

Appendix B

Access Memorandum



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MEMORANDUM

DATE: November 6, 2014

TO: Mike Odom P.E., COR, Project Manager
Western Federal Lands Highways Division
610 E. Fifth Street
Vancouver, WA 98661

FROM: Mara Krinke and Scott Richman

SUBJECT: **Lolo Pass Road Access Impact and Issues Study**

PROJECT: Lolo Pass Road Access Alternatives, OR CLACK 37005(1) Task Order No. T-14-002

PROJECT NO: FHAX0000-0210

COPIES: Larry Conrad, Clackamas County

INTRODUCTION

At the request of the Western Federal Lands Highways Division, David Evans and Associates, Inc. (DEA) developed an access impact and issues study (access study) to support a subsequent Lolo Pass Road Access Alternatives Study in Clackamas County, Oregon. The access study accomplishes two objectives:

- Determine sites potentially affected by future events – identification of sites along the existing road within the study area that are most susceptible to future flood events
- Identify access issues – identification of how future flooding or damages to the roadway infrastructure would affect access to homes, businesses, public and private forest land, and recreational sites.

Figure 1 shows the study area for the Lolo Pass Road Access Alternatives Study. This memorandum focuses on the Sandy River Corridor Study Area (Sandy River SA), which includes potential permanent road alignments centered on East Lolo Pass Road north of the Zigzag River. The Powerline Corridor Study Area (Powerline SA) includes potential temporary access alignments centered on a powerline corridor extending westward from the East Lolo Pass Road to Brightwood, Oregon (T2S, R6E, Section 24, and T2S, R7E, Sections 19, 26-30, and 34). The Powerline Corridor will be further analyzed in the upcoming access alternatives study.

METHODS

Publicly available land use, tax lot, and resource maps were used to build figures showing the affected area. FHWA provided mapping showing the location of a potential new crossing of the Sandy River. Together, these maps provided the basis of the access study.

RESULTS

Sites on Lolo Pass Road Potentially Affected by Future Events

Figure 2 is a map that shows the five locations along Lolo Pass Road in the study area that are most vulnerable to future damage from river channel migration and flooding. These locations were reviewed by the FHWA WFL hydraulics engineer and Clackamas County. The map also includes tax lot boundary information, parcels in public land ownership, Clackamas County zoning information, and if land is vacant or unimproved (from Metro's RLIS GIS system). Finally, the map provides overlays of both FEMA Floodway data and two potential alignments of an alternate roadway and Sandy River Crossing.

The five most vulnerable locations along East Lolo Pass Road in the study area are as follows (labeled on Figure 2 accordingly):

- 1) Crossing of the Zig Zag River near US 26. This bridge was replaced in 2006 and went through repairs due to severe scour of the footings at the south bridge abutment in 2011. (Repairs in 2011 cost approximately \$1 million.)
- 2) Curve in road north of Mountain Drive. The Sandy River approaches East Lolo Pass Road at a close grade in this location. Several of the parcels on the west side of East Lolo Pass Road in this location are vacant. Clackamas County completed a stream bank project as mitigation for the Lolo Pass Road reconstruction in 2011 (see note 5) at the next downstream curve of the Sandy River.
- 3) Bridge crossing of the Sandy River just north of Autumn Lane. This bridge was replaced in 1965, as a result of being washed out in the 1964 floods, and is near the confluence of the Sandy River with a tributary immediately downstream of the bridge.
- 4) Sandy River near intersection with East Barlow Trail Road. The river bank is close to East Lolo Pass Road in this location. Most of the parcels in the vicinity of this location on the west side of the river (between the river and the roadway) are vacant, but several of the parcels on the west side of the river support residences accessed from Autumn Lane.
- 5) Bend in River north of intersection with East Barlow Trail Road. The Sandy River is close to East Lolo Pass Road in this location and East Lolo Pass Road was reconstructed in this location in 2011 at a cost of approximately \$1.6 million.

Potential access impacts from future damage to Lolo Pass Road

Existing Conditions

Based on existing information, breaches or impassable damages to East Lolo Pass Road would create access problems to hundreds of residences along and near East Lolo Pass Road, and also could compromise access to the Mt. Hood National Forest recreational lands to the north. If East Lolo Pass Road is damaged at or above East Barlow Trail Road (#4 on Figure 2), property access and egress from points north are limited. Residents or recreationists would have one of two options: follow Lolo Pass Road north to the Columbia River Gorge (unplowed in the winter months and in sections a forest road), or use the Powerline Corridor accessed from

Aschoff Road, which is an undeveloped dirt road built for the purposes of maintaining the BPA power lines overhead. The Powerline Corridor was used for emergency access when the road was damaged near the intersection with East Barlow Trail Road in January 2011. Neither of these access options would be durable year-round solutions for the current residents and visitors to the area.

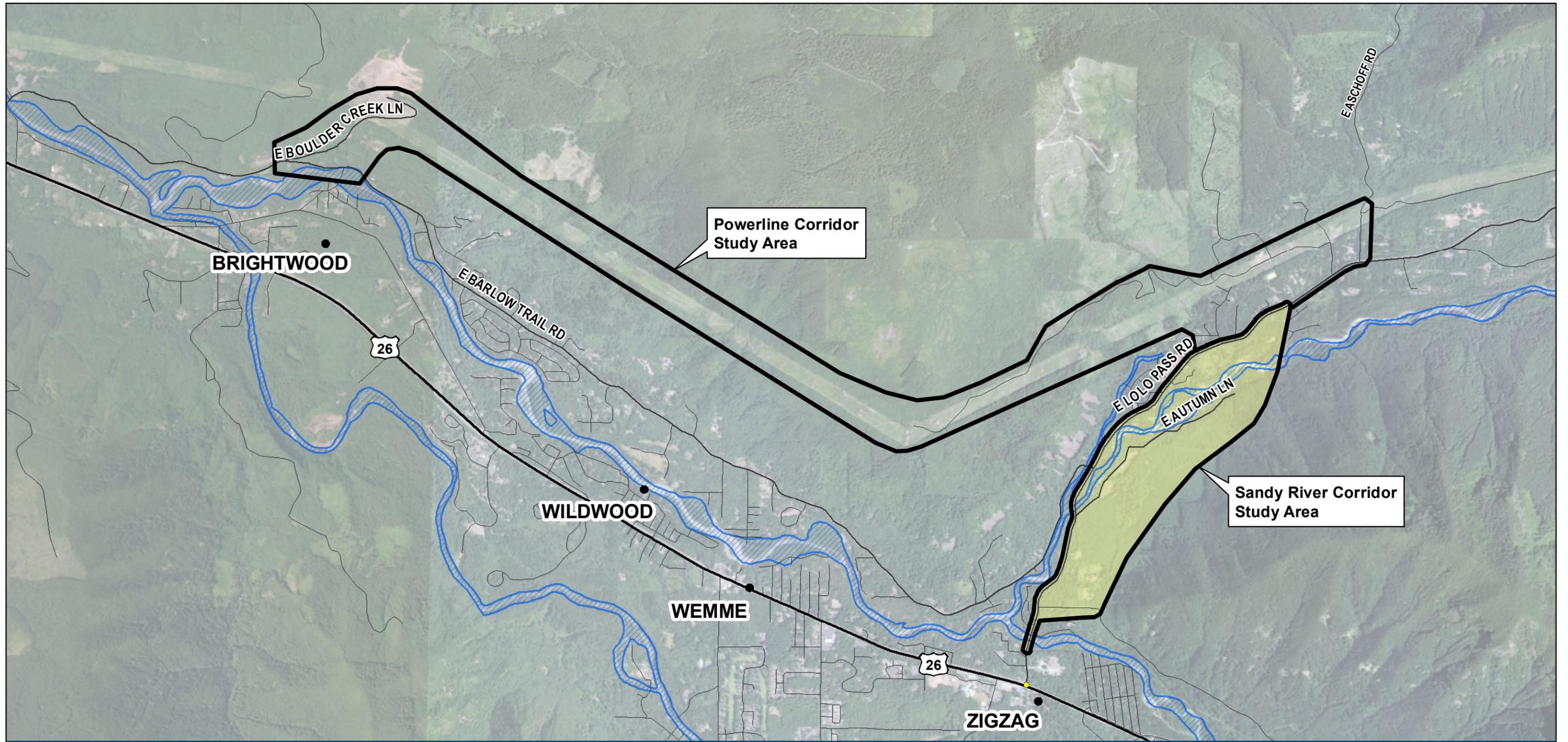
If East Lolo Pass Road is damaged below East Barlow Trail Road (below #4 on Figure 2), traffic from the points north (approximately 250 residences) of the damaged area would likely be detoured to East Barlow Trail Road and to the west approximately 4 miles through Brightwood before crossing the Sandy River to regain access to US 26. Points south of the damaged area (approximately 50 residences) would access US 26 as they do today, but with a detour totaling nearly 10 miles if they wanted to proceed north on East Lolo Pass Road (which would require backtracking on US 26 to Brightwood and returning to the area on East Barlow Trail Road).

In 1964, flood damages washed out the road near point #3 on Figure 2. A newspaper article describing that event stated that 200 homes were cut off from access to US 26 during that flood event. Development above this point has continued over the past fifty years, such that hundreds more people would be affected with a similar event today.

New Roadway and Crossing

The potential alignments to supplement or replace East Lolo Pass Road shown on Figure 2 would alleviate access concerns associated with future damage and closure of the existing roadway. The proposed new crossing would be upstream of the existing Sandy River crossing, and the majority of the roadway leading to the crossing would be outside the floodplain and channel migration zone, in contrast with Lolo Pass Road's existing alignment, which has multiple sections vulnerable to flooding.

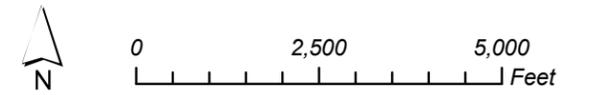
Either of the conceptual alignments shown in Figure 2 would provide a new crossing of the Sandy River north of the existing crossing. The roadway would also be located well outside the river's channel and historic migration area.



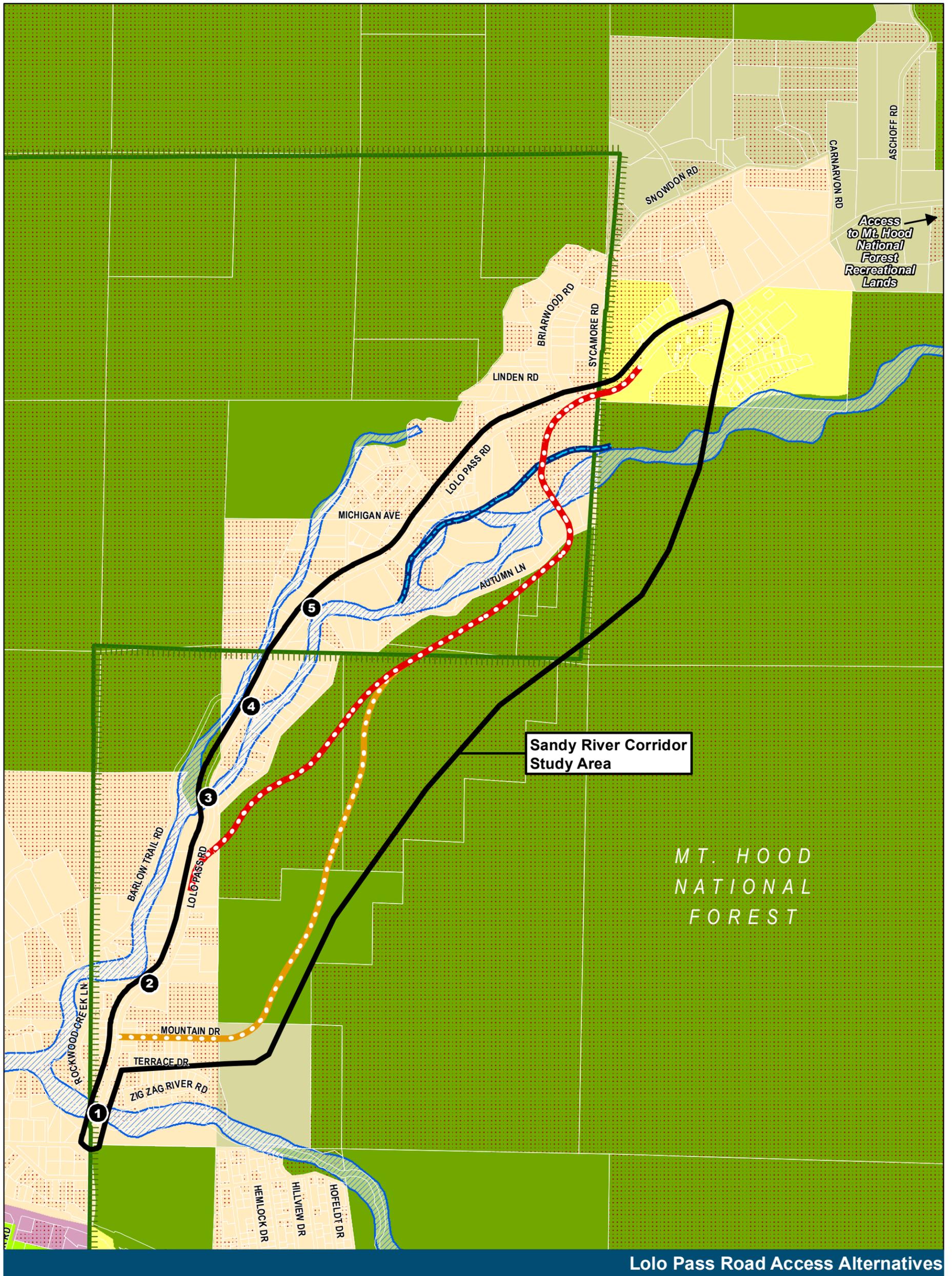
Lolo Pass Road Access Alternatives

- Legend**
-  FEMA Floodway
 - Study Areas**
 -  Powerline Corridor
 -  Sandy River Corridor

Figure 1
Powerline Corridor and Sandy River Corridor Study Areas



Data Sources:
 ESRI, ArcGIS Online, World Imagery. 2010. Microsoft.



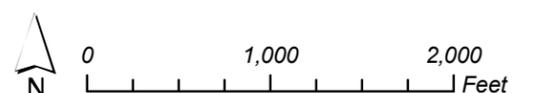
Legend

- Area of Potential Effect (APE)
- Alignment 1
- Alignment 2
- Intermittent Drainage
- # Vulnerable Areas
- FEMA Floodway
- Vacant/Unimproved Land
- Mt. Hood National Forest

Clackamas County Zoning Designations

- Hoodland Residential (HR)
- Mountain Recreational Resort (MRR)
- Open Space Management (OSM)
- Recreational Residential (RR)
- Rural Residential Farm Forest, 5-acre (RRFF5)
- Rural Comercial (RC)
- Rural Tourist Comercial (RTC)
- Timber District (TBR)

Figure 2
Sandy River Corridor
Property Access Analysis



Data Sources:
ESRI, ArcGIS Online, World Imagery, 2010, Microsoft.