

Retz Creek South Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

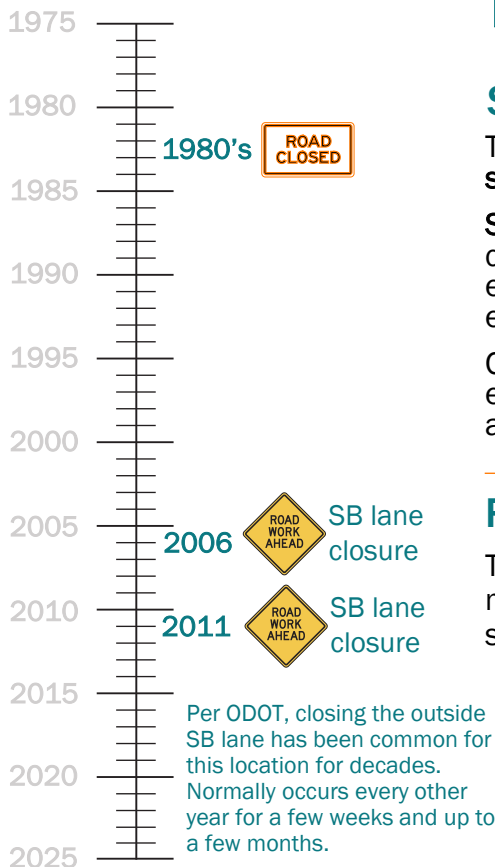
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 304.72, approximately 1.2 miles south of Port Orford Lookout |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 950 feet |
| SLIDE PLANES PRESENT | Three, with average movements of 0.98, 0.16, and 0.03 inches per month |
| SLIDE CAUSES | Coastal erosion of toe and relatively shallow groundwater |
| LIKELIHOOD OF CLOSING US 101 | Moderate – one full closure and the slide extends across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | High – history of annual partial closures/repaving |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



SB = Southbound

Slide Mitigation

The preferred slide mitigation is a **shear key with stone columns**.

Shear keys use elements such as stone columns, shear piles, drilled shafts, or excavation backfilled with stone embankment to reinforce shear planes.

Construction of the shear key is expected to impact ODOT right of way and adjacent State Park land.

Example of a constructed shear key mitigation.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.

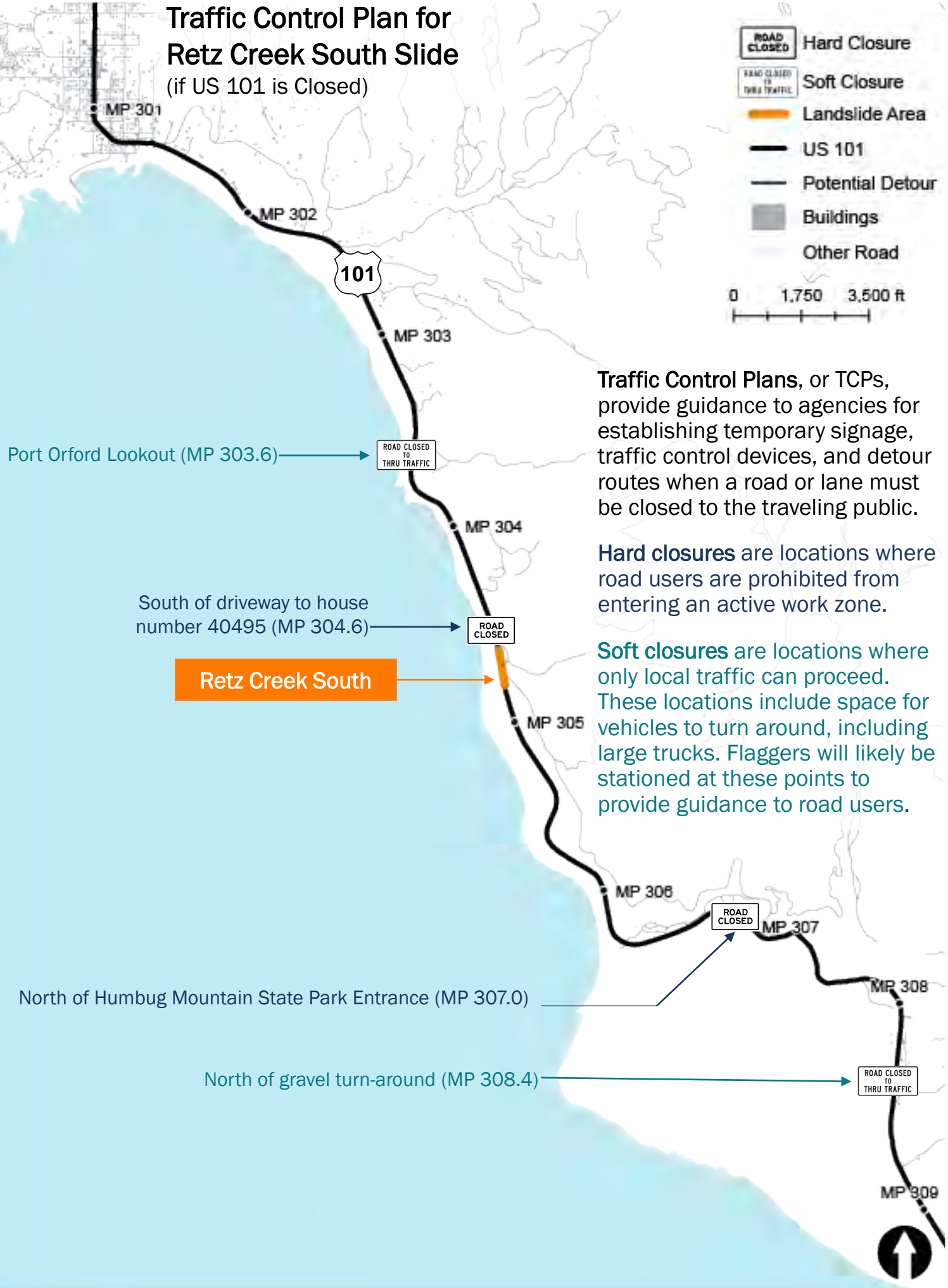
Vertical offset and pavement damage on Old US 101 along the southern margin of the slide.



¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Retz Creek South Slide

(if US 101 is Closed)



Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.

Coal Point Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

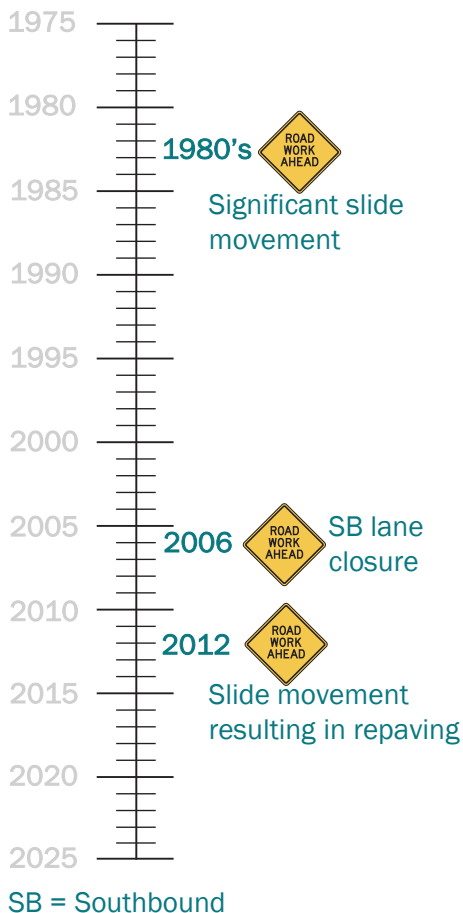
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|---|---|
| MILE POINT | MP 305.53, approximately 1.4 miles north of Humbug Mountain State Park entrance |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 640 feet |
| SLIDE PLANES PRESENT | Four, with average movements of 0.07, 0.01, less than 0.01, and 0.09 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | Moderate – there are no documented full closures; however, slide extends across roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – history of partial closures/repaving every few years |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is **horizontal drains or trench drains**.

Horizontal drains are drainage pipes drilled horizontally into the slide mass to lower the groundwater.

Trench drains are long, thin excavations backfilled with free-draining material used to both lower shallow groundwater and to cutoff and redirect surface water.

Construction of the trench drains is expected to impact ODOT right of way and adjacent State Park land.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Coal Point Slide (if US 101 is Closed)

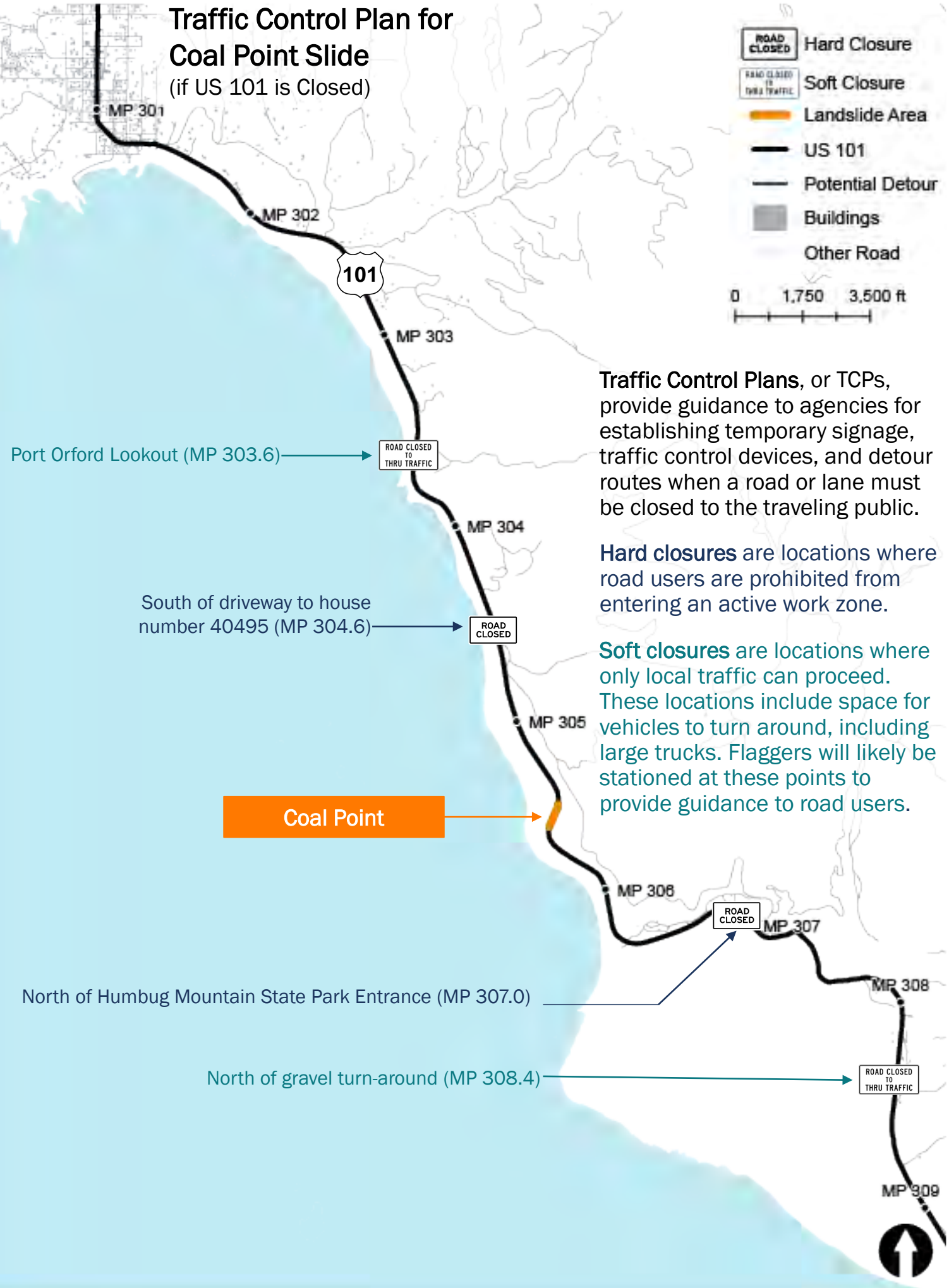
ROAD CLOSED Hard Closure
ROAD CLOSED TO THRU TRAFFIC Soft Closure
Landslide Area
US 101
Potential Detour
Buildings
Other Road

0 1,750 3,500 ft

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



North Brush Creek Hump



Community Impact

A partial or full closure at this slide location could potentially disrupt:

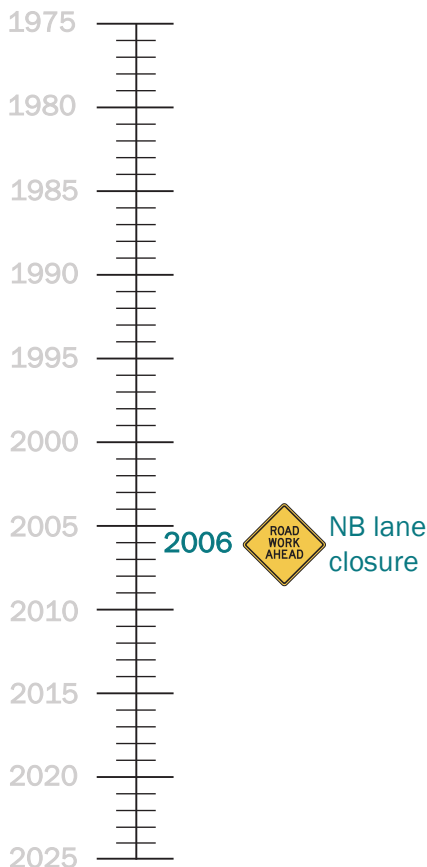
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 306.12, approximately 0.9 miles north of Humberg Mountain State Park entrance |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 430 feet |
| SLIDE PLANES PRESENT | Three, with average movements of 0.05, 0.03, and unknown inches per month |
| SLIDE CAUSES | Shallow groundwater, highway cut at toe, and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | Low – there are no documented full closures, and the slide does not extend across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Low – no road closures since the 2011 mitigation (shear key buttress), although the mitigation has not stopped slide movement |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



NB = Northbound

Slide Mitigation

The preferred slide mitigation is to **extend the existing shear key** previously installed at the site to a deeper depth using stone columns.

Shear keys use elements such as stone columns, shear piles, drilled shafts, or excavation backfilled with stone embankment to reinforce shear planes.

Construction of the shear key is expected to impact ODOT right of way and adjacent State Park land.



Example of a constructed shear key mitigation.

Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Rock buttress along US 101 northbound constructed by ODOT in 2011.

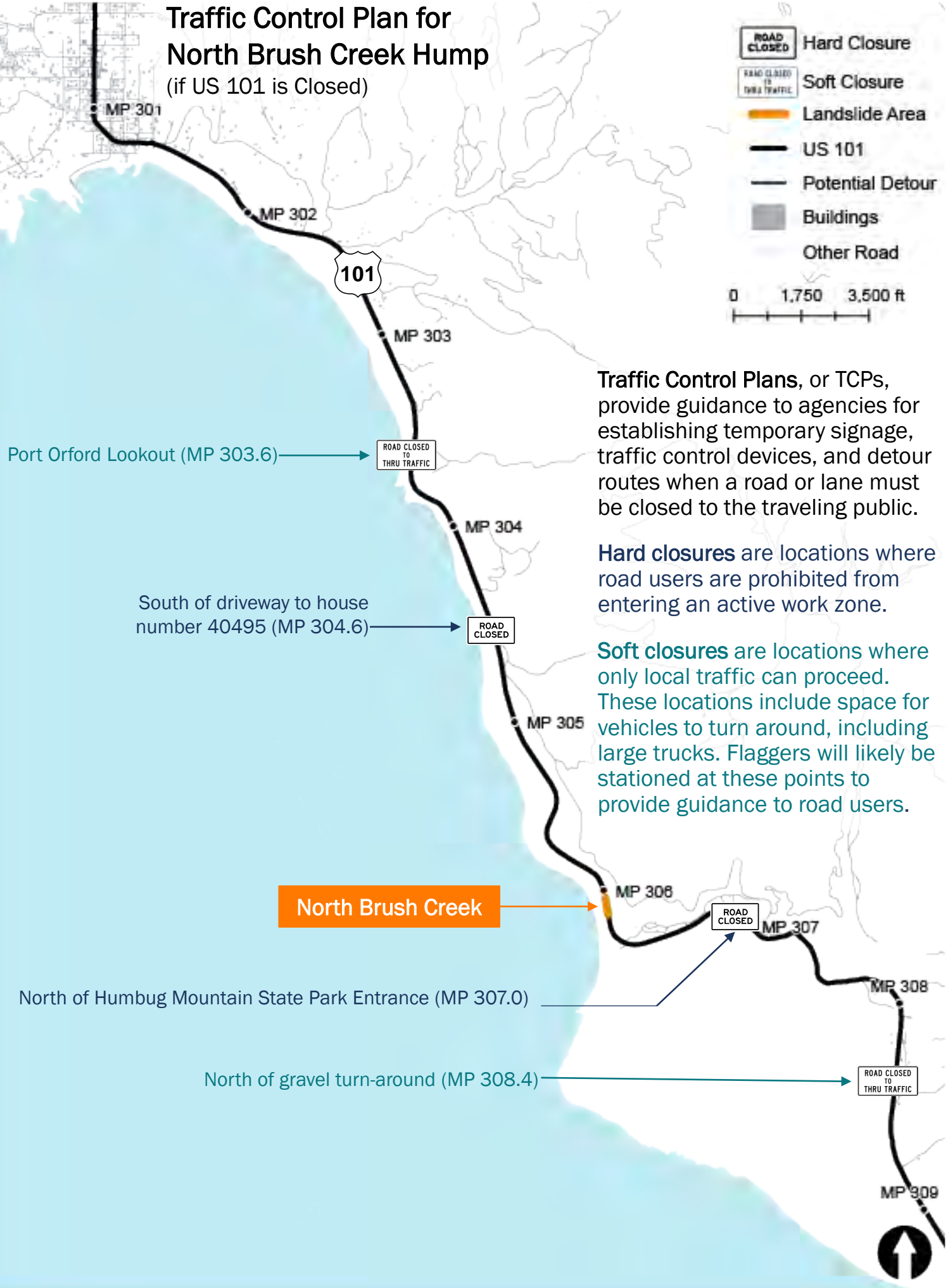
¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for North Brush Creek Hump

(if US 101 is Closed)

| | |
|---|------------------|
|  | Hard Closure |
|  | Soft Closure |
|  | Landslide Area |
|  | US 101 |
|  | Potential Detour |
|  | Buildings |
|  | Other Road |

0 1,750 3,500 ft



Port Orford Lookout (MP 303.6)

ROAD CLOSED TO THRU TRAFFIC

South of driveway to house number 40495 (MP 304.6)

ROAD CLOSED

North Brush Creek

North of Humbug Mountain State Park Entrance (MP 307.0)

ROAD CLOSED

North of gravel turn-around (MP 308.4)

ROAD CLOSED TO THRU TRAFFIC

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Brush Creek Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

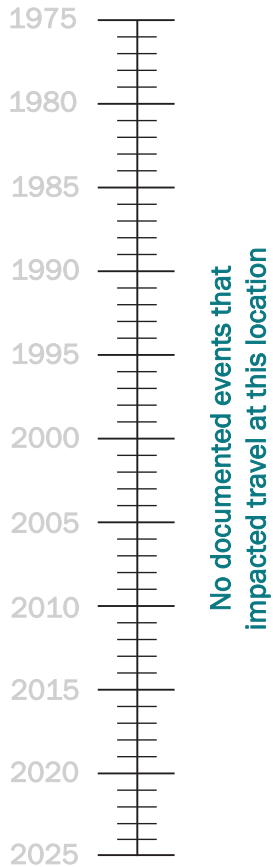
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 307.10, approximately 3.2 miles south of Humbug Mountain State Park entrance |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 60 feet |
| SLIDE PLANES PRESENT | One, with an unknown monthly average movement |
| SLIDE CAUSES | Coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | High – there are no documented full closures but if the slide moves far enough to close the road, it will be expensive to fix |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Low – there are no documented past closures or frequent maintenance |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is a **shear pile wall**.

Shear keys use elements such as stone columns, shear piles, drilled shafts, or excavation backfilled with stone embankment to reinforce shear planes.

Construction of the shear pile wall is expected to be within ODOT right of way.

Example of a constructed shear key mitigation.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Active scarp on the cliff facing the coastline (on back side of cut along US 101 southbound).

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

See the project Executive Summary and supporting technical memos here:

<https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=22228>

Traffic Control Plan for Brush Creek Slide

(if US 101 is Closed)

Port Orford Lookout
(MP 303.6)

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

South of Humbug Mountain State
Park Entrance (MP 307.0)

Brush Creek

North of Humbug Mountain Day
Use at Brush Creek (MP 307.7)

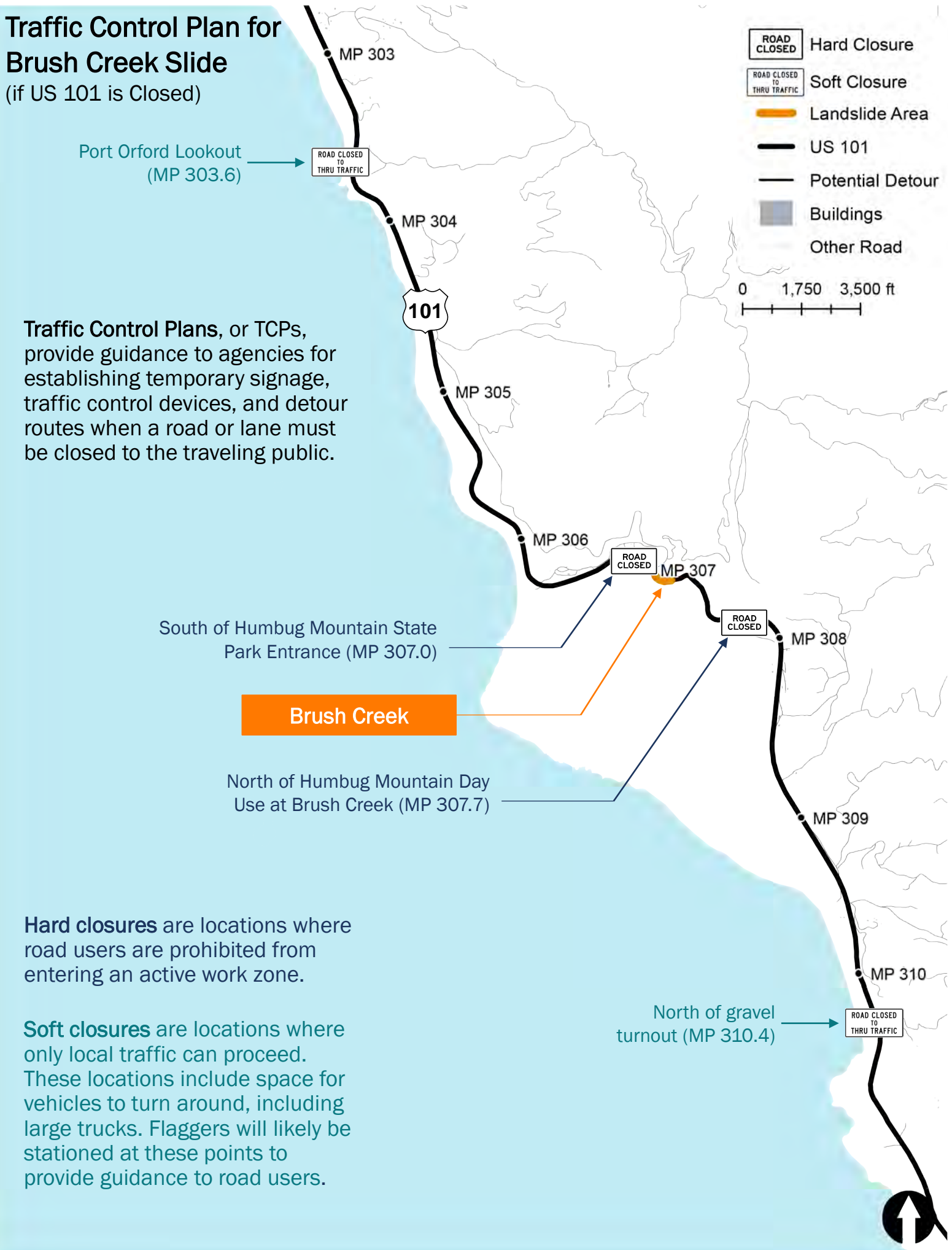
North of gravel
turnout (MP 310.4)

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road

0 1,750 3,500 ft



Arizona North Slide (part of Arizona Slide Complex)



Community Impact

A partial or full closure at this slide location could potentially disrupt:

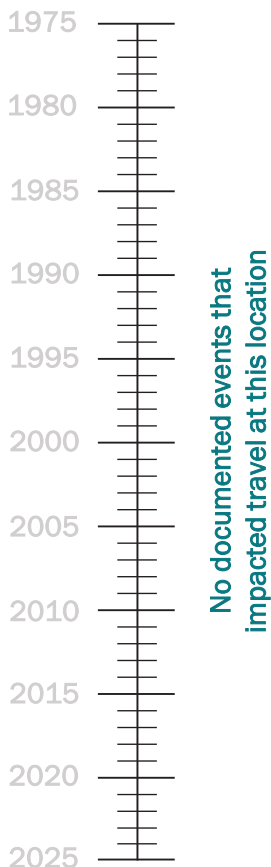
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|--|
| MILE POINT | MP 312.00, approximately 1.1 miles north of Arizona Ranch Road |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 1,480 feet |
| SLIDE PLANES PRESENT | Three, with average movements of 1.52, 0.09, and 0.02 inches per month |
| SLIDE CAUSES | Coastal erosion of toe and shallow groundwater |
| LIKELIHOOD OF CLOSING US 101 | Moderate – there are no documented full closures, however, the slide extends across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – existing mitigations have either failed or are reaching end of their “useful life” |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is **horizontal drains**.

Horizontal drains are drainage pipes drilled horizontally into the slide mass to lower the groundwater.

Construction of the horizontal drains is expected to be within ODOT right of way and on adjacent private property.

Example of a constructed horizontal drain mitigation.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.

Localized failure of the slope below US 101 southbound. The failure caused damage to the existing soil nail stabilization including an approximate one-foot gap at the bottom of the shotcrete facing.



¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Arizona North Slide

(if US 101 is Closed)

South of gravel turnout (MP 310.4)

North of driveway to house number 38070 (MP 311.9)

Arizona North

North of Arizona Ranch Road (MP 313.1)

Sisters Rocks South Trailhead (MP 314.8)

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road

0 1,250 2,500 ft

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Arizona Inn Slide (part of Arizona Slide Complex)



Community Impact

A partial or full closure at this slide location could potentially disrupt:

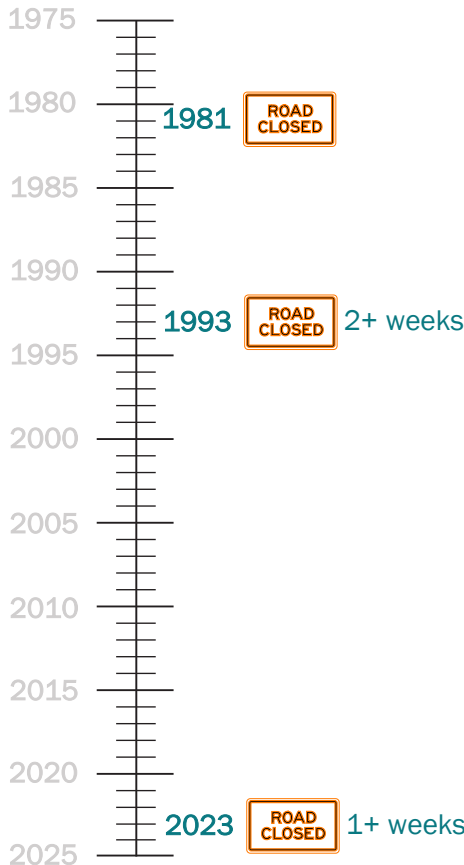
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 312.39, approximately 0.7 miles north of Arizona Ranch Road |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 1,270 feet |
| SLIDE PLANES PRESENT | Two, with average movements of 0.08 and 0.08 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | High – there is a history of full closures |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | High – existing mitigations are reaching end of their “useful life” |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is **horizontal drains**.

Horizontal drains are drainage pipes drilled horizontally into the slide mass to lower the groundwater.

Construction of the horizontal drains is expected to be within ODOT right of way and on adjacent private property.

Example of a constructed horizontal drain mitigation.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



A 2023 slide near the Arizona State Recreational site along U.S. 101 dropped the roadway by as much as 12 feet in some places.

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Arizona Inn Slide

(if US 101 is Closed)








South of gravel turnout (MP 310.4)

North of driveway to house number 38070 (MP 311.9)

Arizona Inn

North of Arizona Ranch Road (MP 313.1)

Sisters Rocks South Trailhead (MP 314.8)

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road

0 1,250 2,500 ft

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Christmas Tree Slide (Frankport North)



Community Impact

A partial or full closure at this slide location could potentially disrupt:

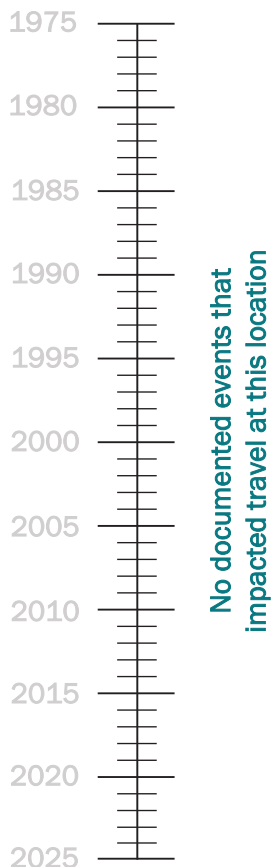
- An estimated 1,000 commuters¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|--|
| MILE POINT | MP 314.10, approximately 0.2 miles south of Tinslby Lane |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 310 feet |
| SLIDE PLANES PRESENT | One, with average movement of 0.15 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | Low – there are no documented full closures, and the slide does not extend across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – history of one-to-three-year maintenance interval |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is a **soldier pile tieback wall**.

Soldier pile tieback wall is a type of retaining wall that is meant to support the roadway while allowing the slide downslope from the wall to continue moving. Ground anchors (tiebacks) will connect the ground beneath the shear plane to the retaining wall to prevent movement of the roadway.

Construction of the soldier pile tieback wall is expected to be within ODOT right of way.

Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Example of a constructed soldier pile tieback wall mitigation.



Multiple layers of asphalt pavement on US 101 southbound shoulder indicating ongoing displacements.

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

See the project Executive Summary and supporting technical memos here:

<https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=22228>

Traffic Control Plan for Christmas Tree Slide

(if US 101 is Closed)

South of Arizona Ranch Road (MP 313.1)

South of Pigeon Point Road (MP 314.0)

Christmas Tree

North of Sisters Rocks North Trailhead (MP 314.5)

North of Euchre Creek Road (MP 316.9)

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road

0 1,250 2,500 ft

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Sisters Rock Sink



Community Impact

A partial or full closure at this slide location could potentially disrupt:

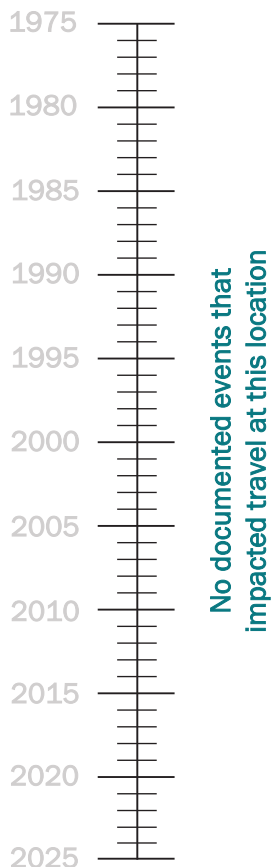
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|--|
| MILE POINT | MP 314.32, approximately 0.4 miles south of Tinslby Lane |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 320 feet |
| SLIDE PLANES PRESENT | Two, with average movements of 0.13 and 0.02 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | Low – there are no documented full closures, and the slide does not extend across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – history of one-to-three-year maintenance interval |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation are **trench drains**.

Trench drains are long, thin excavations backfilled with free-draining material used to both lower shallow groundwater and to cutoff and redirect surface water.

Construction of the trench drains is expected to be within ODOT right of way.

Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Large sections of asphalt with tension cracking downslope of US 101 southbound, potentially the old highway.

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Sisters Rock Sink

(if US 101 is Closed)

South of Arizona Ranch Road (MP 313.1)

South of driveway to house number 36475 (MP 314.1)

Sisters Rock

North of Sisters Rocks North Trailhead (MP 314.5)

North of Euchre Creek Road (MP 316.9)

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road

0 1,250 2,500 ft

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Frankport Slide (Frankport South)



Community Impact

A partial or full closure at this slide location could potentially disrupt:

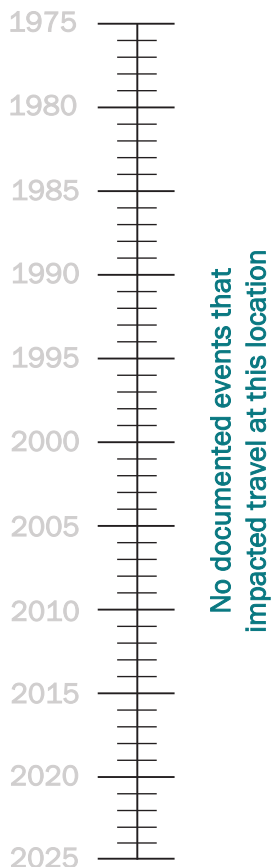
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|---|---|
| MILE POINT | MP 314.79, approximately 0.3 miles south of Sisters Rocks North Trailhead |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 430 feet |
| SLIDE PLANES PRESENT | Three, with average movements of 0.16, 0.01, and 0.01 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | Moderate – there are no documented full closures, but the slide extends across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – history of one-to-three-year maintenance interval |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation are **trench drains**.

Trench drains are long, thin excavations backfilled with free-draining material used to both lower shallow groundwater and to cutoff and redirect surface water.

Construction of the trench drains is expected to be within ODOT right of way and on adjacent State Park lands.

Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Potential recent slope failure along north margin of slide area (facing north).

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Frankport Slide

(if US 101 is Closed)

South of Arizona Ranch Road (MP 313.1)

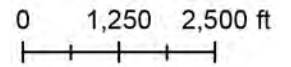
South of Sisters Rocks North Trailhead (MP 314.5)

Frankport

North of driveway to house number 36044 (MP 315.1)

North of Euchre Creek Road (MP 316.9)

-  Hard Closure
-  Soft Closure
-  Landslide Area
-  US 101
-  Potential Detour
-  Buildings
-  Other Road



Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Woodroof Creek Slide (Horneblenzer Slide, Skull Ridge Slide, Squire Slide)



Community Impact

A partial or full closure at this slide location could potentially disrupt:

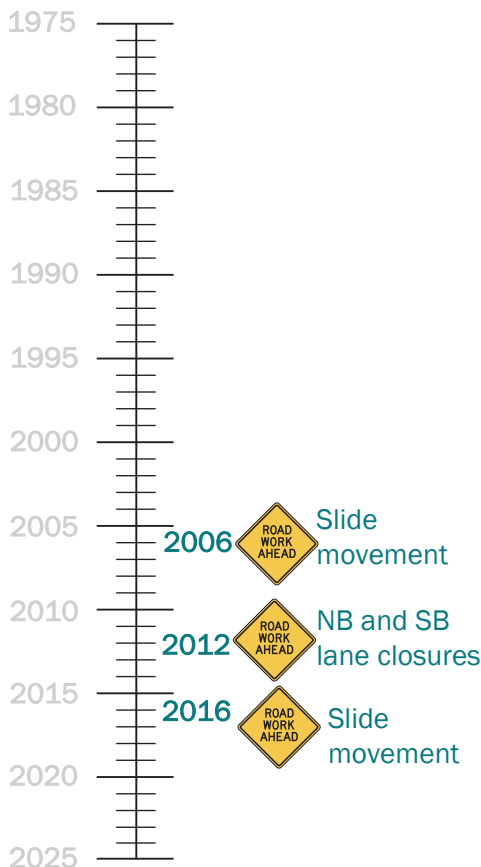
- An estimated 1,000 commuters ¹
- An estimated 2,400 to 5,000 daily trips, including 560 to 1,000 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|--|
| MILE POINT | MP 315.93, approximately 1.4 miles south of Sisters Rocks North Trailhead |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 320 feet |
| SLIDE PLANES PRESENT | One, with an unknown monthly average movement |
| SLIDE CAUSES | Shallow groundwater and erosion of toe by Woodruff Creek |
| LIKELIHOOD OF CLOSING US 101 | Low – there are no documented full closures, and the slide does not extend across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – recent large-scale movement every four to five years |
| DETOUR ROUTE IF CLOSURES US 101 | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



NB = Northbound; SB = Southbound

Slide Mitigation

The preferred slide mitigation is a **soldier pile tieback wall**.

Soldier pile tieback wall is a type of retaining wall that is meant to support the roadway while allowing the slide downslope from the wall to continue moving. Ground anchors (tiebacks) will connect the ground beneath the shear plane to the retaining wall to prevent movement of the roadway.

Construction of the soldier pile tieback wall is expected to be within ODOT right of way.



Example of a constructed soldier pile tieback wall mitigation.

Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.



Toe of the landslide up against the steep channel of Woodruff Creek.

¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Woodroof Creek Slide

(if US 101 is Closed)

South of Arizona Ranch Road (MP 313.1)



MP 313

MP 314

MP 315

South of driveway to house number 35690 (MP 315.7)

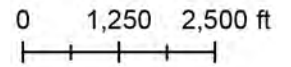
Woodroof Creek

North end of gravel turnout (MP 316.2)

North of Euchre Creek Road (MP 316.9)

MP 317

- Hard Closure
- Soft Closure
- Landslide Area
- US 101
- Potential Detour
- Buildings
- Other Road



Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.



Eighty Acres Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

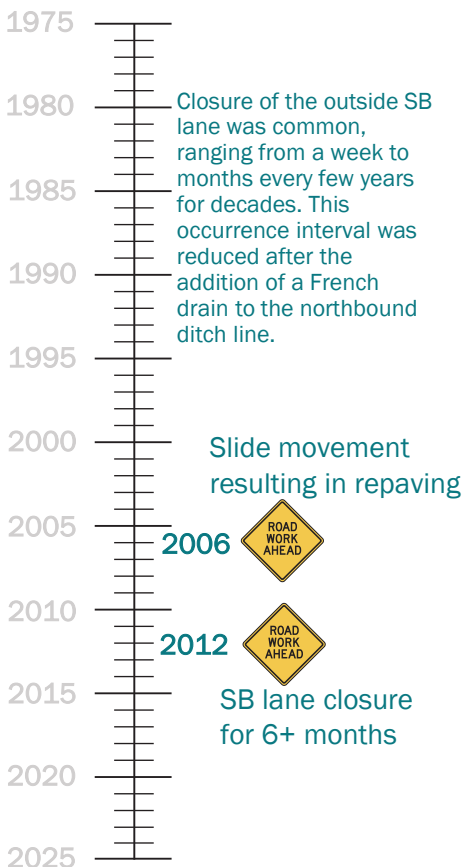
- An estimated 1,000 commuters ¹
- An estimated 3,900 to 4,400 daily trips, including 810 to 930 freight trips
- Tourists, the Coastal Express transit route, and emergency services

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 332.55, approximately 0.4 miles north of Eighty Acres Road |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 270 feet |
| SLIDE PLANES PRESENT | One, with average movement of 0.75 inches per month |
| SLIDE CAUSES | Shallow groundwater |
| LIKELIHOOD OF CLOSING US 101 | Low – there are no documented full closures, and the slide does not extend across the entire roadway |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Moderate – previous mitigation efforts (French drain) have reduced frequency of southbound lane closures since 2015 |
| DETOUR ROUTE | I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



SB = Southbound

Slide Mitigation

The preferred slide mitigation is a **shear key with stone columns**.

Shear keys use elements such as stone columns, shear piles, drilled shafts, or excavation backfilled with stone embankment to reinforce shear planes.

Construction of the soldier pile tieback wall is expected to be within ODOT right of way.

Example of a constructed shear key mitigation.



Road Mitigation

There are no cost-effective roadway mitigations associated with this study slide.

Slumped trees in the central portion of the slide area.



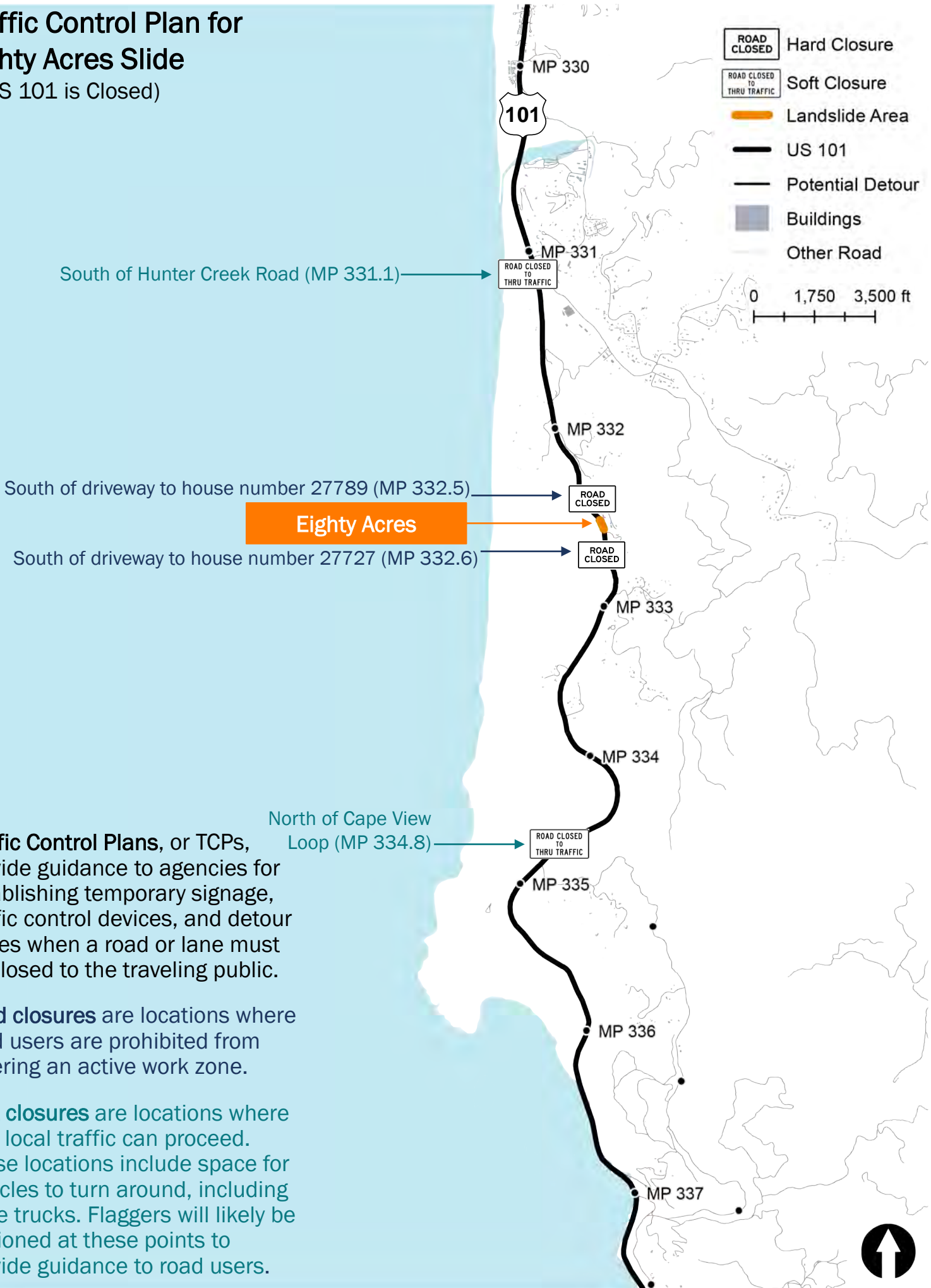
¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

See the project Executive Summary and supporting technical memos here:

<https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=22228>

Traffic Control Plan for Eighty Acres Slide

(if US 101 is Closed)



Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.

Burnt Hill Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

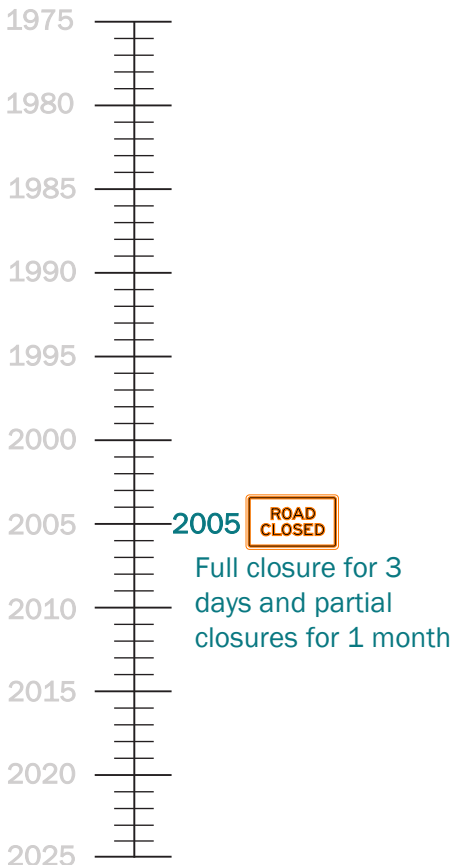
- An estimated 1,000 commuters ¹
- An estimated 3,600 to 5,400 daily trips, including 750 to 1,100 freight trips
- Tourists, the Coastal Express transit route, and emergency services

If drivers use Carpenterville Highway as a detour, the route takes approximately 40 minutes to drive, compared to the 20 minutes if driven along US 101. Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 342.55, approximately 0.7 miles south of Mach Arch Road |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 640 feet |
| SLIDE PLANES PRESENT | One, with an unknown monthly average movement |
| SLIDE CAUSES | Coastal erosion of toe leading to progressive block failure and shallow groundwater |
| LIKELIHOOD OF CLOSING US 101 | High – there is one documented full closure |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Low – closures/maintenance every ten or more years |
| DETOUR ROUTE | Carpenterville Highway or I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

The preferred slide mitigation is a **shear key with stone columns**.

Shear keys use elements such as stone columns, shear piles, drilled shafts, or excavation backfilled with stone embankment to reinforce shear planes.

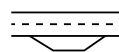
Construction of the shear key is expected to be within ODOT right of way.



Example of a constructed shear key mitigation.

Road Mitigation

Formalize up to 10 pullouts along Carpenterville Highway by adding gravel, pavement, and/or signage.



Install destination signage and directional signage at up to 16 locations along Carpenterville Highway to help guide drivers.



Tension cracks along south flank of slide running through all lanes of US 101.

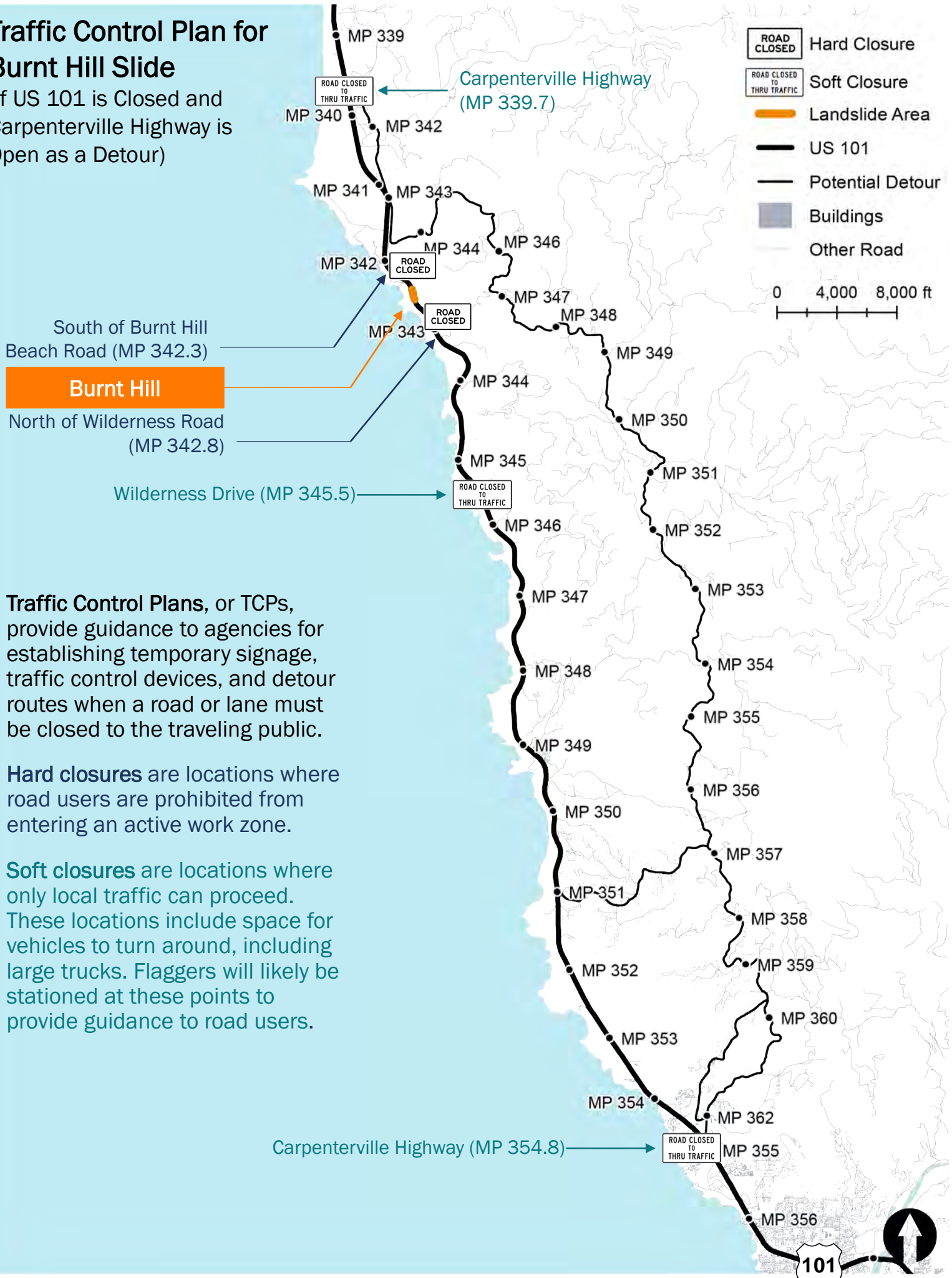
¹Based on US Census Longitudinal Origin Destination Employment (LODEs) data

See the project Executive Summary and supporting technical memos here:

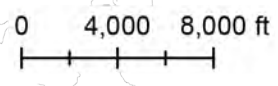
<https://www.oregon.gov/odot/projects/pages/project-details.aspx?project=22228>

Traffic Control Plan for Burnt Hill Slide

(if US 101 is Closed and Carpenterville Highway is Open as a Detour)



- ROAD CLOSED** Hard Closure
- ROAD CLOSED TO THRU TRAFFIC** Soft Closure
- LANDSLIDE AREA** Landslide Area
- US 101** US 101
- POTENTIAL DETOUR** Potential Detour
- BUILDINGS** Buildings
- OTHER ROAD** Other Road



Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.

Carpenterville Highway (MP 354.8)



Hooskanaden Slide



Community Impact

A partial or full closure at this slide location could potentially disrupt:

- An estimated 1,000 commuters ¹
- An estimated 3,600 to 5,400 daily trips, including 750 to 1,100 freight trips
- Tourists, the Coastal Express transit route, and emergency services

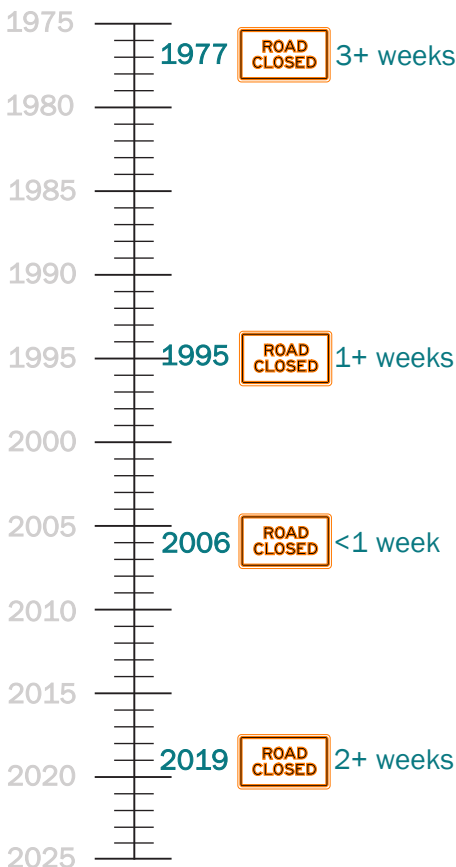
If drivers use Carpenterville Highway as a detour, the route takes approximately 40 minutes to drive, compared to the 20 minutes if driven along US 101.

Using I-5, via OR 42 and US 199, as a detour route increases travel time from approximately 0.5 hours to 5.5 hours. The most impacted trip is between Port Orford and Gold Beach.

Quick Facts:

| | |
|--|---|
| MILE POINT | MP 343.63, approximately 1.1 miles north of Arch Rock State Park entrance |
| LENGTH OF US 101 AFFECTED BY SLIDE | Approximately 1,300 feet |
| SLIDE PLANES PRESENT | One, with average movement of 2.95 inches per month |
| SLIDE CAUSES | Shallow groundwater and coastal erosion of toe |
| LIKELIHOOD OF CLOSING US 101 | High – there are documented full closures |
| FREQUENCY OF PAST ROADWAY CLOSURES/MAINTENANCE EFFORTS | Low – full closures about every 20 years |
| DETOUR ROUTE | Carpenterville Highway or I-5 (via SR 42 and US 199) |

Slide History (Documented Travel Impacts)



Slide Mitigation

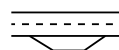
Because the Hooskanaden Slide has significant movement over a large area, typical mitigation measures, such as shear keys and walls, would have extreme costs. The most cost-effective solution for this slide is to be ready for repair with **material stockpiles**.

Material stockpiles are expected to be within ODOT right of way.



Road Mitigation

Formalize up to 10 pullouts along Carpenterville Highway by adding gravel, pavement, and/or signage.



Install destination signage and directional signage at up to 16 locations along Carpenterville Highway to help guide drivers.



Portion of the landslide toe near the coastline that is being eroded (facing north).

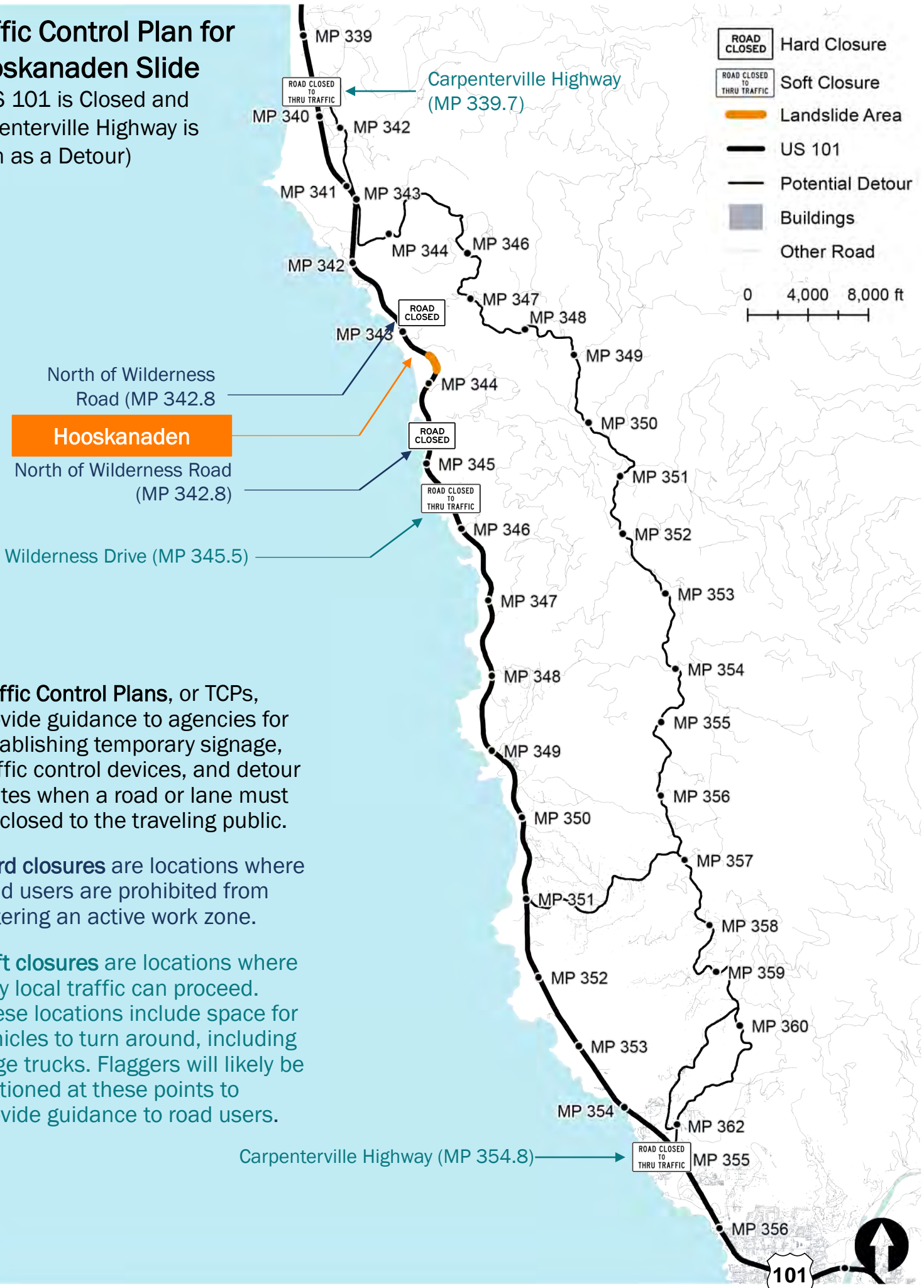
¹ Based on US Census Longitudinal Origin Destination Employment (LODEs) data

Traffic Control Plan for Hooskanaden Slide

(if US 101 is Closed and Carpenterville Highway is Open as a Detour)

| | |
|--|------------------|
| | Hard Closure |
| | Soft Closure |
| | Landslide Area |
| | US 101 |
| | Potential Detour |
| | Buildings |
| | Other Road |

0 4,000 8,000 ft



North of Wilderness Road (MP 342.8)

Hooskanaden

North of Wilderness Road (MP 342.8)

Wilderness Drive (MP 345.5)

Traffic Control Plans, or TCPs, provide guidance to agencies for establishing temporary signage, traffic control devices, and detour routes when a road or lane must be closed to the traveling public.

Hard closures are locations where road users are prohibited from entering an active work zone.

Soft closures are locations where only local traffic can proceed. These locations include space for vehicles to turn around, including large trucks. Flaggers will likely be stationed at these points to provide guidance to road users.

Carpenterville Highway (MP 354.8)

