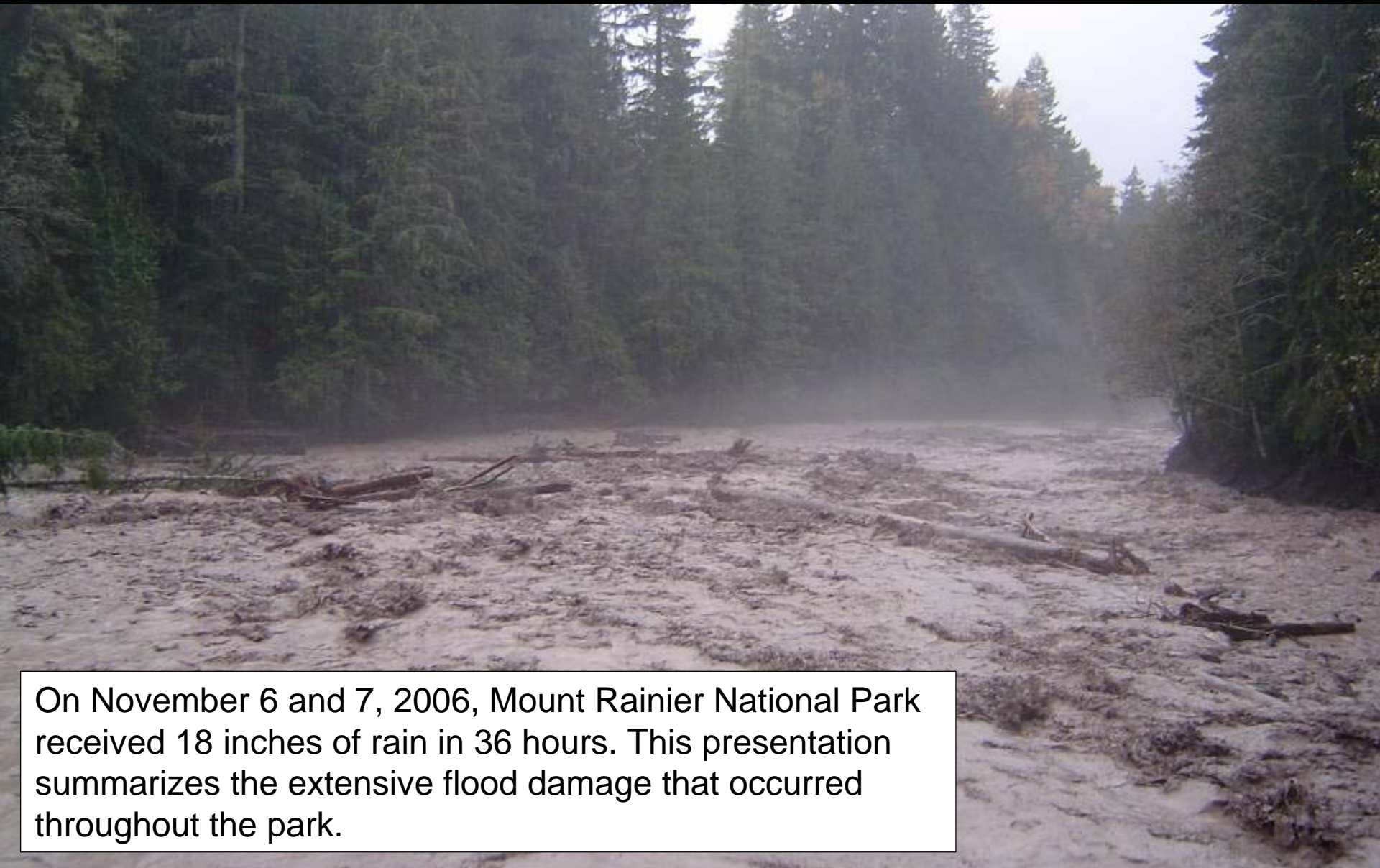


Mount Rainier National Park

November 2006 Flood Damage



On November 6 and 7, 2006, Mount Rainier National Park received 18 inches of rain in 36 hours. This presentation summarizes the extensive flood damage that occurred throughout the park.

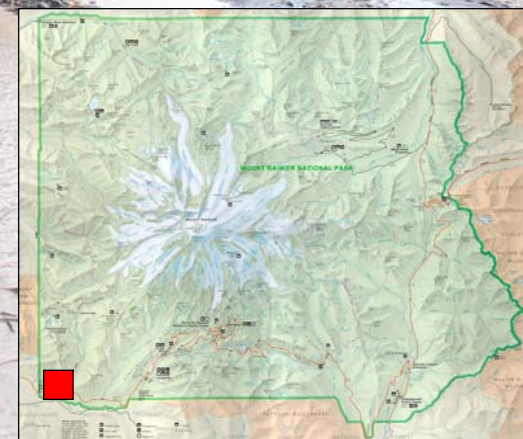
Mount Rainier National Park

November 2006 Flood Damage



Sunshine Point

- The section of dike which protected Sunshine Point Campground was destroyed in the flood. Only a small section of the campground remained. The rest is now river bed.
- The Nisqually Road was washed out for 200 yards.
- The main power line (serving Longmire and Paradise) was severed where it crossed Sunshine Point.



Mount Rainier National Park

November 2006 Flood Damage



The Nisqually Road and site of the former Sunshine Point Campground

Mount Rainier National Park

November 2006 Flood Damage



Most of the campground and adjacent road were washed away

Mount Rainier National Park

November 2006 Flood Damage



Water flowing through the remains of the Sunshine Point Campground

Mount Rainier National Park

November 2006 Flood Damage



The broken edge of the Nisqually Road

Mount Rainier National Park

November 2006 Flood Damage



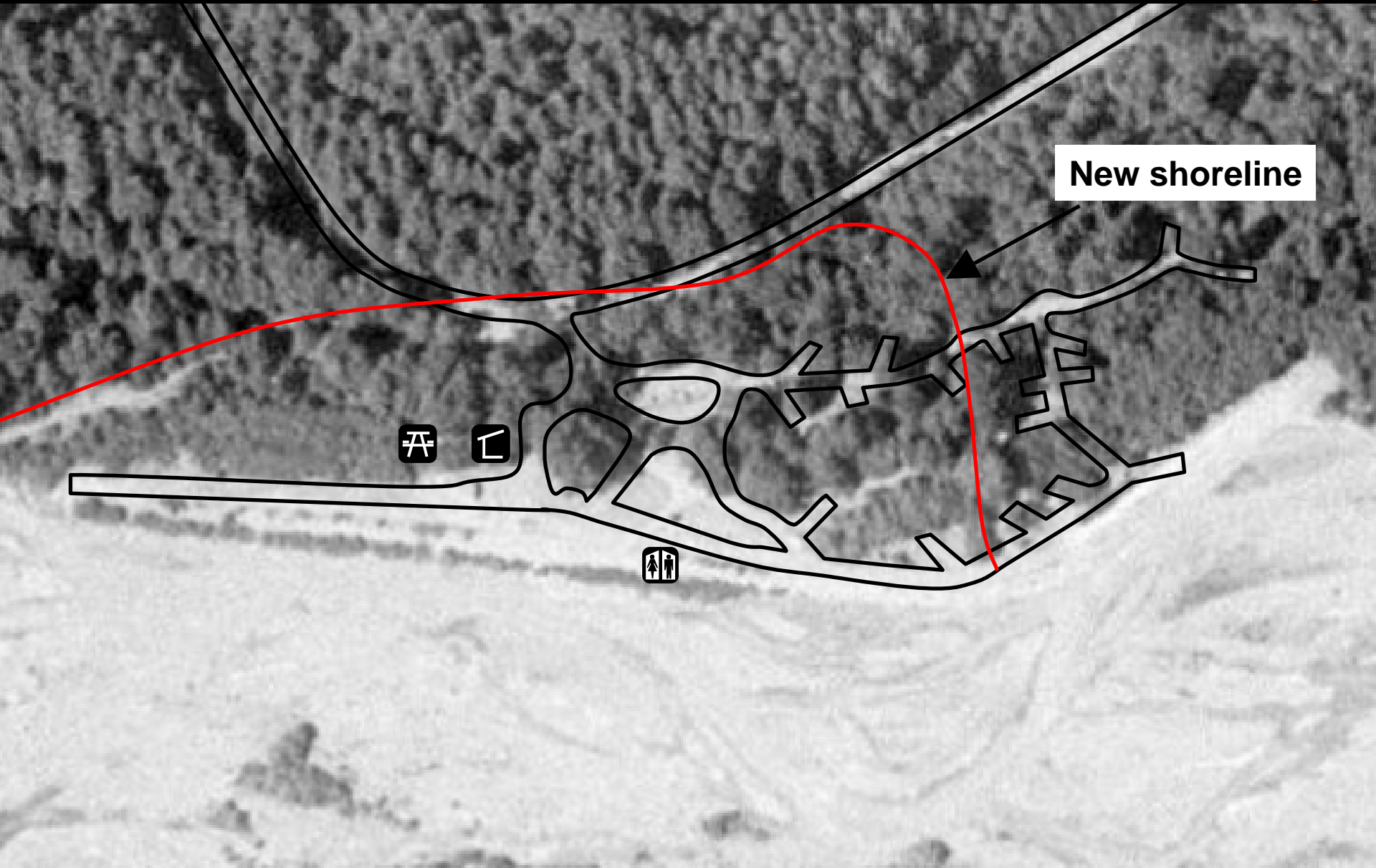
Former shoreline

8 3:45 PM

An aerial view of the former Sunshine Point Campground

Mount Rainier National Park

November 2006 Flood Damage



Satellite image of the Sunshine Point Campground, showing new shoreline

Mount Rainier National Park

November 2006 Flood Damage



Former shoreline

New and former shoreline at Sunshine Point Campground

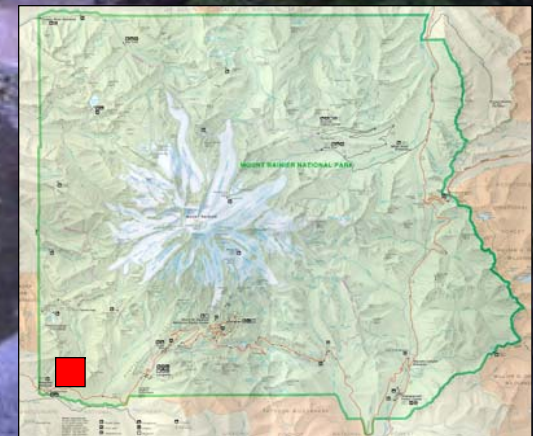
Mount Rainier National Park

November 2006 Flood Damage



Westside Road

- Water crossed the Westside Road at its junction with the Nisqually Road. Parts of both roads were washed out.
- Part of a lane collapsed near the gate at Dry Creek. The roadway upstream was significantly damaged.



Mount Rainier National Park

November 2006 Flood Damage



Washout at the beginning of the Westside Road

Mount Rainier National Park

November 2006 Flood Damage



Damage to the Nisqually Road across from the Westside Road junction

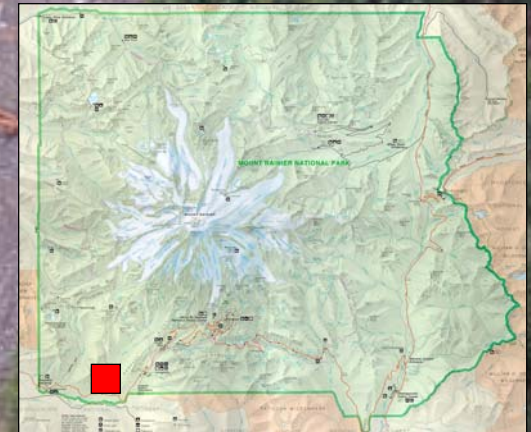
Mount Rainier National Park

November 2006 Flood Damage



Kautz Creek

- Kautz Creek changed its channel a mile above the road bridge, and is now flowing over and undermining the Nisqually Road for a distance of 50 yards.
- The Kautz Helibase sustained major erosion damage from the redirected water flow.



Mount Rainier National Park

November 2006 Flood Damage



New channel

Kautz Bridge,
1 mile downstream

Old Kautz Creek
channel

Kautz Creek changed its channel a mile above the road bridge

Mount Rainier National Park

November 2006 Flood Damage



Kautz Creek flowing across the road east of the bridge

Mount Rainier National Park

November 2006 Flood Damage



Kautz Creek continues to erode the edges of the Nisqually Road

Mount Rainier National Park

November 2006 Flood Damage



The new creek channel flows through the middle of the Kautz Helibase



Longmire

- Approximately 200 feet of primary sewer line were destroyed.
- A corner of the Emergency Operations Center was undercut by the river. Its parking lot was destroyed.
- The power lines across the river to the Community Building were knocked out.
- The access road to the Community Building and back gate was eroded down to one lane in several places.
- Excessive sediment collected in all system filters between Longmire and Paradise. The Edith Creek Basin water supply at Paradise was filled with rocks and dirt.



Mount Rainier National Park

November 2006 Flood Damage



The Emergency Operations Center at Longmire, during the flood

Mount Rainier National Park

November 2006 Flood Damage



The Emergency Operations Center after the flood. The parking lot is destroyed.

Mount Rainier National Park

November 2006 Flood Damage



An aerial view of Longmire and the Nisqually River

Mount Rainier National Park

November 2006 Flood Damage



The road to the Community Building and back gate was washed out

Mount Rainier National Park

November 2006 Flood Damage



A new view, and reduced parking, in front of the Community Building

Mount Rainier National Park

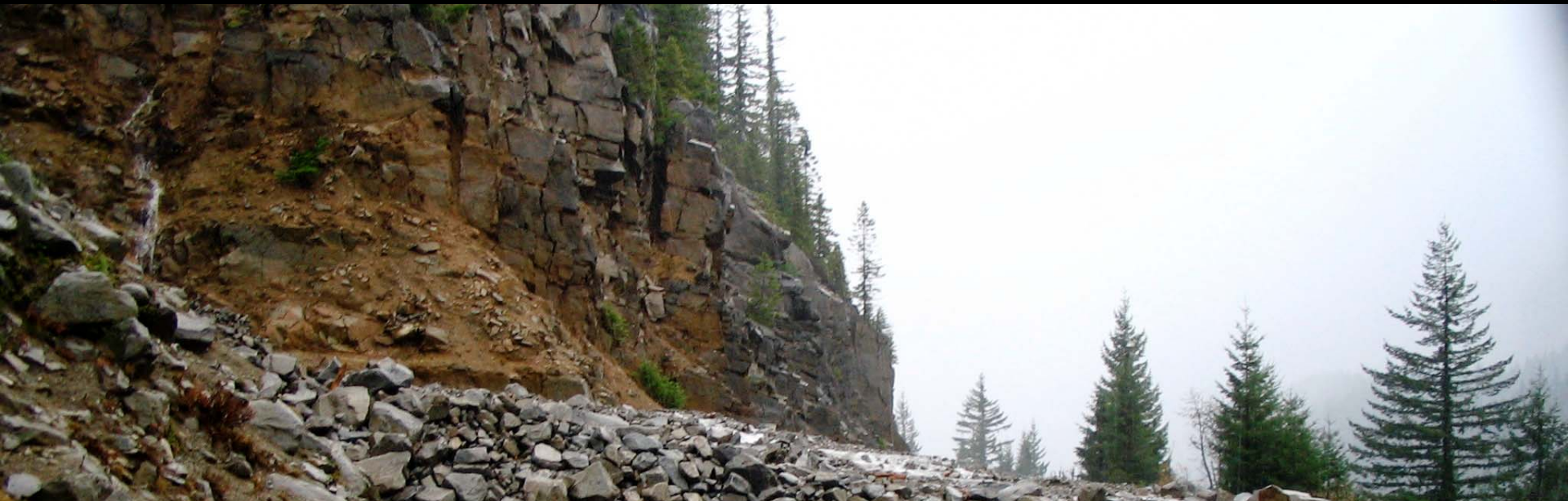
November 2006 Flood Damage



The road to the back gate is no longer one lane, but caution is still advised

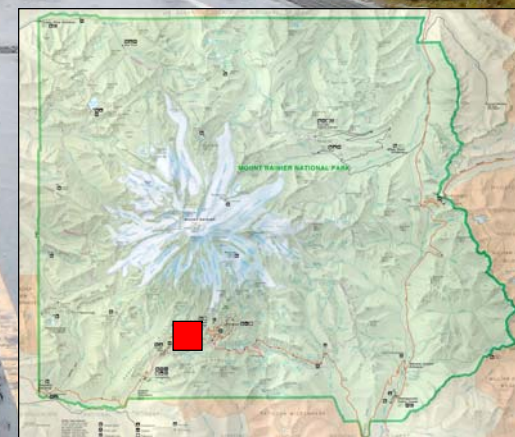
Mount Rainier National Park

November 2006 Flood Damage



Nisqually to Paradise Road

- The Nisqually Road was reduced to one lane at milepost 5. The embankment is undercut and needs to be rebuilt.
- The embankment dropped away at milepost 9, leaving a sheer road edge and precipitous drop off.
- Small landslides deposited debris on the road in several places.



Mount Rainier National Park

November 2006 Flood Damage



Landslide above Glacier Bridge on the Paradise Road

Mount Rainier National Park

November 2006 Flood Damage



Stevens Canyon Road

- Major slides blocked the road at mileposts 5.5 and 7.
- A large slide above the Ohanapecosh Campground damaged the Stevens Canyon Road above it in two places.



Mount Rainier National Park

November 2006 Flood Damage



Landslide below Stevens Ridge in Stevens Canyon

Mount Rainier National Park

November 2006 Flood Damage



The Grove of the Patriarchs

- The suspension bridge accessing the Grove was heavily damaged.
- The Grove itself was buried in a thick layer of mud.
- The boardwalk trail was displaced and damaged in numerous places.



Mount Rainier National Park

November 2006 Flood Damage



The damaged suspension bridge

Mount Rainier National Park

November 2006 Flood Damage



The boardwalk trails have been haphazardly realigned

Mount Rainier National Park

November 2006 Flood Damage



The grove was blanketed in three feet of mud

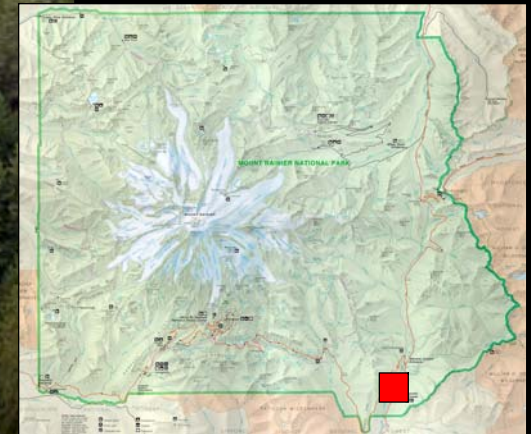
Mount Rainier National Park

November 2006 Flood Damage



Ohanapecosh Campground

- A 5,000 foot long landslide below Stevens Canyon Road is visible across the river from C loop. Debris created a major logjam downstream.
- Erosion and falling trees destroyed several campsites and damaged the road in C loop.
- The Ohanapecosh Visitor Center sustained water damage from minor flooding.



Mount Rainier National Park

November 2006 Flood Damage



The landslide stretches 5,000 feet between Stevens Canyon Road and the river

Mount Rainier National Park

November 2006 Flood Damage



The view from C loop is dramatic

Mount Rainier National Park

November 2006 Flood Damage



The walk-in campsites behind this marker were washed away

Mount Rainier National Park

November 2006 Flood Damage



Picnic table, for scale

An enormous logjam formed below the Ohanapecosh Campground

Mount Rainier National Park

November 2006 Flood Damage



Destroyed picnic table at site C-18

Mount Rainier National Park

November 2006 Flood Damage



Highway 123

- A large washout occurred near Panther Creek, and a debris flow crossed the road near milepost 11.
- A major washout cut a channel 60 feet wide and up to 80 feet deep across both lanes at milepost 11.5.
- A portion of the road washed out just south of Cayuse Pass.



Mount Rainier National Park

November 2006 Flood Damage



8 4:21 PM

Washout on Highway 123 near Panther Creek

Mount Rainier National Park

November 2006 Flood Damage



Milepost 10.5 on Highway 123

Mount Rainier National Park

November 2006 Flood Damage



Washout at milepost 11.5 on Highway 123

Mount Rainier National Park

November 2006 Flood Damage



The washout at milepost 11.5 is about 80 feet deep

Mount Rainier National Park

November 2006 Flood Damage



Inspecting the damaged road

Mount Rainier National Park

November 2006 Flood Damage



Highway 410 and White River Campground

- The White River flooded the highway for several miles both inside and outside the park boundary. Park facilities were not significantly damaged.
- Small sections of the downhill lane sloughed off going into White River Campground. Some sites in A loop were damaged.



Mount Rainier National Park

November 2006 Flood Damage



Flooding and fallen trees on Highway 410 near the park entrance

Mount Rainier National Park

November 2006 Flood Damage



The road into the White River Campground

Mount Rainier National Park

November 2006 Flood Damage



Carbon River and Ipsut Creek Campground

- More than two miles of road were lost. There are washed out sections in at least four places, and the Carbon River is now flowing down the road for half a mile.
- The Ipsut Creek Campground was inundated. The full extent of its damage is unknown.
- A deep erosion gully has undermined the Ipsut Cabin.



Mount Rainier National Park

November 2006 Flood Damage



The Carbon River, flowing down the Carbon River Road

Mount Rainier National Park

November 2006 Flood Damage



One of several gaps in the road near Ipsut Creek

Mount Rainier National Park

November 2006 Flood Damage



The historic Ipsut Creek Cabin was undercut by the river

Mount Rainier National Park

November 2006 Flood Damage



The cabin is now surrounded by a sea of mud

Mount Rainier National Park

November 2006 Flood Damage



The end of the road at Ipsut Creek Campground



Parkwide Trail Damage

- Backcountry bridges and trails sustained extensive damage. Sections of the Wonderland Trail will likely be unusable next summer.
- At least 10 log bridges and 450 yards of river bar trail are gone.
- A new graded trail is needed in at least four places, including a half mile to be cut from bedrock between Lake James and Cataract Creek and a 750 foot reroute in Stevens Canyon.
- The full extent of damage will not be known until trails melt out next summer.



Mount Rainier National Park

November 2006 Flood Damage



A missing section of the Carbon Glacier trail

Mount Rainier National Park

November 2006 Flood Damage



The Silver Falls bridge was heavily damaged

Mount Rainier National Park

November 2006 Flood Damage



Repairs

- Repair work has begun, primarily in the Nisqually to Paradise corridor.
- The road is being rebuilt at Sunshine Point.
- Washouts are being repaired and shored up at several places along the road.
- New electrical and sewer lines are being installed at Longmire.
- Maintenance rangers will attempt to coax Kautz Creek back into its former channel.
- Repairs will continue through the winter. Many places will be inaccessible until snowmelt next summer.



Mount Rainier National Park

November 2006 Flood Damage



Reconstruction begins at Sunshine Bend

Mount Rainier National Park

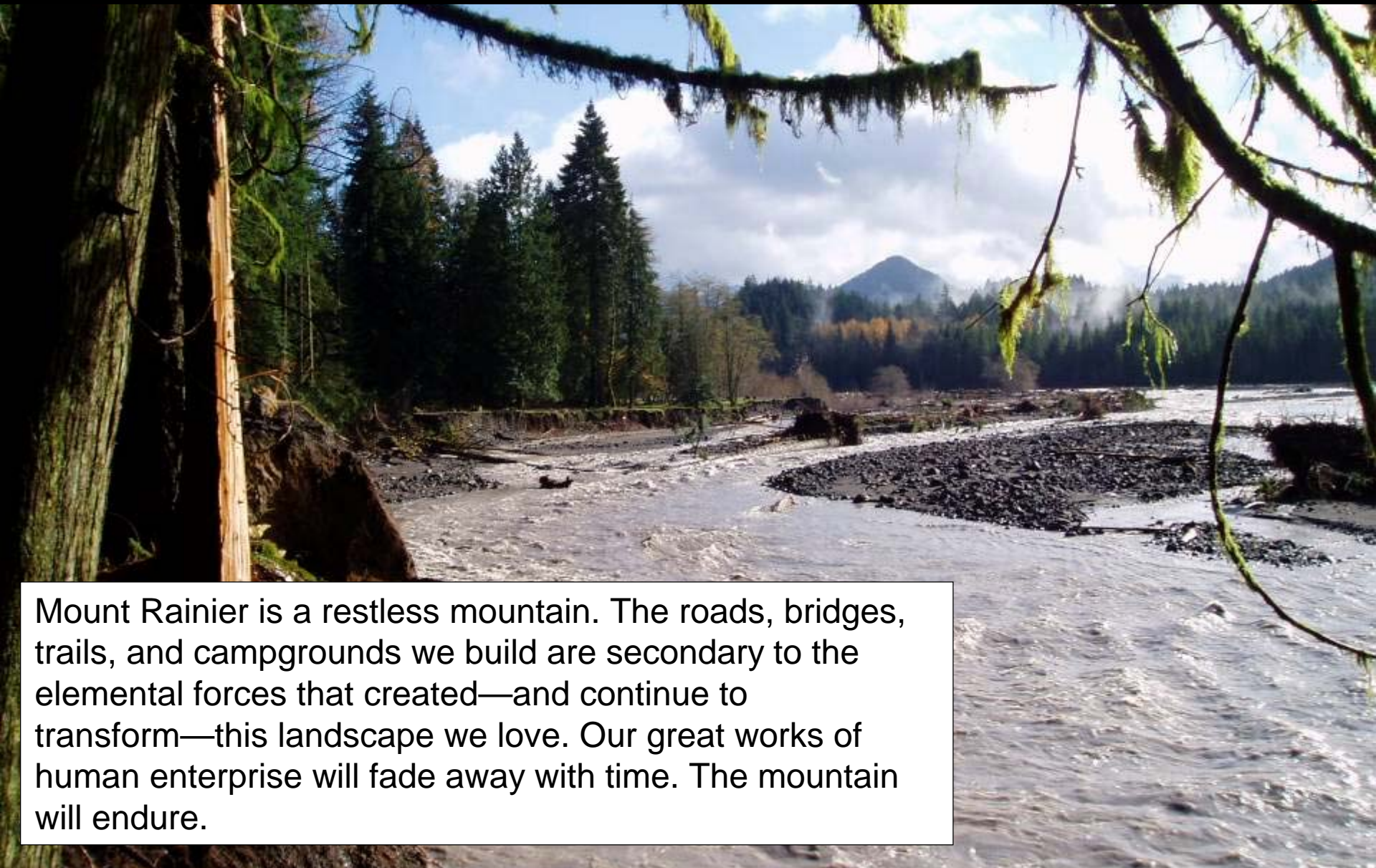
November 2006 Flood Damage



Rebuilding the Nisqually Road

Mount Rainier National Park

November 2006 Flood Damage



Mount Rainier is a restless mountain. The roads, bridges, trails, and campgrounds we build are secondary to the elemental forces that created—and continue to transform—this landscape we love. Our great works of human enterprise will fade away with time. The mountain will endure.