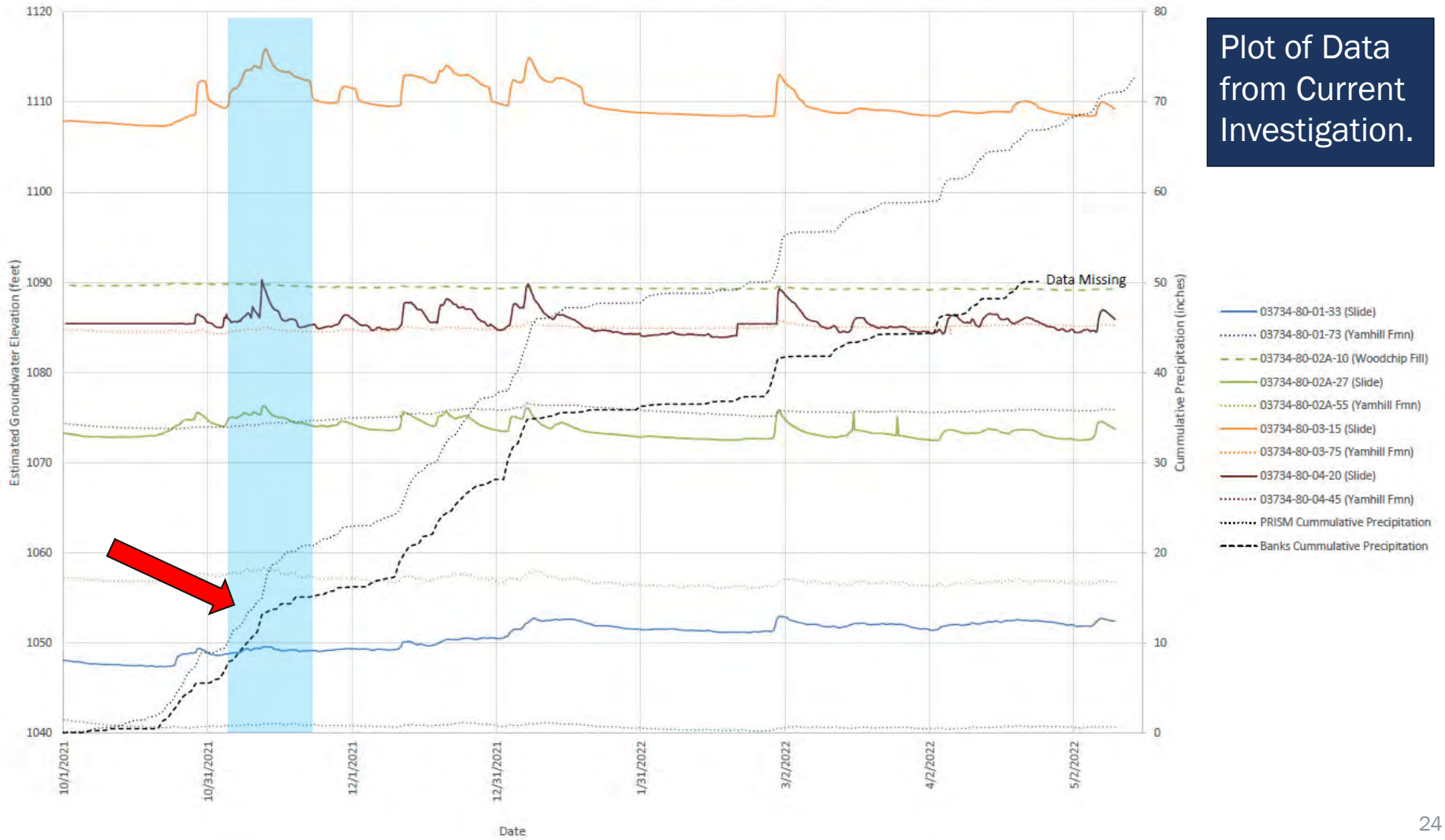
9/23/2021 9/29/2021 10/1/2021
 10/14/2021 11/1/2021 11/17/2021
 12/1/2021 12/16/2021



Results from the Current Investigation

- Rates of movement indicate pulses or surges on the order of 0.04 to as much as 0.28 inches per week (winter 2021 / 2022).
- Some instruments abandoned due to excessive movement.
- Example plot shows little movement from 09-23-2021 to 11-01-2021, movement increased by 11-17-2021, and then slowed thereafter.

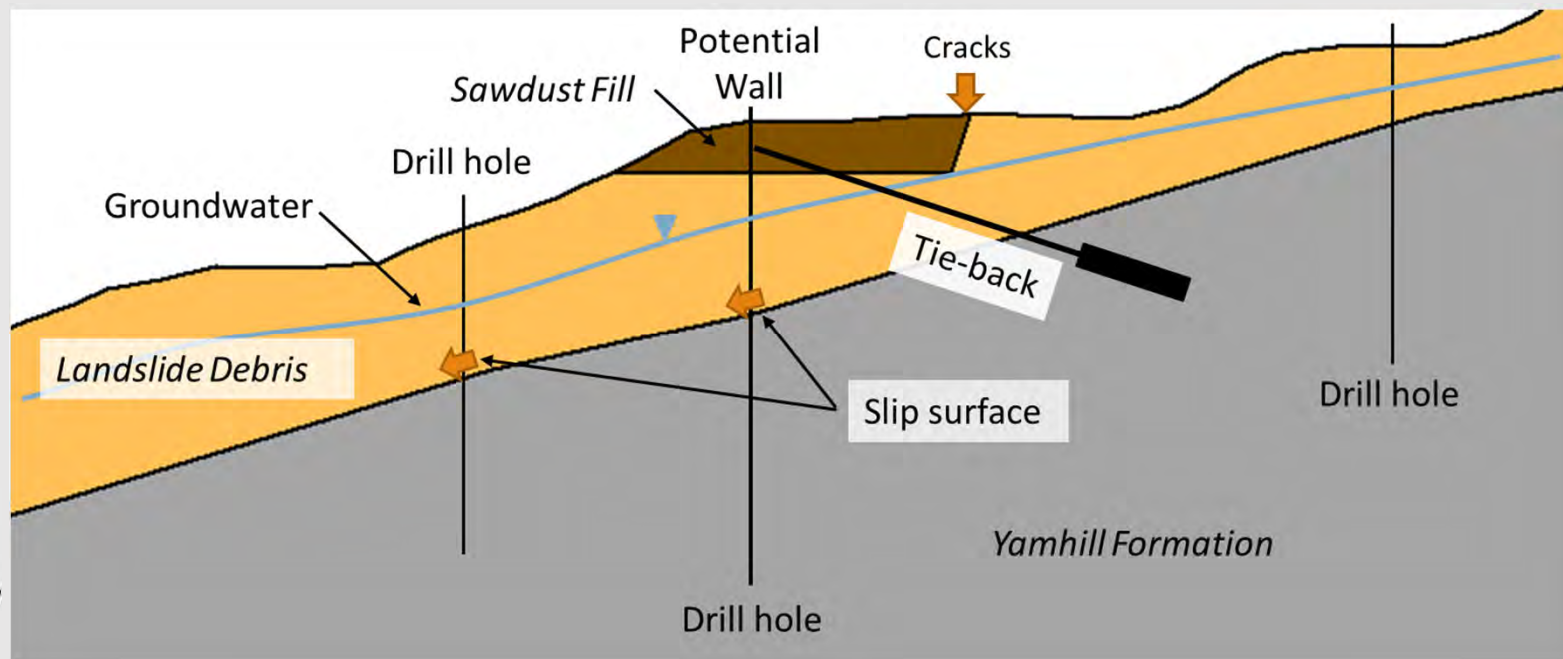
OR6 MP34.8 Groundwater Elevations and Cummulative Precipitation



Plot of Data from Current Investigation.

Results from the Current Investigation

- Preliminary landslide slope stability modeling performed to evaluate feasibility of mitigation alternatives.



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- Corridor Realignment

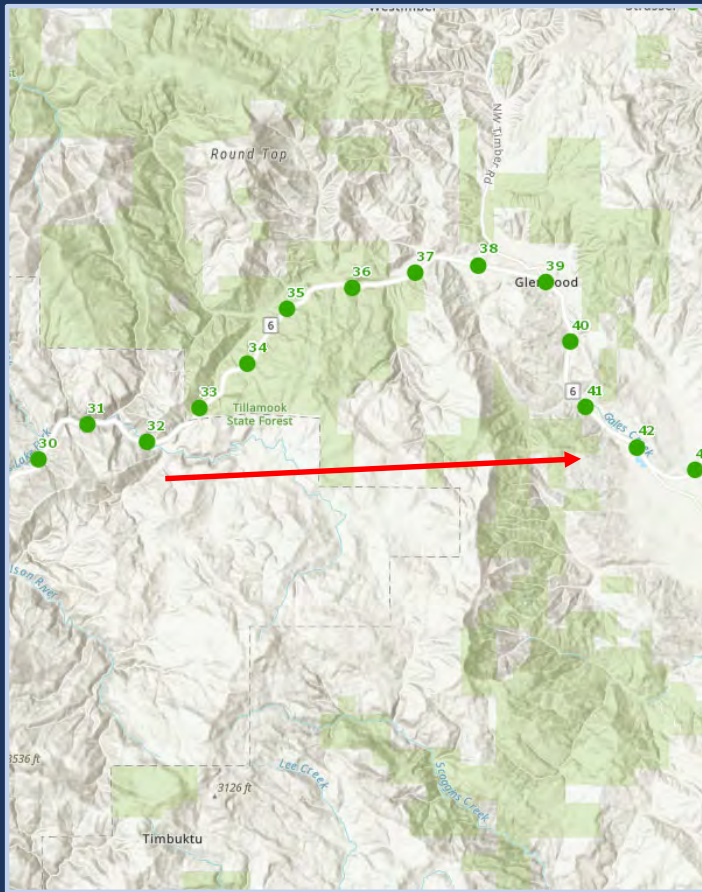
MP 34.8 Preliminary Mitigation Options

Option	Risks	Benefits	Est. Cost ⁽¹⁾
Tie-back Soldier pile wall	More investigation, one continuous wall for both slides, may need two wall lines and multiple rows of tie-backs	Removes sawdust fill, maintains current alignment, less impact to traffic / mobility	Estimated ~\$20 M
Local Highway Realignment	More investigation, reactivation of surrounding landslide(s), alignment alteration, impacts to traffic / mobility	Avoids existing landslide / sawdust fill	Estimated ~\$6 to \$10 M Shift Roadway Upslope and off Active Portion of Slide
Excavate and Replace Highway	More investigation, may still need tie-back soldier pile wall, impacts to traffic / mobility	Removes sawdust fill, maintains current alignment	Estimated ~\$9 to \$15 M Place Large SEM Fill

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OR6 MP 32 to 37 Corridor Realignment



- A study is needed to find a suitable alignment, which balances environmental, geological, land acquisition, and external stakeholder interests.
- Substantial planning involvement.
- Substantial property acquisition.
- Significant investigation needs, potentially along multiple alignment alternatives.
- Realignment of OR6 corridor assumes that highway will increase in overall length relative to that existing.
- Estimated cost in the \$100's M.

Legend

Annual Maintenance Cost

● \$0-\$1,500

● \$1,500-\$4,000

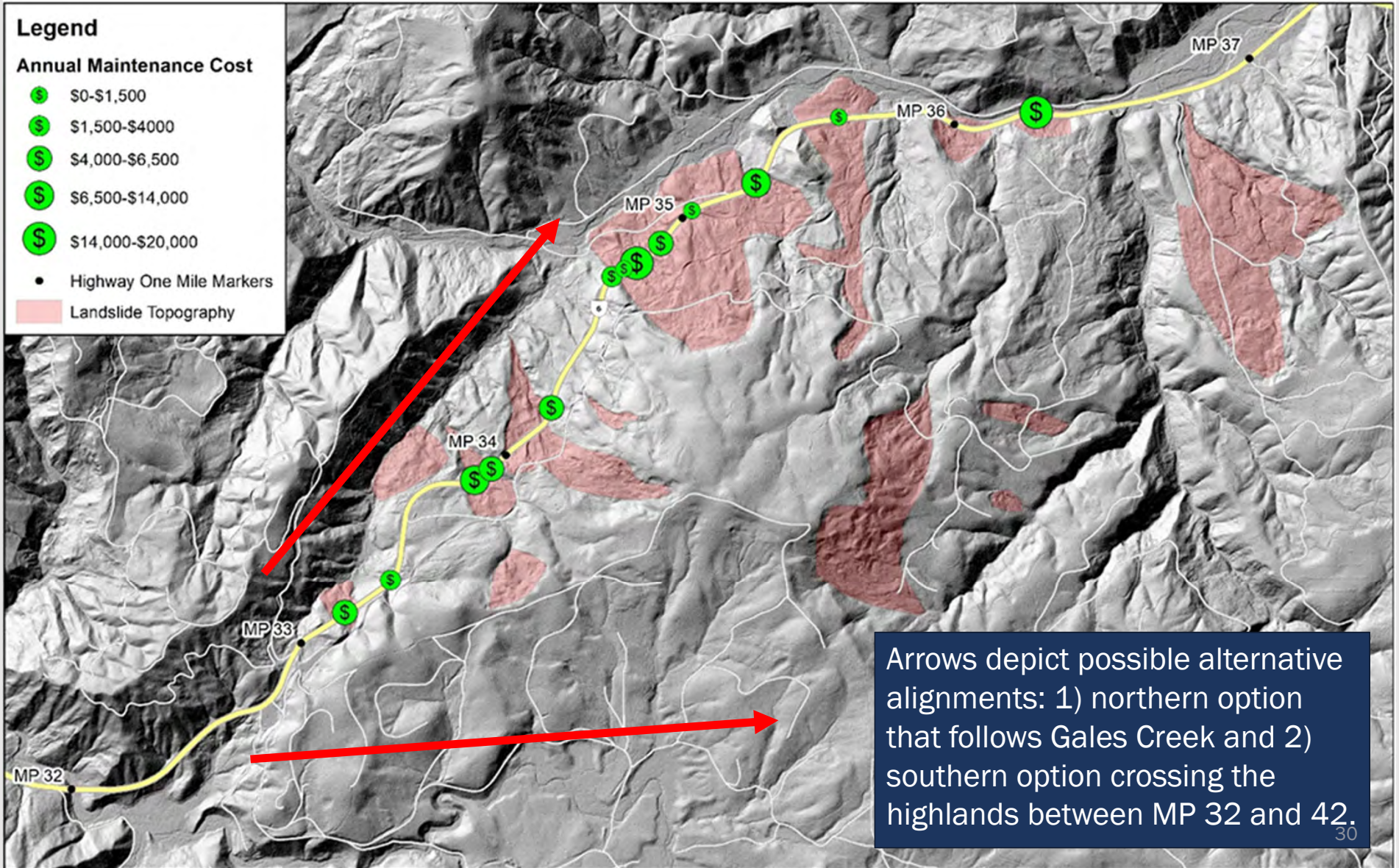
● \$4,000-\$6,500

● \$6,500-\$14,000

● \$14,000-\$20,000

● Highway One Mile Markers

■ Landslide Topography



Arrows depict possible alternative alignments: 1) northern option that follows Gales Creek and 2) southern option crossing the highlands between MP 32 and 42.

**Thank you for your time,
Questions?**

