

SUMMARY

Fernan Lake Road is a heavily used, two-lane, paved road between the City of Coeur d'Alene and Fernan Saddle, a topographic feature on the Idaho Panhandle National Forests (IPNF) in Kootenai County. It is designated Idaho Forest Highway 80 (ID PFH 80) in the federal Forest Highway Program administered by Western Federal Lands Highway Division of the Federal Highway Administration (FHWA). The Forest Highway Program was established to provide safe and adequate transportation to and through National Forest System (NFS) lands, assist rural and community economic development, and promote tourism and travel.

This Draft Environmental Impact Statement (EIS) for the Fernan Lake Road Safety Improvement Project documents an analysis of the potential environmental consequences of proposed road reconstruction and maintenance for nearly the entire road. FHWA is the lead agency for project development, environmental evaluation, preparation of this EIS and a Record of Decision (ROD), and construction contract management.



IPNF staff, Coeur d'Alene residents, and I-90 travelers readily access Fernan Lake Road.

Partner agencies are IPNF, Idaho Transportation Department (ITD), and East Side Highway District (ESHD). They are also on the Social, Economic, and Environmental (SEE) study team convened by FHWA to assist in identifying major issues and concerns, developing project alternatives, and assessing environmental impacts. IPNF also is a cooperating agency in the federal National Environmental Policy Act (NEPA) process.

This summary briefly describes the proposed project, its purpose and need, and potential environmental effects. The development and screening process for the alternatives yielded three build alternatives that are analyzed in this EIS, as is the No Action Alternative. Based on the analyses to date, the SEE team is unanimous in preferring Alternative G, but a final decision will not be made by FHWA until all public and agency comments are considered in the Final EIS.

Proposed Project

FHWA and the partner agencies propose to reconstruct or resurface 17.2 km (10.7 mi) of Fernan Lake Road, starting approximately 0.7 km (0.4 mi) northeast of the Sherman Avenue interchange (Exit 15) with Interstate 90 (I-90). All three build alternatives would reconstruct project Segments 1 and 2 of the existing road, whereas only minor repairs and maintenance resurfacing and culvert improvements are proposed for Segment 3 within the IPNF boundary (Figure S-1).

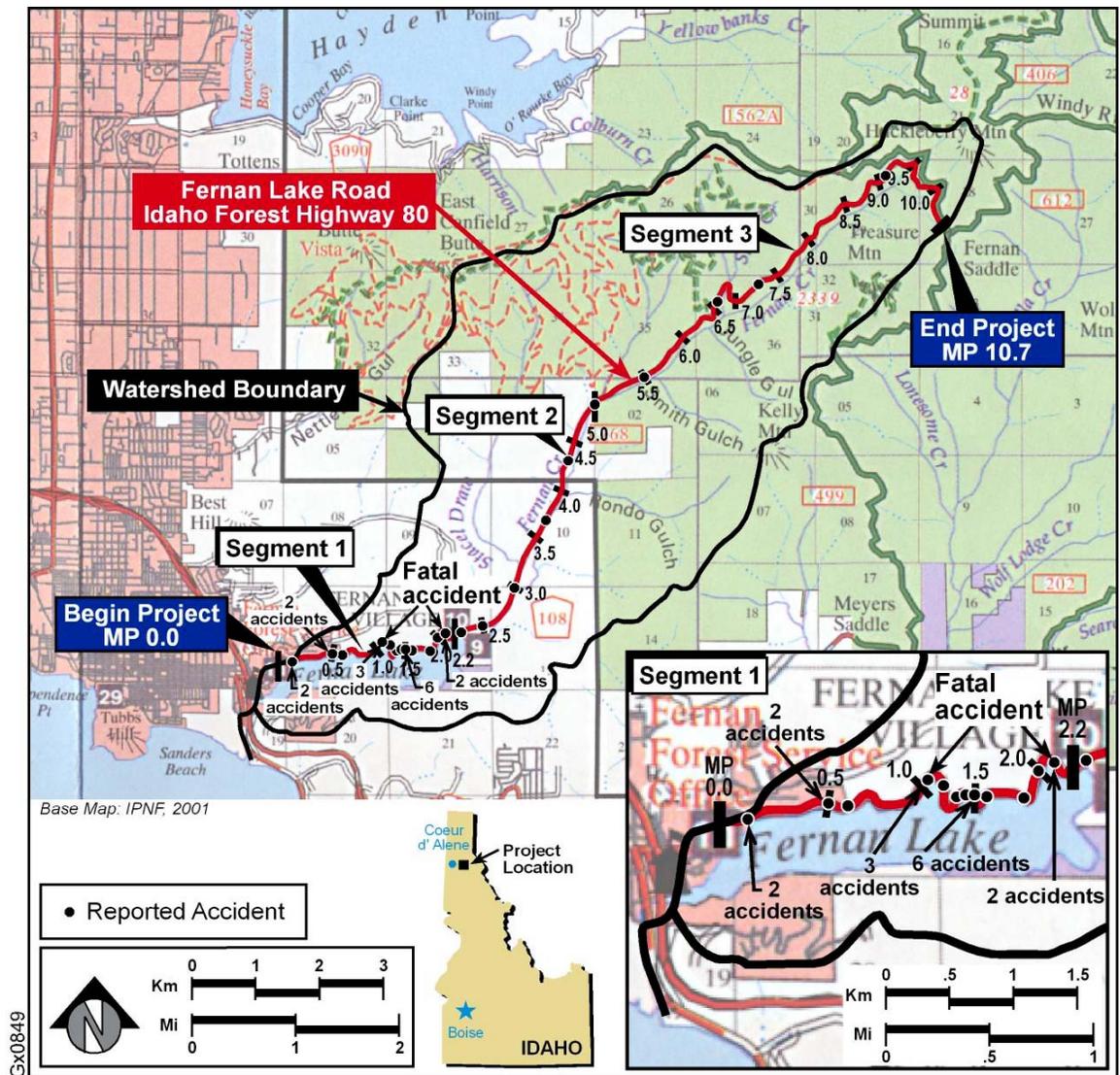


Figure S-1. Project and Accident Locations

Segment 1 begins at project Milepost (MP) 0.0 located at the intersection of Fernan Lake Road with Lakeview Drive and Fernan Court. The existing road winds along the north shore of Fernan Lake, then crosses Lilypad Bay in the northeast part of the lake, and ends at MP 2.2 just east of the public boat launch at the east end of the lake. Reconstruction being analyzed in this segment includes improved alignment and grade, curve widening, minor road or shoulder widening, guardrails, and bridge construction across Lilypad Bay.

Segment 2 extends northeastward up the broad lower valley of Fernan Creek and ends at MP 5.0 where IPNF management of NFS lands begins. This segment is relatively straight and the majority of proposed reconstruction for all build alternatives is improved grade and subgrade to elevate the road above the regulated floodplain and to improve drainage.

Segment 3 winds mostly northeastward while climbing the relatively steep upper valley of Fernan Creek until ending at MP 10.7, where a large parking area has been developed

on Fernan Saddle. All build alternatives would resurface this segment at the current road width and provide spot improvements, but without reconstructing the road or changing its alignment or grade.

If the ROD selects a Build Alternative by the end of 2004, then final design would be conducted in 2005 and 2006. Construction would begin in 2007 and is scheduled to take two years.

Ownership and Roadway Configuration

Fernan Lake Road was constructed in the 1930s to provide access to the lake and Coeur d'Alene National Forest, which is now managed as part of IPNF. Road right-of-way consists of easements owned by the Forest Service (FS) for almost the entire project length. ESHD owns a small portion (about ½ mile) at approximately MP 4.5 in Segment 2. The easement varies in width, but is predominantly 18 m (60 ft) wide. The lower part (MP 0.0 to MP 5.0) is fully maintained by ESHD under an inter-agency agreement. ESHD also maintains the remaining portion (MP 5.0 to MP 10.7), but does not plow this road segment for snow in the winter.



Segment 1 is very close to Fernan Lake (view west from MP 0.4).

The road itself varies in width. In Segment 1, the road surface varies between 5.5 and 6.4 m (18 and 21 ft) in width. The roadway is generally wider in Segment 2, but still varies between 6 and 7.5 m (20 and 24 ft). In Segment 3, the roadway surface is 7.6 to 7.9 m (25 to 26 ft).

The surface is paved for the entire length, but the condition of the road varies. The portion within IPNF (Segment 3) was upgraded in the early 1990s and appears to be in good condition. Improvements were made to a short portion of the road in the valley adjacent to Fernan Creek in the late 1980s (approximately MP 4.5 in Segment 2). As a result, this portion of the road surface also appears to be in good condition. The remainder of the road surface in Segment 2 appears in poor condition, and the road surface along Fernan Lake is in fair condition.

Purpose and Need

The three primary reasons to construct one of the build alternatives are:

- To maintain a safe transportation link between the City of Coeur d'Alene and IPNF at Fernan Saddle that efficiently accommodates traffic projected through 2026.
- To upgrade stormwater treatment along Fernan Lake Road to protect water quality in Fernan Creek and Fernan Lake.

- To provide a roadway that can be reasonably maintained in a sustainable manner by ESHD.

Fernan Lake Road is the most heavily used road on IPNF’s Coeur d’Alene River Ranger District. ITD records show it has a much higher accident rate than similar roads statewide. ESHD reports it has the poorest conditions of all the roads it maintains. The road lacks stormwater treatment to protect the water quality of Fernan Lake and Creek. The following sections provide more discussion on needs that led to the proposed project.

Transportation Needs

Safety Concerns

Fernan Lake Road is considered to have a dangerous mix of users, with bicyclists, pedestrians, cars, recreational vehicles, timber haulers, trucks, and buses all using the same narrow roadway. A narrow road with sharp curves and a surface that is in poor condition creates safety hazards.



Multiple repairs, no shoulders, and very narrow parking are common in Segment 1 (view west from MP 0.7).

Traffic Volumes

Annual average daily traffic is estimated at 810, 430, and 175 vehicles for Segments 1, 2, and 3, respectively. Traffic on Fernan Lake Road is expected to grow at the same 2.5 percent per year rate as other similar roads in Kootenai County Area Transportation Plan projections.

System Linkages

Because it is closest to Coeur d’Alene and is readily accessed from I-90, Fernan Lake Road is the most traveled western leg of an existing FS loop road that provides primary access to this IPNF ranger district. The 125-km (75-mi) loop road is a popular afternoon drive during good weather. The road provides direct access for FS management activities by IPNF staff based at Fernan Ranger Station, which is located just west of MP 0.0.

Roadway Condition

The existing Fernan Lake Road is narrow, has numerous sharp curves, a soft subgrade, a cracking road surface, and substandard horizontal alignment that limits sight distance (“blind curves”). There are no developed recreational parking areas and very few turnouts along Fernan Lake, so users park along the road, creating a safety hazard. Portions of the roadway in Segments 1 and 2 are below the 100-year flood elevation. There are many degrading cut slopes in all three segments that are sloughing debris into the roadway.

Maintenance Needs

ESHD expends a great deal of both time and money trying to maintain Fernan Lake Road. Maintenance is needed more frequently than typical because of the degrading cut slopes, soft subgrade, cracking of the road surface, and heavy use of the road.

Environmental Needs

Geology, Topography and Soils

The steep terrain and the methods of road building originally used have created numerous steep and unvegetated cut slopes along the road. The soils and geologic formations in the project area are eroding, and there are several degrading cut slopes along the existing roadway.

Water Quality

Fernan Lake is relatively shallow and prone to late summer algae blooms. It is listed as a water quality impaired water body. The existing road has no water quality treatment facilities and runoff from the road and adjacent cut slopes flows directly into the lake or creek. Stormwater treatment is needed to reduce sediment and nutrient loading.

Plants and Habitats

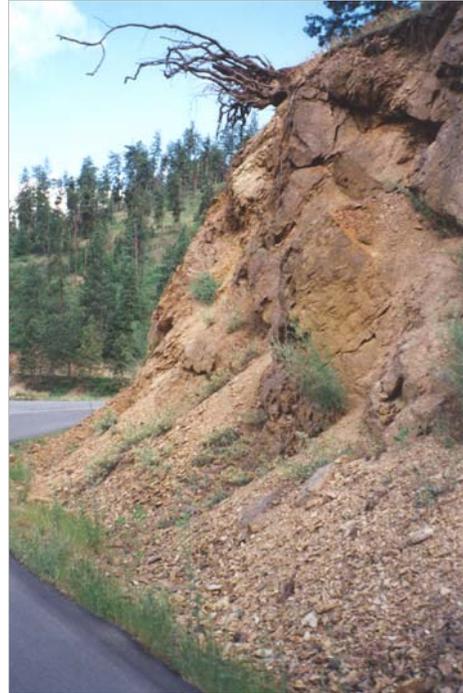
Suitable habitat is found in the project vicinity for plant species protected under the Endangered Species Act (ESA) or designated as sensitive by the FS. Habitats along the road where sensitive species could occur are currently impacted by the continued erosion and sedimentation from unvegetated cut slopes and from the road itself.

Fish and Wildlife

The project area supports a wide variety of wildlife, and there is a bald eagle (ESA-Threatened) nest on the lake. Suitable habitat occurs for FS sensitive fish and wildlife species. Residents and visitors report that the presence of wildlife is one of the most attractive features of the area, which is rich in migratory birds.

Needs of Existing and Planned Land Uses

Fernan Lake Road is the primary recreational access to the lake and Fernan Saddle . It provides access to residences, an established shooting range, and approximately 500,000 acres of the IPNF, which includes campgrounds, picnic areas, and snowmobiling, all-terrain (ATVs), and hiking trails. There has been a steady increase in the number of visitors to Segment 3 over the past 12 years, roughly doubling between 1989 and 1999.



Argillite rock cuts continually degrade, increasing maintenance (view west from MP 0.8).

There are no bike lanes or pedestrian paths along the road. Vehicles are often parked on the roadway itself because there are few turnouts to park in Segments 1 and 2. Bikes share the roadway with cars, recreational vehicles, and logging trucks. Anglers stand, walk, or sometimes park on the roadway as they fish.

Project Objectives

The overall purpose of the project is to improve, reasonably and cost effectively, the safety of Fernan Lake Road, while minimizing adverse impacts to sensitive environmental resources. The following project objectives carry equal weight in evaluating alternatives and selecting appropriate actions.

Transportation Objectives

1. Improve access to the IPNF from the Coeur d'Alene area.
2. Improve the safety for current and future travelers by providing a consistent roadway geometry and safety features such as guardrail, signs and striping to alert motorists and bicycle traffic to potential hazards.
3. Provide a roadway width and surface capable of safely accommodating existing and projected 2026 traffic.

Maintenance Objectives

4. Provide roadway improvements that reduce road maintenance costs.
5. Repair existing roadway deficiencies (soft subgrades, inadequate drainage, degrading cut slopes etc.) to reduce maintenance frequency and cost.

Environmental Objectives

6. Repair unstable side slopes to reduce sedimentation of streams and the lake and allow revegetation.
7. Avoid, minimize or mitigate long-term adverse impacts of the road to the environment. Protect sensitive species and habitats. Minimize short-term adverse impacts from road improvements.
8. Correct roadway drainage problems and protect the water quality of Fernan Lake and Fernan Creek.

Land Use and Recreation Objectives

9. Provide off-road parking for recreational users to enhance safety.
10. Improve recreational lake access and protect the area from harm as a result of recreational use.
11. Minimize right-of-way acquisition, particularly through private land.
12. Comply with applicable guidelines from the IPNF Forest Plan and Kootenai County plans and ordinances.



Sight distance is extremely limited at some residential driveways (view west from MP 1.1).

Developing Alternatives

The alternative development process for this project included determining major public and agency issues and concerns, identifying appropriate design criteria, evaluating alternative routes that avoided all or part of the existing Fernan Lake Road, and using the Interactive Highway Safety Design Model (IHSDM) for rural two-lane roads to compare safety (reductions in predicted accident rates) of preliminary designs.

Ten alternative routes that avoid part or all of the current Fernan Lake Road were evaluated, but none proved practical or prudent. Four of the seven preliminary designs that use the existing road alignment were not carried forward for analysis in this EIS. Two early designs would have required extensive lake encroachment and other impacts considered unacceptable. Two other preliminary designs showed only minor reductions in accidents could be expected when compared to the existing road, in spite of substantial widening that in turn would cause substantial environmental impacts.



Much of Segment 1 is cut into the hillsides adjacent to the lake (view west from MP 1.5).

Major Issues

FHWA held several meetings with the public, partner agencies, and regulatory and resource agencies to identify the issues and concerns associated with the proposed project. Major issues identified by the public and agencies include:

1. Changes in safety and traffic operations, especially in Segment 1 where most accidents have occurred.
2. Changes in water quality of Fernan Lake.
3. Encroachment of road features into Fernan Lake.
4. Potential for landslides related to construction on steep slopes, including changes in sediment loading to Fernan Lake.
5. Changes in recreation access and scenic qualities along the road corridor.
6. Changes in cultural resources along the road that are eligible for listing in the National Register of Historic Places.
7. Changes in wetland amount, function, and value.
8. Changes in fish and wildlife habitat and populations, particularly those listed under the Endangered Species Act.
9. Changes in traffic volumes, development patterns, and right-of-way (ROW) requirements caused by the proposed road improvements.

Design Criteria for Build Alternatives

Design Speed

Design speeds for this project are 40 km/h (25 mph) for Segment 1 along the lake and, 60 km/h (35 mph) for Segments 2 and 3. These design speeds are consistent with existing posted speeds and the character of the road.

Roadway Width

In Segment 1 and 2, the roadway top width (outside shoulder edge to outside shoulder edge) would typically be 7.4 meters (24.3 feet). The overlay of Segment 3 would match the existing roadway surface width of approximately 7.6 meters (25 feet). In addition, drainage ditches, rockfall ditches, and guardrail allowances would be provided as needed along the length of the reconstructed segments of the road.

Retaining Walls

Construction of the build alternatives would require new cut and fill slopes in Segments 1 and 2. Along the existing alignment, cut slopes could reach as high as 18 meters (59 feet). In some cases, the underlying rock is stable and no retaining wall would be required. In other places, retaining walls are proposed to ensure slope stability or minimize the total area of disturbance. Different types of retaining walls would be used, depending on the location and purpose of the wall.



Failing subgrade results in repeated repairs to the road surface (view east from MP 0.8; lake is to right within 6 ft of pavement).

Guardrails

Guardrails would be installed in areas of Segment 1 where there are steep drop-offs to Fernan Lake. Installation of guardrail would add 1.0 meter (3 feet) to the width of the roadway. In Segment 3 most sections that would benefit from guardrails do not have wide enough road base to support them.

Treatment of Curves

The proposed design would provide a consistent radius (which is easier to negotiate) and includes widening the roadway at curves to provide additional room for maneuvering. Although all curves would be improved, there would still be some curves that do not meet AASHTO design standard for the design speed and lane width proposed for Segment 1. These curves were designed to provide maximum safety while minimizing impacts to the lake or the homes located adjacent to the road. Warning signs recommending a slower speed would be posted at these curves.



Wetlands occur along both sides of the road in Segment 2 (view northeast from MP 3.2).

Drainage

The proposed design would provide vegetated drainage ditches on the cut-slope side of the road to collect stormwater and allow removal of contaminants and sediment before piping the runoff under the road to the lake or creek. These swales would add approximately 2 meters (6 feet) to the width of the reconstructed roadway. Drainage swales along cut-slopes would be combined with rock fall ditches to minimize disturbance of adjacent property. In areas where there is not sufficient room to

provide a vegetated swale other stormwater treatments would be proposed.

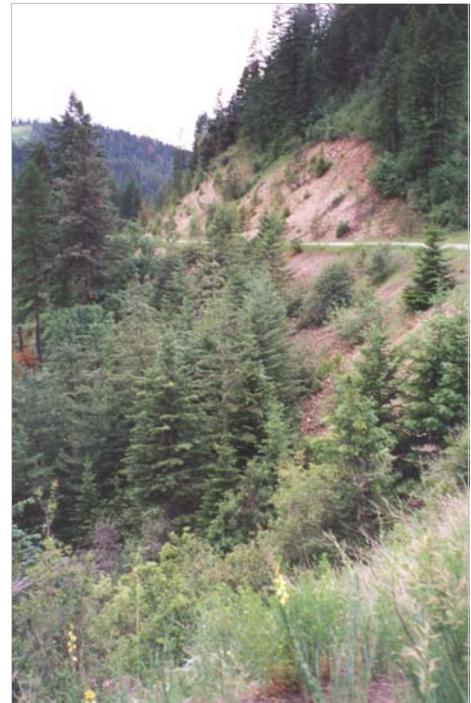
IHSDM Analysis

The Interactive Highway Safety Design Model (IHSDM) is road safety evaluation software that evaluates the potential safety impact of specific geometric designs for roads and highways. It combines elements of each of the four traditional methods of estimating current or future safety performance for a roadway into crash prediction algorithm, minimizing the significant weaknesses of each of the traditional methods when used alone.

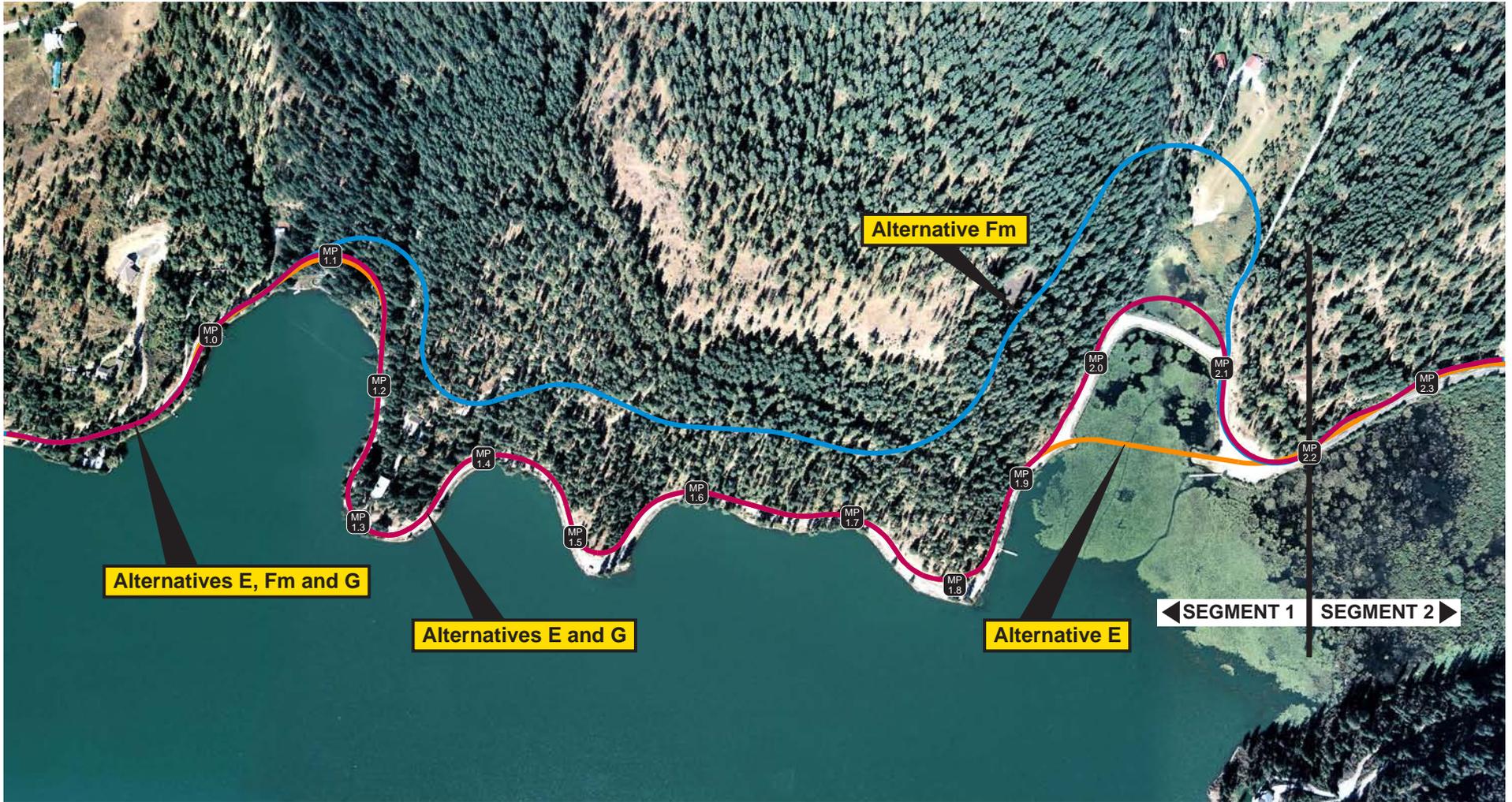
IHSDM predicted that preliminary designs based on AASHTO and ITD standards would only reduce crashes by 12 to 23 percent from existing conditions. The model showed that narrower designs similar the existing road, but with curve-widening added (Alternatives E, Fm, and G), would be expected to reduce crashes by over 50 percent when compared to existing conditions, and by as much as 62 percent when compared to the No Action Alternative in the year 2026.

Build Alternatives E, Fm, and G

The three build alternatives primarily differ between MP 1.0 and the end of Segment 1 (Figure S-2). Alternatives E and G differ in the location and configuration of the bridge proposed across Lilypad Bay. Otherwise both essentially follow the alignment of the existing road. Alternative Fm leaves the current alignment near MP 1.0, climbs the adjacent hillside, and while descending the hill, avoids Lilypad Bay by crossing this area farther to the north.



The road climbs the Fernan Creek valley in Segment 3 (view southwest from MP 7.9).



Gx0849

- Alternative E
- Alternative Fm
- Alternative G

Base: 1996 Aerial Photography



Figure S-2
Build Alternatives Between MP 1.0 and MP 2.3

FHAX0000-0137

May 2004

Fernan Lake Road Safety Improvement Project
Draft Environmental Impact Assessment



DAVID EVANS
 AND ASSOCIATES INC.

Except for differences to accommodate the transition between Segments 1 and 2, Alternatives E, Fm, and G are very similar in Segment 2 (see Figure S-4 at the end of this Summary). All three raise the road profile above the 100-year flood elevation. The required widening of the road prism to accommodate the increase in road profile causes the road base to extend into wetlands and Fernan Creek channels that are immediately adjacent to the existing road. There is no difference among the three build alternatives in Segment 3.

For all three build alternatives the project would include:

- Constructing a new road surface composed of crushed aggregate base and asphalt concrete pavement.
- Installing adequate drainage structures.
- Installing sub-surface drainage features and subgrade stabilization measures.
- Widening the road to accommodate current and projected vehicular and recreational use and necessary maintenance activities.
- Removing the existing fill and roadway across Lilypad Bay.
- Improving parking areas and pullouts adjacent to the road.
- Upgrading signs, striping, guardrails, and other safety-related features.
- Implementing environmental commitments to reduce or mitigate environmental impacts.

Alternative G

Because the three build alternatives differ primarily between MP 1.0 and MP 2.3, and because Alternative G has been identified as the preferred alternative, it is summarized most completely. Subsequent descriptions of Alternatives E and Fm focus on their differences from Alternative G. Figure S-3 shows typical cross-sections of existing and proposed roadways in Segments 1 and 2.

Horizontal Alignment

Under Alternative G the road would be rebuilt to a typical 7.4 m (25 ft) width in Segments 1 and 2 and rehabilitated in Segment 3. In Segment 1 the proposed alignment would remain curvilinear and essentially follow the existing alignment, mainly comprising back-to-back horizontal curves with the occasional short straight stretch. Whenever possible, the proposed edge of pavement would not extend past the existing edge of pavement on the lake side of the road. This approach minimizes the impact to Fernan Lake. At Lilypad Bay a curved bridge, 118 m (38 ft) long would be constructed just north of the existing road. The existing fill, roadway, and the one visible culvert between MP 2.0 and MP 2.1 would be removed.

Typical Section - Segment 1

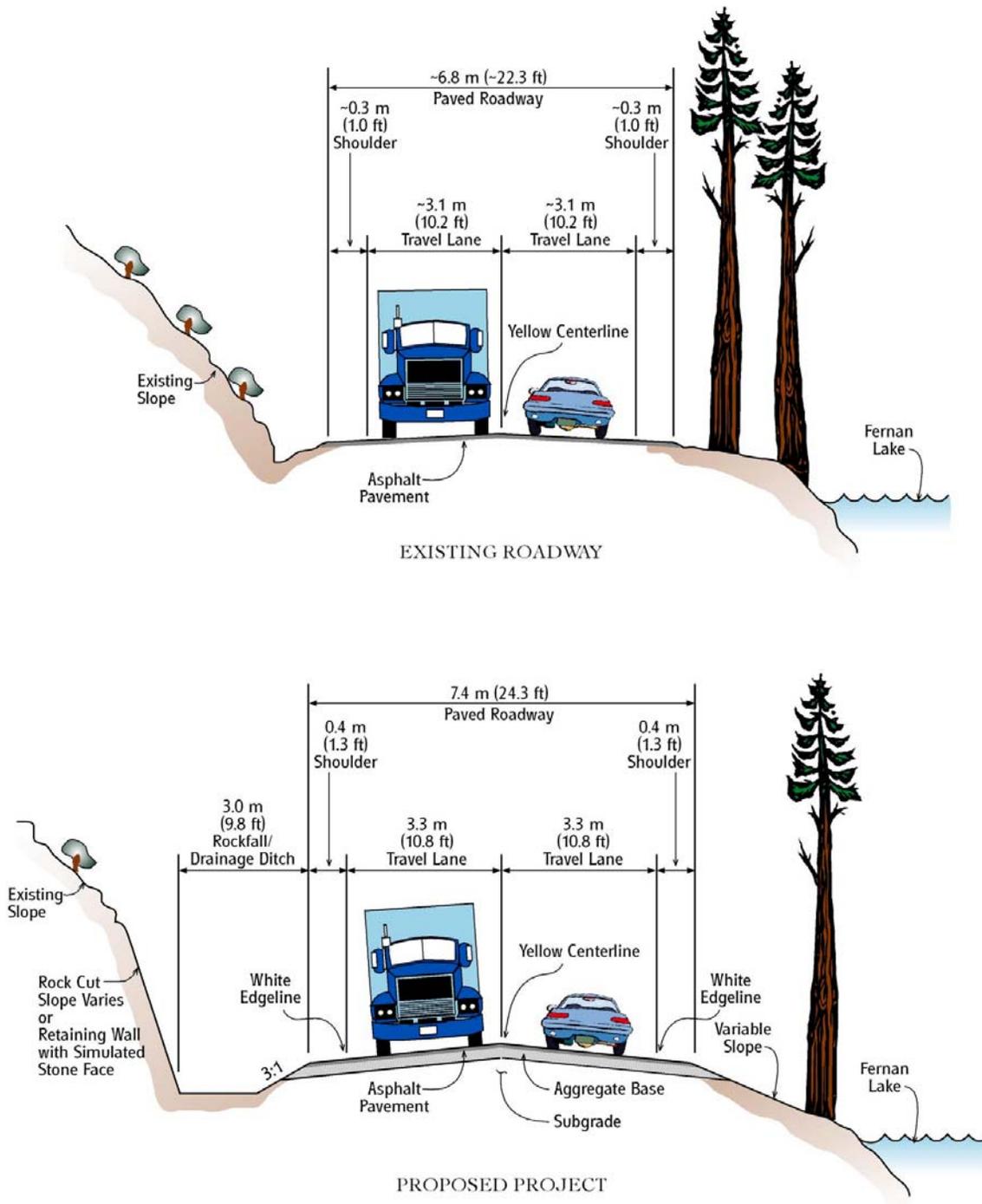


Figure S-3a. Schematic Cross-sections of Existing and Proposed Roadways in Segment 1.

Typical Section - Segment 2

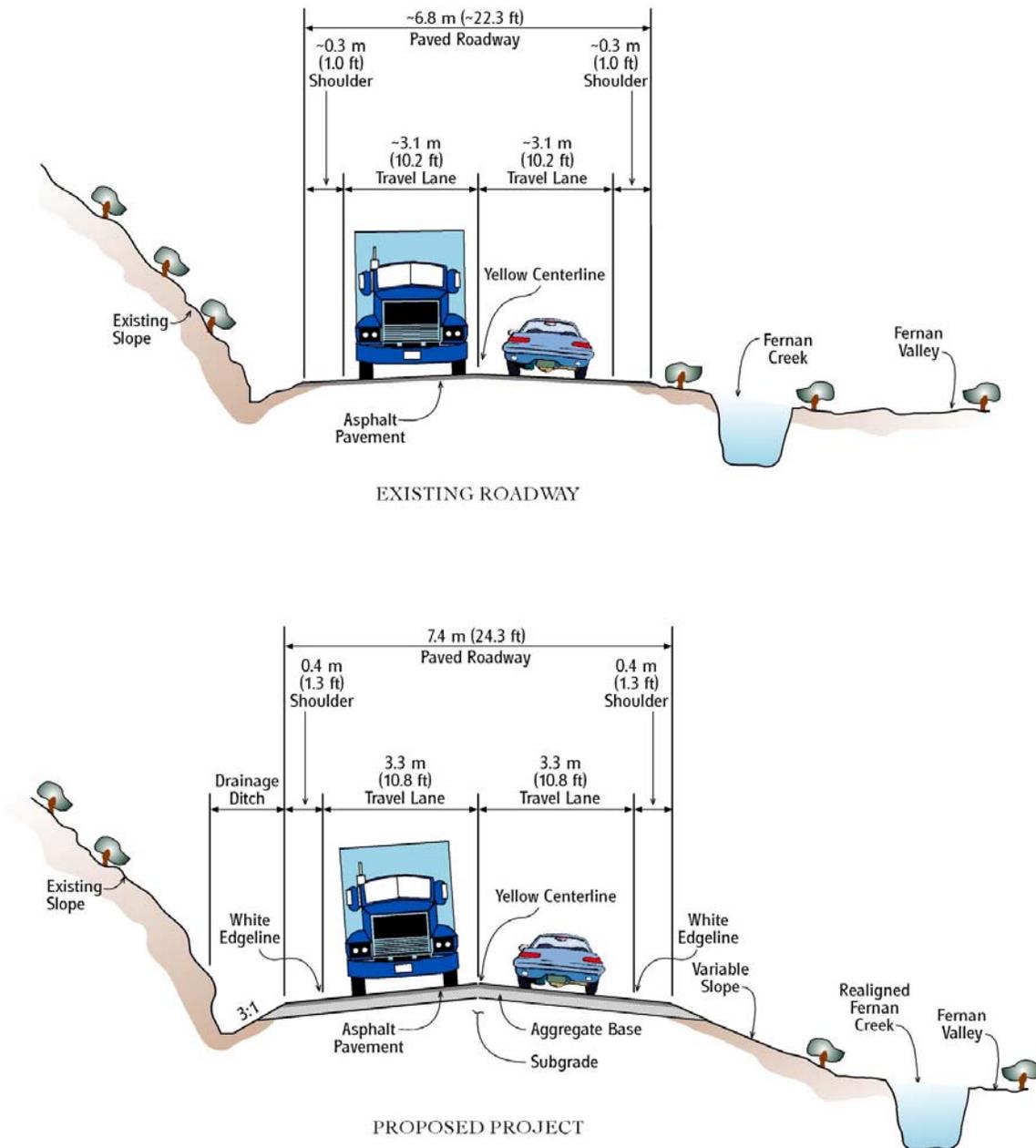


Figure S-3b. Schematic Cross-sections of Existing and Proposed Roadways in Segment 2.

The proposed horizontal alignment of Alternative G in Segment 2 along the valley was developed to minimize the amount of rock cut excavation on the left side of the roadway. Because the vertical alignment of the proposed roadway results in a wider base than the existing road prism, realignment would be required for two sections of Fernan Creek, which sometimes flows through manmade ditches or channels immediately adjacent to the roadway. These two sections are approximately between MP 2.8 and MP 3.0, and between MP 3.55 and MP 3.9. The linear stream sections displaced by the project would be restored to more natural meandering channel with adjacent riparian areas to mitigate unavoidable stream and wetland impacts.



The few parking turnouts along the lake are heavily used (view east from MP 1.8).

Vertical Alignment

The proposed vertical alignment along Segment 1 was developed so that the catch points on the right hand side of the road would closely match the existing topography. The vertical profile was also developed so that the pavement surface would remain at least 0.3 m (1 ft.) above the predicted 100-year flood event. Several sections of Segment 1 required that the proposed vertical profile be set below the existing ground centerline in order to accommodate a slightly wider roadway surface without adversely impacting the adjacent lake and hillside.

The proposed vertical alignment in Segment 2 was developed to elevate the roadway at least 0.3 m (1 ft) above the predicted 100-year flood event, provide drainage, and best match catchpoints on both sides of the road.

Alternative E

Alternative E is essentially the same as Alternative G except at Lilypad Bay. Near MP 2.0 a 180 m (525 ft) bridge is proposed across Lilypad Bay, thereby eliminating three tight existing curves. The proposed bridge would be in essentially the same location as the original wooden bridge.

Alternative Fm

Horizontal Alignment

The proposed alignment would differ from Alternative G where it veers away from Fernan Lake between MP 1.0 and MP 1.1 and proceeds up and across the adjacent hillside continuing to maintain a curvilinear nature. Alternative Fm then re-joins the existing alignment at approximately MP 2.1 where it predominately follows the existing alignment until reaching the end of Segment 2.

A short section of clean jetty rock fill is proposed to be placed into Lilypad Bay in the vicinity of MP 2.1 to provide a base for the proposed roadway widening. This is necessary to avoid a major cut into the adjacent rock face, thereby preserving one or two

potential home sites. As with the other build alternatives, the existing roadway fill across Lilypad Bay would be removed.

Vertical Alignment

Alternative Fm roughly follows the existing Fernan Lake Road profile for only a portion of Segment 1 before taking an upland route, which bypasses many of the sharpest horizontal curves along the existing alignment. This route requires relatively steep grades to reach the plateau before descending relatively steeply prior to Lilypad Bay. The maximum grade experienced in Segment 1 for Alternative Fm is 6.0 and 7.5 percent, ascending and descending, respectively. The steeper grades of this alternative will require consideration for erosion prevention along the ditch slopes and at their bases during final design. Alternative Fm crosses the Lilypad Bay area north of the existing causeway. To maintain safe road grades, however, the roadway would be located on a very tall fill slope, roughly 15.2 m (50 ft) high.

No Action Alternative

Under the No Action Alternative, no major improvements would be made to the existing roadway. The road would not be reconstructed, the road surface would continue to deteriorate, and load listings would continue. Repairs of road failures would occur on an as-needed basis. Inadequate sight distances and varying pavement widths would not be improved. Additional signs, striping, or guardrails could be provided to enhance safety where right-of-way allows. Bare and eroding slopes along the road would not be stabilized and thus would continue to require ongoing and perhaps increasing maintenance. Stormwater runoff would continue to flow untreated directly into the lake. Finally, no additional turnouts or parking for recreational visitors would be provided. Accident frequency would climb, as traffic volumes grow, compared to the build alternatives.



The road is constructed on fill across the upper portion of Lilypad Bay (view west from MP 2.1).

Preferred Alternative Selection

Table S-1 provides a visual summary of the factors that led to the unanimous selection of Alternative G as the Preferred Alternative for the Fernan Lake Road Safety Improvement Project. For each factor, the three build alternatives and the No Action Alternative were evaluated by the SEE team in terms of environmental impacts or undesirable features, as well as potential opportunities to improve current conditions.

Alternative G had either highest or moderate ratings for all factors considered in selecting the preferred alternative. This alternative would most closely follow the existing road alignment. Construction of the new curved bridge across Lilypad Bay would occur behind the existing causeway, thus protecting the lake from related short-term impacts to water quality. Alternative G would have fewer visual impacts than the other two build

alternatives. All of the improvements in traffic safety, stormwater treatment, roadway maintenance, and parking along the lake that are found in the other build alternatives would be provided by Alternative G.

Table S-1. Summary of Preferred Alternative Selection

Selection Factor	Alt-E	Alt-Fm	Alt-G	No Action
<i>Overall Purpose and Need</i>	●	◐	●	○
<i>Improved Traffic Safety</i>	●	●	●	○
<i>Physical Environment</i>	◐	◐	◐	◐
<i>Biological Environment</i>	○	◐	●	◐
<i>Human Environment</i>	○	○	◐	●
<i>Improved Road Maintenance</i>	●	◐	●	○
<i>Constructability</i>	●	◐	●	●
<i>New Right-of-Way Required</i>	◐	○	◐	●
<i>Degree of Risk or Uncertainty</i>	○	◐	●	●
Overall Preference	◐	○	●	○

● Least impact and/or greatest opportunity
 ◐ Moderate impact and/or opportunity
 ○ Greatest impact and/or least opportunity

Alternative E also received many favorable comments in discussions among the partner agencies. Putting a new bridge where the original one was located would shorten the overall route and eliminate one of the curves where accidents (one fatal) have occurred. It also would provide an opportunity to create additional parking near Lilypad Bay. Most disadvantages of Alternative E are related to driving the pilings for the new bridge, such as uncertain depth to bedrock, noisy construction, potential to encounter creosote-treated timbers from the original bridge. Safety concerns related to people probably fishing from the open water bridge were considered ‘a significant issue.’

The No Action Alternative was not considered the preferred alternative. Even though it had similar numbers of high, medium, and low ratings as Alternative E, it clearly failed to meet the purpose and need for the project. Although No Action would avoid impacts of construction, there would be no improvement in safety, road maintenance, and stormwater treatment.

Neither was Alternative Fm considered the preferred alternative. This alternative would route traffic over a hill between MP 1.0 and MP 2.1 and create new maintenance concerns for ESHD, including plowing snow in winter and maintenance of large cut/full slopes. The elevation of the proposed road, approximately 15.2 m (50 ft) high in this area, would require a visually conspicuous fill north of Lilypad Bay, which would also obstruct the lake view from at least one residence. The potential advantages of realigning part of the road away from the lake were not considered adequate to offset the disadvantages of Alternative Fm.

Affected Environment and Consequences

Traffic

Traffic Safety

Analysis with IHSDM indicated that design features contained in all three build alternatives resulted in an overall improvement of 53 percent to 58 percent to the estimated safety performance in 2002 for Segments 1 and 2 combined when compared to existing conditions. For accident predictions in 2026, the build alternatives improved safety by 56 percent to 62 percent when compared to the No Action Alternative. The model predicted that the build alternatives would eliminate 160 to 185 crashes over the 25-year period, with an associated economic benefit of \$9.4 million to \$10.9 million. Alternatives E and G out-performed Alternative Fm by approximately 10 percent in terms of safety.

Under the No Action Alternative, Fernan Lake Road would continue to experience a higher accident rate than most rural roads in the region. Accident rates would continue to increase as traffic increases in response to local population growth.

Traffic Circulation

Traffic flow and circulation would be affected by the road closures and by the number of truck trips generated by the construction activities. All build alternatives would impact local traffic in sections being actively constructed. The roadway is too narrow to construct temporary bypasses around work sites. Alternative access to residences and recreation facilities are either absent or extremely circuitous. The road would likely be closed most of the day at construction sites, except for scheduled openings and emergency vehicles, and would likely be a single lane when open.

The No Action Alternative would not have long-duration impacts to traffic and circulation for road construction. There would be recurring temporary road closures to repair problems resulting from the uncorrected deficiencies in the current road.



Logging trucks use the road because it provides direct access to the Sherman Avenue interchange at I-90 (view west from MP 2.6).

Hydraulics and Drainage

All build alternatives would elevate the road above the 100-year flood plain and provide for proper drainage from the road surface. The approximate additional new impervious area for Alternatives E, Fm, and G is 1.33 ha (3.3 acres), 1.15 (2.8 acres), and 1.51 (3.8 acres), respectively.



Many drainage inlet pipes along cut slopes are rusting and damaged from falling rock (view southeast from MP 7.9).

Most existing culverts in Segments 1 and 2 would be replaced, and additional cross-drains added, yielding approximately 30 new 0.6 m (2-ft) culverts. Most culverts in Segment 3 would be relined unless inspection indicated particular ones should be replaced to provide fish passage. Each of the build alternatives proposes to employ roadside ditches to convey stormwater runoff. Where possible, the lower reaches of the ditches will be designed and constructed as water quality swales.

Drainage down the steep grades of Alternative Fm would require structures to dissipate the energy of stormwater runoff along the hillside portion of Segment 1.

The No Action Alternative would leave some parts of Fernan Lake Road below the 100-year flood elevation. Drainage under and along the road would not be upgraded.

Water Quality

Fernan Lake's shallow depth gives it a productive fishery but also makes it susceptible to water-quality degradation and excess algae blooms. The current road does not provide stormwater treatment, so runoff from the road often goes directly into the lake in Segment 1 and into the creek in some parts of Segment 2. Both sediment and nutrient loading to the lake and creek are water quality concerns.

Effects of construction on lake water quality in Segment 1 for each build alternative could include localized increases in turbidity, decreased oxygen levels, and increased sediment deposition in the vicinity of construction. Impacts would be greater for Alternatives E and G since they are sited on the lake shore for the length of Fernan Lake. Because Alternative Fm moves the road away from the lake between MP 1.0 and MP 2.1, it may have more opportunities for stormwater treatment in Segment 1 than the other build alternatives.

Bridge construction across Lilypad Bay in Alternative E has more potential to impact lake water quality than would be the case for Alternative G, for which the existing road would isolate bridge construction from the main lake. All build alternatives would release and re-suspend sediments to the lake when the existing road at Lilypad Bay is removed.

The No Action Alternative would avoid the short-term effects of construction, but existing stormwater treatment deficiencies would not be corrected. Current impacts of the road on lake and creek water quality would continue.

Wetlands

Jurisdictional wetlands are prevalent along the current road at Lilypad Bay and along much of Segment 2. Alternatives E, Fm, and G would impact 2.0 ha (4.9 ac), 1.8 ha (4.5 ac), and 2.0 ha (4.8 ac) of existing wetlands, respectively. Conceptually, mitigation for these impacts is proposed through removing the current road and fill in Lilypad Bay and restoring impacted reaches of channelized Fernan Creek and its channels with more natural channels and riparian buffers.

The No Build Alternative would avoid impacts to wetlands and Fernan Creek, thereby eliminating the need for mitigation. Fernan Creek would remain in its currently altered and channelized condition.

Cultural Resources

Two historic sites considered eligible for the National Register of Historic Places were identified in the project corridor. No remains of a previously recorded historic site were found, and no archaeological sites are known in the Area of Potential Effect.

Segments 1 and 2 of Fernan Lake Road are considered historic because they are representative of road building in northern Idaho during the Depression. Traveling the winding road carved between steep hills and the lake in Segment 1, and up the open lower valley in Segment 2 allows visitors to experience the feel of the history.



A wooden bridge crossed Lilypad Bay from the 1930s to the 1960s.

All three build alternatives would have an adverse effect on this historic property. Reconstructing these segments would destroy features such as culverts and stone retaining walls that contribute to the integrity of the site. However, they would retain much of the historic feel of the narrow, winding, shoreline road cut into hillsides, but in a much safer drive than currently exists. FHWA would sign a Memorandum of Agreement to mitigate the adverse effects to the historical road prior to a decision selecting a build alternative.

The No Action Alternative would avoid adverse effects to the historic road, which would continue to deteriorate over time. Current traffic safety deficiencies would continue.

Fish

Road construction projects can destroy riparian areas and compact soil so that regeneration and recovery are slowed. Loss of riparian vegetation can also eliminate sources of large woody debris, which typically forms most of the cover, shelter, and refuge from high flows that fish species such as trout require. Blasting during

construction in Segments 1 and 2 might affect west slope cutthroat trout and torrent sculpin should they be present during that time.

Construction activities most likely to disturb warm-water fish and fish habitat in Fernan Lake include pile driving and column construction during bridge construction, disturbance of bottom sediments during removal of the existing road crossing at Lilypad Bay, blasting during construction along the north lake shore, construction of retaining walls immediately adjacent to the lake, and accidental release of fill material into the lake. Placing into the lake trees that must be removed along the road would benefit the lake fishery by providing additional habitat.

Grinding and removal of old pavement in Segment 3 could contribute to an increase in sediments in the creek. Replacing culverts that block fish passage would improve current conditions if properly designed and installed.

Wildlife

ESA Threatened and Endangered Wildlife Species

Bald eagles are present in the project area, and a nest has been documented less than 0.4 km (0.25 mile) to the south. Construction noise could have an adverse impact on nesting eagles and chicks, so construction would not occur within 1.6 km (1 mile) of the nest until after August 15 each year. Since construction would occur primarily in the summer, no impacts to wintering bald eagles would occur.

The project is not expected to impact grizzly bears, Canada lynx, or gray wolves. These ESA-listed species either do not occur in the watershed or construction would not occur when they do.

FS Sensitive Wildlife Species

Seven FS Sensitive wildlife species could be in the project area and be affected by construction. The most suitable habitat for black-backed woodpecker, flammulated owl, and northern goshawk is above MP 5.0 in the IPNF. Road improvements in Segment 3 could cause temporary increases in noise and dust, although affected species would most likely reoccupy the area after construction.

Under the build alternatives the creek realignment in Segment 2 would have a direct impact during construction on wetland and riparian areas thereby impacting individuals or habitat for Coeur d'Alene salamander, northern leopard frog, and western boreal toad. Construction of a new bridge over Lilypad Bay and removal of the existing roadway fill would disturb the shallow water habitat in Lilypad Bay.

Management Indicator Species (MIS)

Big game, mature forest MIS, or migratory birds travel may be indirectly affected by construction noise. The disturbance would be temporary and species would likely return to use the area afterward. Construction effects would include increased disturbance to

piledated woodpeckers in the project vicinity. There would be no direct conflict during critical wintering months for elk, the only big game MIS in the area.

Vegetation

Plants and Habitats

Trampling of vegetation, compaction of soils, and an increase in erosion are common forms of habitat degradation caused by human activity like road construction. Native habitat closest to roads, buildings, and recreational facilities are most susceptible to this form of degradation. Sensitive habitats such as streams and wetlands are also vulnerable.

ESA and Sensitive Plants

Each build alternative could affect plant species of concern by being removed, crushed, or buried during clearing or construction. Potential habitat in delineated wetlands and riparian areas of Fernan Creek would be affected by construction. Riparian and forested areas within wet and moist forest habitat guilds would be at greatest risk due to road widening and realignment of Fernan Creek. Ute ladies'-tresses and water howellia were not found in project studies of these habitats.

Under Alternative Fm, the proposed realignment from MP 1.0 to MP 2.0 of Segment 1 would also affect plant species in dry forest habitat. Habitat for imbricate lichen would be affected by build alternatives in all segments of the project because habitat for this species is located in disturbed areas at the edge of the road and in the existing road shoulder



Degrading cut slopes slough rocks and debris onto the road (view southwest from MP 4.2).

Land Use, Utilities, and Right-of-Way

Construction would affect property owner driveways when construction is occurring adjacent to those accesses. Temporary construction easements to allow contractors access to the slopes are proposed. Property owners may be restricted as to the times they can enter and exit their properties by road closures. Some properties will be more affected than others because their driveways would be reconstructed to meet a new road grade or to improve safety at their intersections with Fernan Lake Road. The four-hour road closures would also restrict access to and from residences east of the point of construction, which would proceed downhill from east to west.

The build alternatives could impact existing utilities, including aboveground electrical and telephone/telecommunication lines and underground pipelines for natural gas and petroleum. Some utility poles for the aboveground lines would need to be relocated, causing temporary disruptions in service. Coordination with the natural gas and petroleum providers prior to construction would be needed to avoid disturbing underground pipelines.

Recreation

Construction noise, odor, and dust could compromise the quality of the recreation experience. Under each build alternative, construction activities could temporarily close access or lengthen travel times to recreation opportunities. The four-hour road closures during construction may discourage recreational use of the Fernan Lake Rod & Gun Club, IPNF, and the north shore of Fernan Lake.



Frost heaving and subgrade failures result in repeated road repairs (view southeast from MP 4.4).

Shoreline access for fishing would be reduced or most likely not be available during some construction periods. For Alternative Fm, if the abandoned alignment between MP 1.0 and MP 2.0 remained accessible to the public during construction, less impact to bank fishing would occur than in Alternatives E and G.

Planned recreation events could be disrupted in part or entirely due to access limitations during construction. Events potentially affected would include the

summer fishing derby, and running and bicycling events. The severity of the impact could be lessened by relocating events or scheduling construction to accommodate events.

Visual Resources

Fernan Lake Village and Fernan Lake Landscape Units

Steep slopes dominated by mature ponderosa pine with some understory shrubs and grasses surround the small residential Fernan Lake Village community. The residential area contains a mixture of deciduous and evergreen ornamental and native plantings. Most of the houses visible from the road are single-family, one-story, contemporary ranch-style structures. The close-in vegetation surrounding the houses obscures views of and from the residences and driveways. The lake is visible from homes along Lakeview Drive and Fernan Terrace Drive.

Fernan Lake Road winds along the northern edge of Fernan Lake following the terrain. Long-distance views along the road are obscured by the winding nature of the road alignment. To the north are forested slopes and to the south is the lake. Along the lake, the steep slopes and close-in young conifers obscure views from the road to the north. Rocky outcroppings are interspersed among the trees. Grasses and deciduous shrubs as well as power lines and support poles line the roadway. Power lines traverse the road in several locations. Lines with aircraft warning globes cross the lake near MP 0.15.

The lake is clearly visible to the south from the road, as there are few obscuring trees. From protruding points on the north side of the lake, Fernan Lake Village is visible to the west. At the eastern end of the lake, there are fewer trees and the marsh and wetland areas are more open. The lake is at its widest here (approximately 0.8 km [0.5 mi]), and there are few trees along the lake side of the road. The road, boat landings, and vehicle

pull-outs are clearly visible from the roadway. Several multiple-story houses are clearly visible on the southeastern side of the lake.

The proposed alternatives would introduce several elements into the viewed area of both the Fernan Lake Village and Fernan Lake landscape units. Some road cut slopes would be higher, larger and more evident than existing cuts until replanted vegetation matured. Retaining walls would be constructed where space or existing topography limits slope easing adjacent to the roadway. Guardrails would be incorporated along the roadway under all build alternatives as necessary for safety purposes



Portions of Segment 3 have adjacent steep slopes without guardrails (view southeast from MP 7.9).

The new bridge proposed for Alternative E would be more linear in design than the Alternative G bridge design and follow a different alignment, pushing the bridge farther south over open water in Lilypad Bay. This bridge would be conspicuous from both the lake and some residences at the east end of the lake.

Alternative Fm follows would require substantial cut and fill slopes part way up Fernan Hill, where they would be more visible from the many viewpoint. This alternative also crosses the head of Lilypad Bay on a very tall fill slope, roughly 15.2 m (50 ft) high. This fill slope would totally cut off an adjacent homeowners' lake views. The fill slope would impact views from the homeowners' property, eliminating views of the lake and surrounding vegetation and substituting that with views of the fill slope in the immediate foreground over the property. These impacts would also occur on views from the lake, but not to such a great extent. The existing road and causeway crossing Lilypad Bay would be removed.

Fernan Creek Valley Landscape Unit (from Fernan Lake to IPNF boundary)

The character of this segment of the proposed project differs from that of the road along the lake and therefore, this is considered a separate Landscape Unit. In this unit, the roadway runs through a flat valley, varying in width from less than 0.4 km (0.25 mi) to more than 1.6 km (1 mi) at Stacel Draw. This segment of the roadway runs fairly straight up the north side of the valley. On either side of the valley are rounded hills covered with even-aged conifers

All build alternatives make substantial use of the existing Fernan Lake Road alignment throughout this portion of the project. The roadway would be widened from the existing alignment which would result in road cut slopes that would be larger and more evident, but mostly in rock so retaining walls would not be required. The roadway would be raised 1 to 2 m (3 to 7 ft) above existing grade in places. The alignment is pushed away from the rock outcrops and wetlands, west of the road and towards the creek. As a result,

portions of the creek would be relocated and the natural meander pattern (destroyed in the creation of adjacent agricultural fields) could be reintroduced.

These new visual elements would be highly visible to roadway travelers. The cut slopes would have more color contrast with their surroundings, at least until vegetation is re-established. Because of the light color of the soil and rock, the cut and fill slopes would be contrasting visual elements in foreground viewing areas for travelers. New culverts would not be very visible to travelers but might be visible to adjacent homes.

With appropriate mitigation measures, the direct long-term impacts for Segment 2 would not change the Visual Quality Landscape Values.

IPNF Landscape Unit (from IPNF boundary to Fernan Saddle)

In this Landscape Unit, the valley narrows significantly and the road begins to climb from the valley floor to Fernan Saddle. The roadway winds along the northern slopes above the creek. The landscape is uniformly comprised of conifer-covered slopes, and as a result has a high degree of unity. The steep drop to Fernan Creek from Kelly Mountain and Treasure Mountain provides some degree of contrast, resulting in a moderate degree of vividness. There is a high degree of intactness; the only visual encroachment on the forested setting is the roadway, in some areas where timber has been recently cut and talus slopes.

This segment lies entirely within the National Forest boundary. In all build alternatives, the road would be rehabilitated only. There would be no direct, long-term impacts for Segment 3, and the Visual Quality Landscape Values would not change.

The No Action Alternative would avoid impacts to visual quality in the viewshed.



Argillite cut slopes are exfoliating rock debris on the pavement and in the drainage ditch view southeast from MP 8.7).

Socioeconomics

Construction traffic, noise, dust, and disruption of access during construction would impact the houses in Fernan Lake Village and along Fernan Lake Road in Segment 1. Such impacts would be the same for minority and low-income population as for the general population.

Construction under the build alternatives likely would require hiring 50 to 100 workers, depending on duration of construction. Expenditures related to project construction (estimated to be \$9 to \$14

million depending on the alternative selected) might increase employment in the area in the short term. Minority and low-income populations may benefit from construction and spin-off opportunities, which are expected to include jobs in the construction, services, and trade sectors.

Air Quality

Air quality impacts in the vicinity of construction would be localized and temporary. Dust particles stirred up during construction and vehicle emissions from construction equipment and delayed vehicles could temporarily affect air quality.

Noise

Noise impacts from blasting will vary according to factors such as the size and placement of explosive charges and, in Alternatives E and G, driving piles for proposed bridges across Lilypad Bay. Neither the State of Idaho nor Kootenai County has noise policies governing noise from controlled blasting. Temporary noise mitigation would be needed at most impacted residences to keep blast noise impacts below reasonable levels.

Noise impacts from pile driving in Alternative E would be greater and more prolonged than for Alternative G. The bridge in Alternative E is longer, near the open lake, depth to bedrock is more than 30 m (100 ft), and the pile driver would be on a barge. Opportunities to mitigate these noise impacts would be very limited for this alternative.

Hazardous Materials

The Phase I Initial Environmental Site Assessment did not reveal any potentially adverse environmental sites or facilities that could affect or be affected by the planned improvements. Therefore, there would not be any impacts from construction to hazardous material sites.

However, constructing the bridge for Alternative E could unearth creosote-treated timbers from the original wooden bridge that was in this location from the 1930s to 1960s.

Prior to construction, the contractor will be required to prepare a Spill Prevention, Control, and Countermeasures Plan defining the actions that would be taken in case of a spill or leak from construction equipment. The plan will also incorporate preventative measures to be implemented, such as the placement of refueling facilities, storage and handling of hazardous materials, etc.

Section 4(f) Properties

Segments 1 and 2 of Fernan Lake Road are considered historic and is the only Section 4(f) property requiring evaluation. Recreational properties in the project area either do not meet Section 4(f) eligibility requirements or else would not be taken or used by the proposed build alternatives. There are no wildlife or waterfowl refuges in the project area.



Old retaining walls along the road are examples of stonework by the Civilian Conservation Corps.

All three build alternatives would cause an adverse effect by reconstructing Segments 1 and 2 on the historic road. Seven alternative routes that totally avoided the historic segments were found to be feasible but not prudent. Three other alternative routes that would reconstruct all or part of Segment 2 also were deemed feasible but not prudent. Impacts of Alternatives E, Fm, and G are somewhat minimized because they would be narrower than other alternative alignments of the current route for which preliminary designs were developed. Mitigation of Section 4(f) impacts would be detailed in a formal agreement before any build alternative is selected in the ROD for final design.

The No Action Alternative would avoid adverse effects to the 4(f) property, which would continue to deteriorate naturally. Safety would continue to be a concern for travelers experiencing the historic feel of the current road.

Permits or Approvals

FHWA has issued this Draft EIS for public comment. Comments on the Draft EIS will be considered in preparing the Final EIS. After the Final EIS is issued, FHWA will select one build alternative, a combination of the build alternatives, or the No Action Alternative. The final selection will be documented by FHWA in a Record of Decision (ROD) issued at least 30 days after the Final EIS is published.

Some permits or approvals will be needed from federal or state agencies as part of the NEPA process. Additional permits and approvals would be required before implementing a Build Alternative. Some of these would require additional details developed during final design after the ROD, if a build alternative is selected.



Aerial view of Fernan Lake and watershed from the west.

Fernan Lake Road Safety Improvement Project

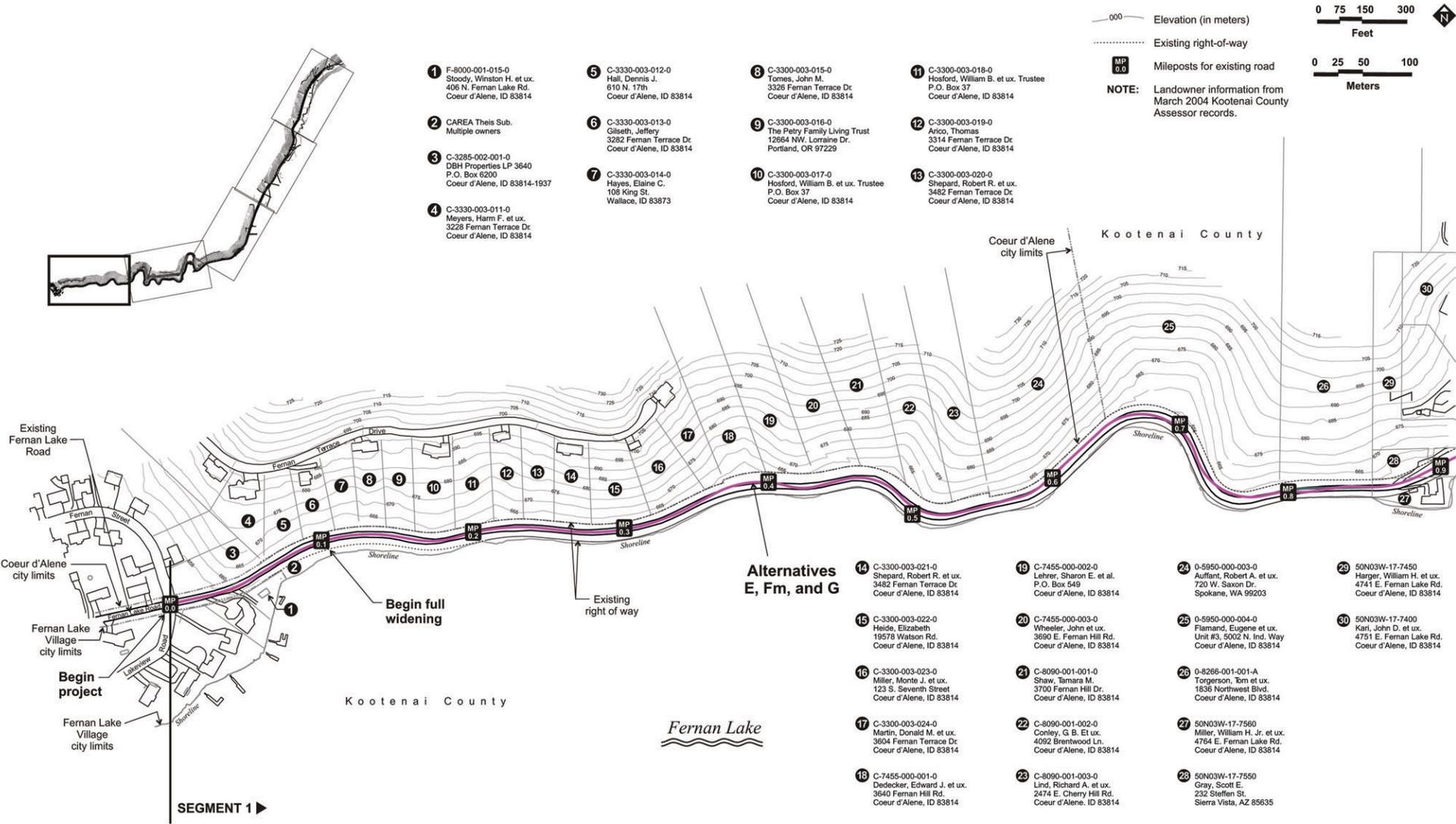


Figure S-4a
Property Parcels Adjacent to Fernan Lake Road

Fernan Lake Road Safety Improvement Project

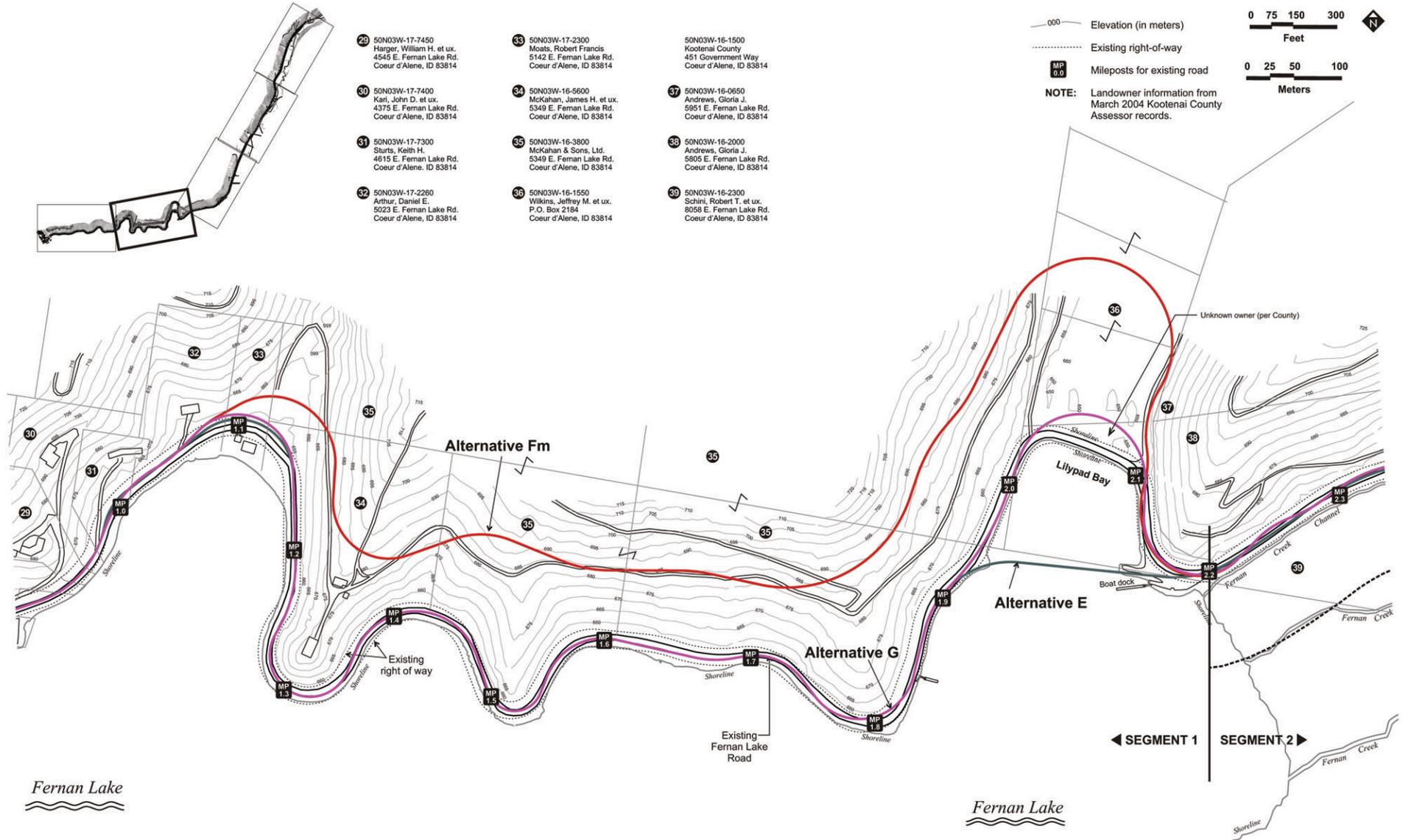


Figure S-4b
Property Parcels Adjacent to Fernan Lake Road

Fernan Lake Road Safety Improvement Project

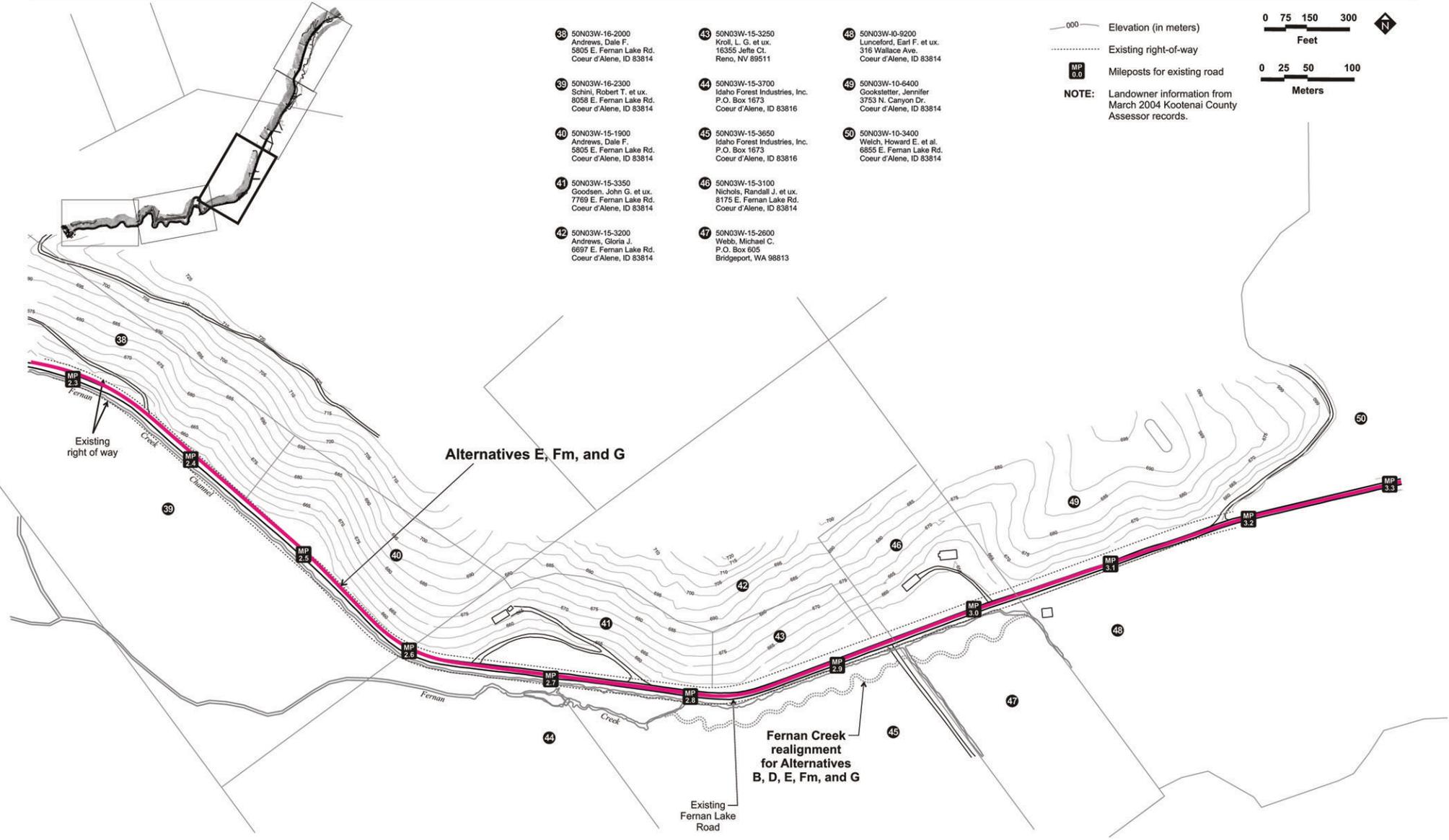


Figure S-4c
Property Parcels Adjacent to Fernan Lake Road

Fernan Lake Road Safety Improvement Project

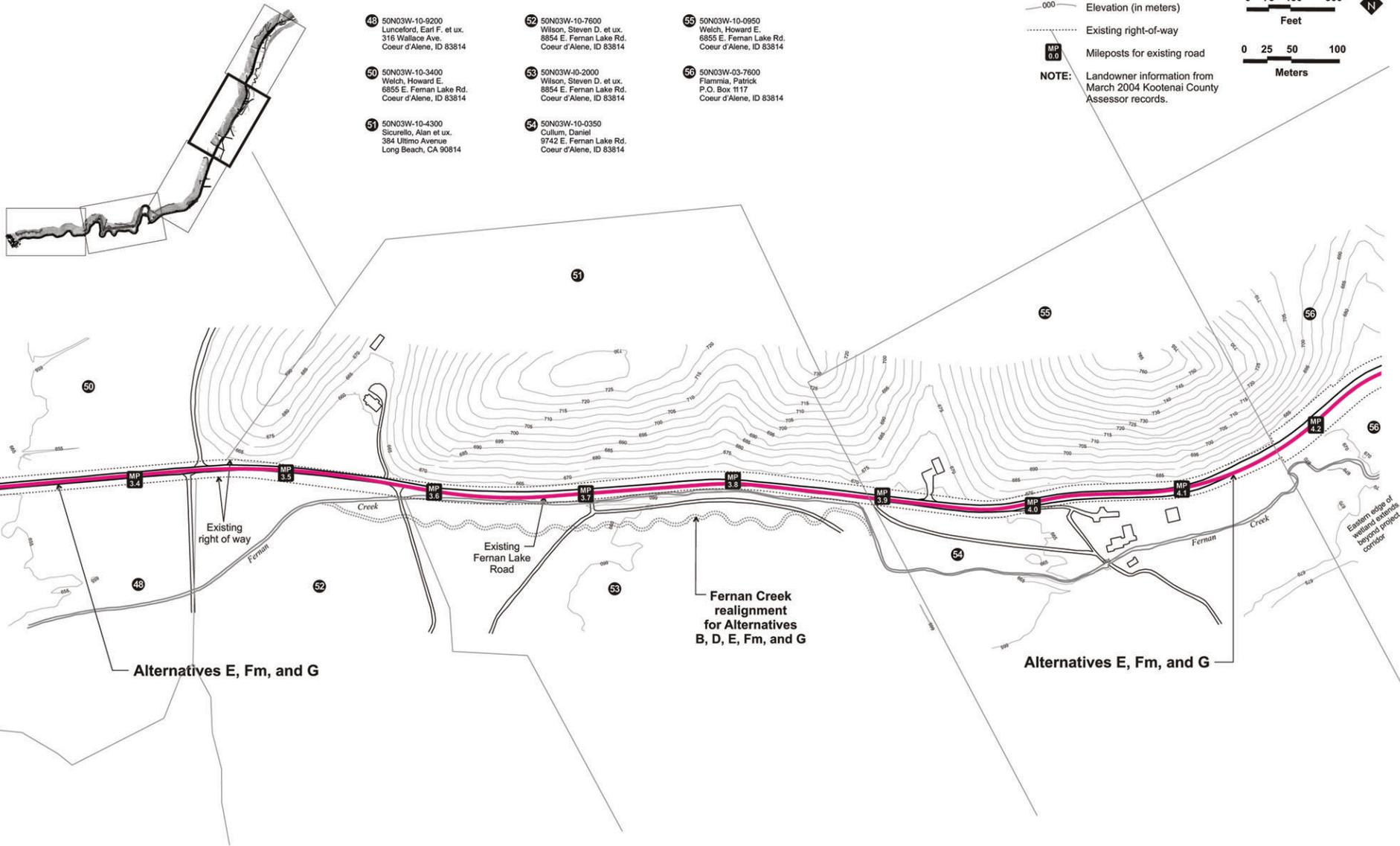


Figure S-4d
Property Parcels Adjacent to Fernan Lake Road

Fernan Lake Road Safety Improvement Project

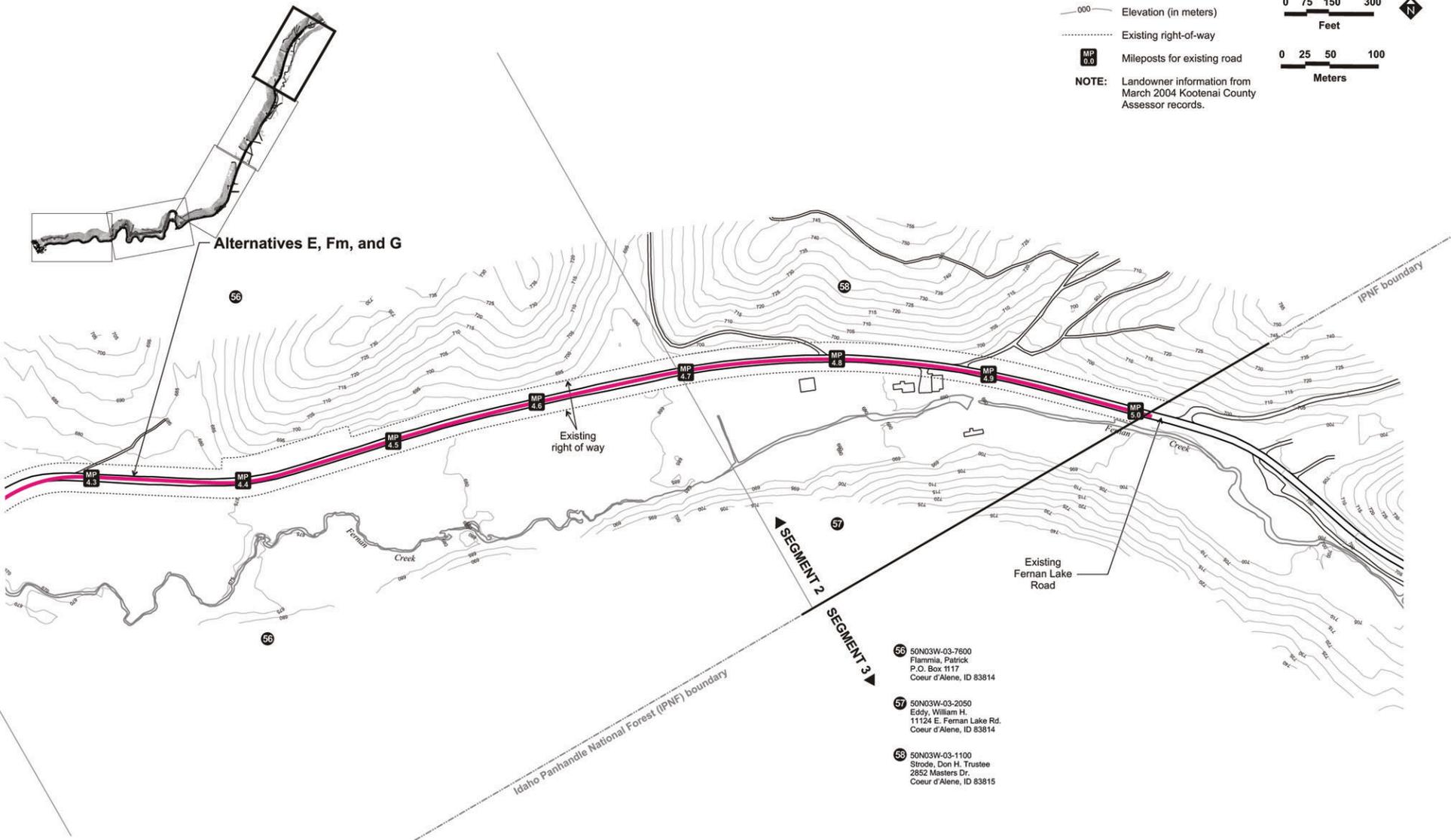


Figure S-4e
Property Parcels Adjacent to Fernan Lake Road