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RECLAMATION

Boise River Basin Feasibility Study

Specialist Report: Safety

Boise Project, Idaho

Interior Region 9: Columbia Pacific Northwest

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
EIS	Environmental Impact Statement
EMS	emergency medical service
HD	Highway District
Reclamation	Bureau of Reclamation
USFS	U.S. Forest Service

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1. Introduction

The Boise River Basin Feasibility Study is a feasibility study to evaluate increasing water storage opportunities within the Boise River basin by expanding Anderson Ranch Reservoir. The project is located at Anderson Ranch dam and reservoir, the farthest upstream of the three reservoirs within the Boise River system and located 28 miles northeast of the city of Mountain Home in Elmore County, Idaho. Anderson Ranch Dam is a zoned earth fill embankment structure that provides irrigation water, flood control, power generation, and recreation benefits. The reservoir also provides a permanent dead storage pool for silt control and the preservation and propagation of fish and wildlife. Anderson Ranch Dam is operated by the Bureau of Reclamation (Reclamation). Reclamation, in partnership with the Idaho Water Resource Board (IWRB), proposes to raise Anderson Ranch Dam. New water storage would provide the flexibility to capture additional water when available, for later delivery when and where it is needed to meet existing and future demands. The alternatives analyzed in this document include the No-Action Alternative (Alternative A), a 6-foot raise of Anderson Ranch Dam (Alternative B), and a 3-foot raise of Anderson Ranch Dam (Alternative C).

Alternative A provides a basis for comparison with the two action alternatives, Alternative B and Alternative C. Under Alternative A, current baseline conditions would continue, without increasing Anderson Ranch Dam height or constructing associated reservoir rim projects, access roads, or facilities. The expected project duration of Alternative B is approximately 51 months and Alternative C is 44 months. Reclamation would continue existing operations of Anderson Ranch Dam. Alternative B proposes to raise the dam by 6 feet from the present elevation of 4196 feet to 4202 feet to capture and store approximately 29,000 additional acre-feet of water. Alternative B would inundate an estimated 146 acres of additional land around the reservoir above the current full pool elevation of 4196 feet. Alternative C proposes to raise the dam by 3 feet to 4199 feet, allowing for the ability to capture and store approximately 14,400 additional acre-feet of water. Alternative C would inundate an estimated 73 acres of additional land around the reservoir above the current full pool elevation of 4196 feet.

Each of the two action alternatives, Alternative B and Alternative C, includes two separate, but similar, structural construction methods for the dam raise, downstream embankment raise, or mechanically stabilized earth wall raise. Otherwise, the only difference is the dam raise elevations of 6 feet for Alternative B and 3 feet for Alternative C. Project areas and construction durations for each method are nearly identical, except for a 200-foot difference in approach road length at the right abutment and an approximate 1-month difference in construction duration. The longer road length is within the dam footprint on previously disturbed ground. Because these differences are negligible, they are not differentiated within the analysis of each alternative. Alternative analysis assumes the longer road length and

construction duration, however, a final construction method will be chosen during later phases of engineering evaluation.

Chapter 1 and Chapter 2 of the Boise River Basin Feasibility Study Environmental Impact Statement (EIS) provide a detailed description of the proposed action, project's purpose and need, project area, and alternatives including design features applicable to the action alternatives. This specialist report supports the analysis of expected impacts on safety as described in the EIS.

2. Affected Environment

The project area relating to the proposed action alternatives refers to the general vicinity in and around Anderson Ranch Reservoir. Roads are referred to as either Highway District (HD) roads under Highway District jurisdiction or NFS roads under U.S. Forest Service (USFS) jurisdiction. The closest major highway to the Anderson Ranch Reservoir area is U.S. Highway 20 (U.S. 20).

The crest of Anderson Ranch Dam serves as a bridge linking the north and south sides of the reservoir. Anderson Ranch Dam crest was raised 4 feet in 2010 as part of a security enhancement project. The raised crest of the dam is 28 feet wide with a 20-foot-wide roadway and 3-foot-high jersey barriers on each shoulder. As part of the 2010 security enhancement, the road was changed from two lanes to one lane.

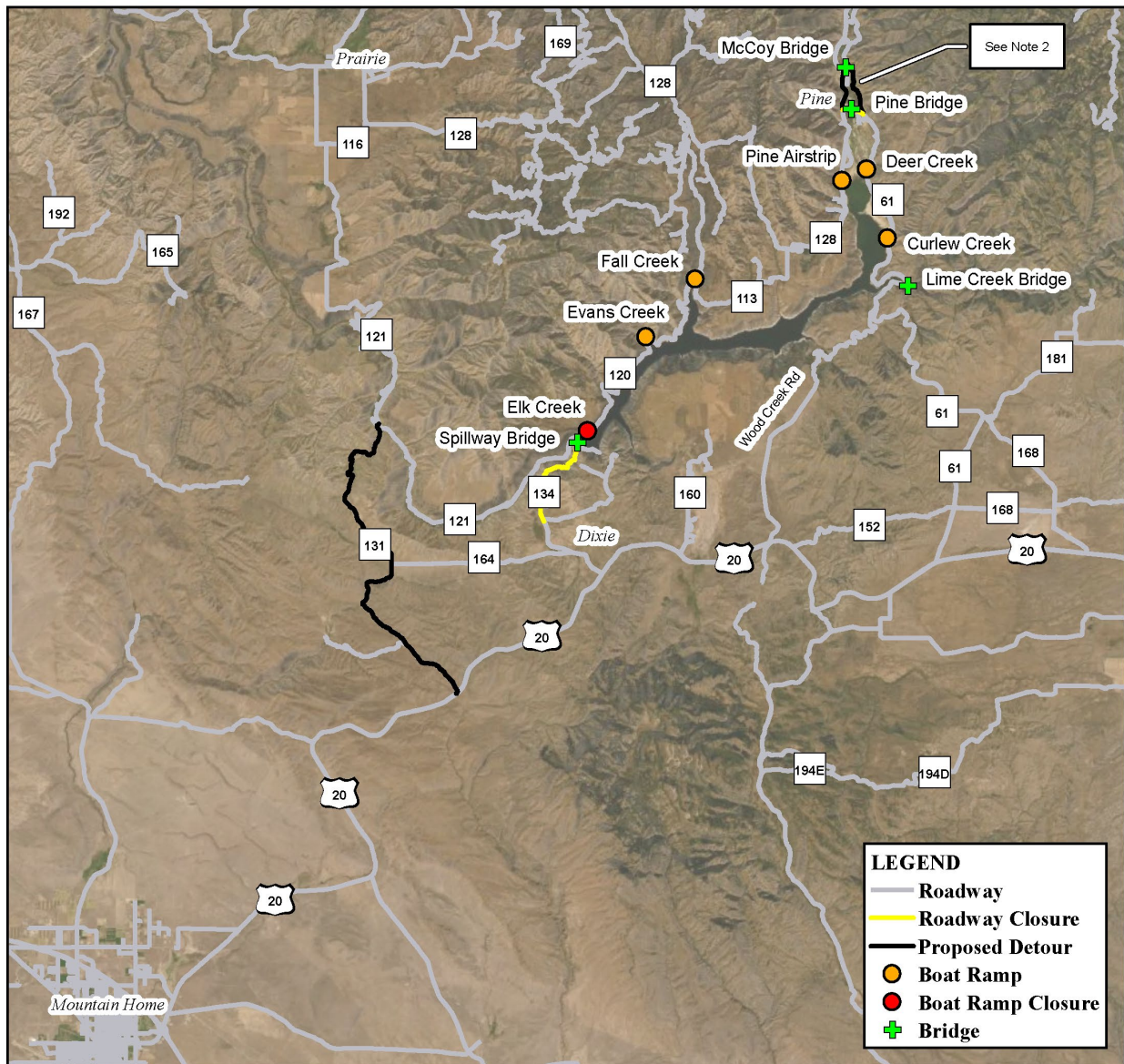
On the south side of the Anderson Ranch Dam Road, HD 134 links the dam to U.S. 20 and Mountain Home, Idaho, approximately 28 miles from the dam. Mountain Home is the closest community with a full suite of emergency services including fire, ambulance, and law enforcement (Figure 1).

On the north side, the dam connects to HD 121 heading downstream along the South Fork Boise River approximately 55 miles to Interstate 84 north of Boise. The dam connects HD 120 heading northeast upstream along the reservoir approximately 19 miles to Pine, site of a volunteer emergency medical service (EMS). Areas north of the dam include ranch lands and year-round recreation in the Trinity Mountains.

Emergency Response Capacity

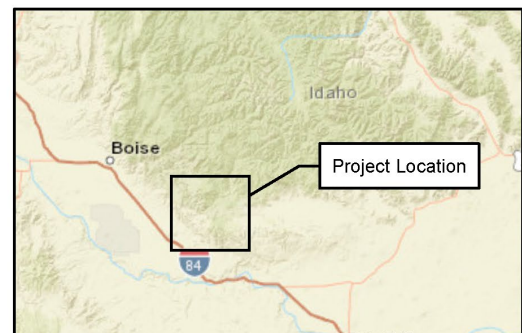
The project area is a rugged, rural, mountainous area with limited residential development, abundant ranching activity, and popular year-round recreation areas. Emergency response capabilities are provided by the city of Mountain Home, Elmore County, and the unincorporated communities of Pine, Featherville, and Prairie. EMS and other services are provided via salaried, on-call, and volunteer staff (Table 1).

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Notes:

1. This map is provided as-is and may contain representations of property boundaries. It is intended for general references only. None of the parties involved in preparing this map or data contained herein warrant or represent information to be complete and accurate and cannot be held responsible for errors or omissions.
2. If the Pine Bridge closure and detour work is required under Alternative B, the estimated duration is 4 months. No Pine Bridge work under Alternative C.
3. Lime Creek Bridge is limited to abutment slope repair which may only cause brief traffic slowing across the bridge.
4. It is anticipated that HD 134 would be closed for approximately 35-45 months (depending on alternative) during construction. Prior to this closure, HD 131 would be closed for 43 days, during which HD 134 and HD 121 would be used as a temporary detour for this route.



**Figure 1: Roads, Detours, and Closures
Boise Project - Arrowrock Division
Boise River Basin Feasibility Study**

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Table 1. Emergency medical services capacity

Service	Staff	Equipment	Notes
Mountain Home EMS	35 employees	4 ambulances	Full suite of year-round emergency services
Mountain Home Search and Rescue	30 volunteers	1 command trailer 3 trailers 4 vehicles 2 snowmobiles	Full suite of year-round emergency services
Elmore County Sheriff	~50-60 employees	10 patrol cars 4 admin cars 2 boats 2 vans	Full suite of year-round emergency services
Fire Protection (Mountain Home and Rural Fire)	1 Chief 1 Marshall 30 paid on-call staff	14 engines	Mountain Home city only; no project area structural fire service; 10-mile radius around city, USFS provides forest fire response, BLM provides brush fire response
Prairie	All volunteer	1 ambulance	Summer-only response
Pine Featherville	1 full-time staff ~4-5 volunteers	2 ambulances	3 bay building
Pine Sheriff Department	2 employees assigned	1 rescue boat	Staffed year-round by on- and off-site officers

Sources: Pine EMS, 2019, personal communication; Elmore County, 2019, personal communication; Elmore County Sheriff's Office, 2019, personal communication

Some services are limited in winter due to lack of infrastructure. Prairie has an ambulance but no storage building so local winter response is unavailable. Emergency (911) calls in the project area are coordinated so the nearest ambulance or appropriate service is dispatched. Medivac helicopter service is available out of Boise.

The communities of Mountain Home, Prairie, Pine, and Featherville organize extraction teams for on- and off-road accidents (Table 2). The Mountain Home extraction team has battery-powered tools that decrease extraction time associated with generator-powered tools in challenging locations.

Emergency Response Volume

The volume of emergency response requests per year tracks with recreation use on the South Fork Boise River and Anderson Ranch Reservoir. Mountain Home is the main EMS

provider, with Pine Featherville EMS capable of responding to incidents north of the reservoir. Table 3 provides annual call estimates. Call volumes are higher in summer. For example, Pine EMS responded to 23 calls in July 2019, annual call volume is 80 to 100 per year.

Table 2. Extraction capacity

	Staff	Equipment
Mountain Home	10 paid on-call staff	4 trucks Battery-powered tools
Prairie	~10 volunteers	1 truck Tools requiring generator
Pine Featherville	2 volunteers	1 truck Tools requiring generator

Sources: Elmore County, 2019, personal communication

Table 3. Average call volume

	Average Calls	Notes
Mountain Home EMS	3800/year	Includes outlying areas; may assist other calls.
Mountain Home Extraction	300/year	Call volume for other extraction teams unavailable.
Mountain Home Fire	175/year; 90/year	City, rural
Pine EMS	80-100/year	A lot of recreational accidents.
Prairie	10/year	
Boise Helicopter	3/week; 150/year	Can land remotely or in Prairie and Pine parking lots, weather permitting.

Source: Pine EMS, 2019; County Commissioner, 2019

Emergency Response Times

Response times for an ambulance to reach an incident in the primary project area varies due to the mix of paved and dirt roads (Table 4). Mountain Home is approximately 28 miles northeast of Anderson Ranch Dam, and most of the route is on paved U.S. 20 and therefore the fastest route for EMS depending on the location of the incident. Using alternate dirt roads reduces the response time. Water rescue response is deployed from the nearest boat launch to the incident.

Table 4. Average response times

Ambulance Source	Current Response Time (Destinations)		
	Prairie	Trinity Mountain Lakes area	Pine
Mountain Home EMS	90 min.	Varies	70 min.
Pine Featherville EMS	Fall Creek 20–30 min.	45 min.	Water's edge – 5 min.
Prairie^a	River area 40–60 min.	Varies	75–90 min.

^aPine EMS, 2019, personal communication; Elmore County, 2019, personal communication (summer only)

Alternate Routes

The alternate route for Pine Bridge (replaced in October 2018) is a detour on Old Logging Road and Pine-Featherville Road (HD 61). When the Pine Bridge was removed in 2017 for 18 months, a timed temporary light was installed on the single-lane dirt Old Logging Road. Residents reported this slowed travel and added 15 to 30 minutes of travel time; Old Logging Road was difficult to maintain in winter (Pine EMS, 2019). A wide ambulance could not easily pass traffic waiting for the timing light, but the sheriff's vehicle was able to respond more readily (Elmore County Sheriff's Office, 2019).

The alternate route for HD 134 across the Anderson Ranch Dam is HD 131 (Cow Creek Road) to reach areas north of the reservoir. Currently, HD 131 is impassible in winter due to soft road conditions, not just snow cover.

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3. Environmental Consequences

3.1 Methods for Evaluating Impacts

Determination of impact to response time was conducted by comparing target response times for various emergency responders with the assumed delayed response time due to potential detours or other factors, such as boat launch closures or general traffic delays.

Cumulative effects analysis was based on identifying impacts that arise through interaction of the proposed project with other past, present, and foreseeable future projects interconnected to the proposed project in space or time.

3.1.1 Assumptions

This section does not discuss or evaluate dam safety resulting from a change in dam hazard classification or changes in inundation maps downstream in event of dam failure. Also, the estimated emergency response times relative to potential detour routes are preliminary and assume good road conditions.

3.1.2 Impact Indicators and Significance Criteria

Direct effects caused by implementing the action alternatives occur at the same time and place as the proposed construction. Indirect effects are associated with implementing the action alternatives but may occur later, at a different location, or later and at a different location. The direct and indirect effects to transportation and infrastructure are based on the intensity (magnitude), duration, and context of the impacts. Table 5 describes the impact indicators and significance criteria against which effects of the alternatives were evaluated.

The change in emergency response ability or timing was determined by comparing current response times provided by local EMS providers to estimated response access methods and times associated with the proposed action based on vehicle type (e.g., ambulance or helicopter) and detour route distances and estimated travel speeds or to reported conditions associated with previous similar construction projects (e.g., 2018 repairs to Pine Bridge and associated delays due to lane closures). The potential impact to safety of roadway users was determined by considering increases in construction vehicle traffic and changes in road conditions (e.g., lane closures, road widths) associated with the proposed action.

Table 5. Impact indicators and significance criteria for safety

Impact Indicator	Significance Criteria
Change in emergency response ability or timing	Interruption of emergency service vehicle access or more than a minor increase in emergency service response time.
Change in roadway user safety	More than a minor increase in safety risk to motorists or other users of roadways.

3.2 Direct, Indirect, and Cumulative Impacts

3.2.1 Alternative A – No Action

Under Alternative A, current condition and use of the area would remain the same, indicating current safety conditions would continue, and existing emergency response times to this remote area would remain lengthy. This is fully understood by local residents, but this duration may not be understood by new (out-of-area) recreationists. Specifically, relative to the proposed action, Alternative A would not require road closures and construction delays associated with the proposed action, thereby not impacting recreation and safety access or use of the Pine Airstrip. However, under Alternative A, road improvements associated with the proposed action would not be implemented, resulting in no widening of the Anderson Dam Road (HD 134) across the dam or improvements to HD 131. Therefore, no new short-term or long-term direct or indirect effects to safety would occur under Alternative A.

3.2.2 Alternative B – Anderson Ranch Dam 6-Foot Raise

The proposed action would result in the temporary public closure of Anderson Ranch Dam Road (HD 134) and sections of HD 131, HD 61, and all of NFS Road 134A; temporary roadway lane closures necessary for work on MSE walls and bridges; temporary impacts to the use of Pine Airstrip; several temporary boat ramp closures; and brief loss of utility service due to relocations. As described in the 6-foot Dam Raise Engineering Summary (Appendix C), the Pine Bridge closure (4 months) may not be required if Reclamation can obtain a variance on the required minimum freeboard. The duration of Alternative B is estimated at approximately 51 months with traffic detour restrictions in place for 45 months.

Direct Effects

The direct effect of the proposed action is delayed response times as a result of roadway travel delays or access closures, which would increase the time of local response to safety incidences. The delay effect doubles when responders need to return via the same route to transport a victim to another facility. The temporary closure of the Pine Airstrip would preclude its use for fire response if a fire occurred. The direct effects (e.g., delayed emergency response times) will stop when construction is complete. There are no anticipated indirect effects.

Construction Traffic

The increase in vehicle traffic during construction would contribute to a minor increase in safety risk to motorists or other users of local roads. The presence of additional construction traffic on local roadways could temporarily increase the accident risk. The increase in construction-related equipment and vehicles on road shoulders increases the potential conflicts between roadway users. This could include potential conflicts with pedestrians and bicycles on road shoulders near high-use recreation areas. Increased gravel and debris on the road surface from construction and equipment would further impact pedestrians, bicyclists, and motorcycles. A traffic management plan would be developed before construction begins.

to reduce the potential safety risks. Strategies include installing signs, marking detour routes, providing flaggers, providing information to the public, school district, and emergency service providers.

Construction vehicles transporting materials from Mountain Home to Anderson Ranch Dam would add truck traffic on U.S. 20. Most construction traffic associated with the dam raise would be limited to roadways closed to the public (north segment of HD 134). Construction vehicle traffic on reservoir rim roads like HD 61, HD 128, HD 131, HD 120, and HD 121 would be an increase in truck traffic for approximately 305 working days. Construction vehicles would yield to emergency service vehicles.

The short-term interruption of emergency service vehicle access is not expected to result in more than a minor increase in emergency service response time, or safety risk to motorists or other users of roadways; therefore, significant impacts to safety are not expected due to increased construction traffic. When construction is complete, safety response times would return to original condition. Also, after construction, a beneficial effect is that response times to the north and west sides of the reservoir would be reduced because HD 134 over the dam would be two lanes.

Temporary Road Closures and Associated Detours

Temporary road closures could result in potentially significant impacts to safety as a result of increased emergency service response time, especially for ambulances required to travel longer detour route distances and/or on gravel or dirt instead of paved roads. Required detours onto gravel surfaces or less-maintained roadways may impact user safety. A traffic management plan would be developed before construction begins to reduce the potential safety risks. Strategies include installing signs, marking detour routes, providing flaggers, providing information to the public, school district, and emergency service providers.

The Pine Bridge closure may not be required if Reclamation can obtain a variance on the required minimum freeboard. If the minimum freeboard waiver is not obtained, residents of Pine would face travel delays associated with construction on Pine Bridge. For the initial response, a 70-minute drive from Mountain Home to Pine would increase by approximately 15 minutes to 85 minutes (21% increase). If the initial response also required transport back to the hospital in Mountain Home, the additional 15 minutes added to the return (a round trip addition of 30 minutes) would create a 140-minute round trip (21% increase). With the Pine Bridge closure expected to last about 4 months and an annual emergency call volume of 80 to 100 calls per year from Pine, more than 30 emergency calls would be expected and result in delays during in that construction period.

Mountain Home resources support incidents north and west of the reservoir, but, because of the HD 131 detour associated with the HD 134 and Anderson Ranch Dam Road closure, the Pine emergency response resources may be required more frequently. Pine responders also face brief delays on segments of HD 120 as they travel southwest around the reservoir perimeter.

The HD 131 road will be improved and realigned as described in the 6-foot Dam Raise Engineering Summary (Appendix C). During the 43-day construction period of HD 131 to improve winter passage conditions, the detour is HD 134 and HD 121. Residents of Prairie will be affected by these changes. The current drive time from Mountain Home to Prairie is approximately 90 minutes. After the HD 131 improvements, the travel time may be slightly reduced due to fewer curves and an improved road surface.

Temporary road closures and associated detours would increase emergency service response time for ambulances but not helicopters, and detours may change roadway user safety; therefore, based on the stated significance criteria, there is the potential for significant impacts to user safety due to temporary road closures.

Table 6. Summary of proposed road closures, road repairs, and boat ramp closures affecting emergency vehicle response times during construction

Road Closures	Alternate Route	Effect of Alternate Route on Emergency Vehicle Response Times^b
Anderson Ranch Dam and HD 134 closure (Projects 13-15 ^a)	Cow Creek Road (HD 131)	Up to 32 min. of additional travel time
Pine Bridge (Project 17) on HD 61	Old logging road (HD 114) to single-lane McCoy Bridge (same route used during recent construction of Pine Bridge)	Up to 15 min. of delay and additional travel time
Road Repairs	Alternate Route	Effect of Alternate Route
HD 120 east of Castle Creek Campground and near Fall Creek Campground	None required, lane closure with signaling or flaggers	Up to 10 min. of delay, although this is not anticipated with flaggers who will prioritize emergency vehicles
Pine-Featherville Road (HD 61) north of Curlew Creek Campground and Boat Ramp (Projects 4-12)		
Lester Creek Road (HD 128) south of Pine Airstrip (Project 3)		
Various repairs: wall construction, shoreline armoring, culvert rehabilitation		
Boat Ramp Closures	Alternate Route	Effect of Alternate Route
Curlew Creek Boat Ramp (Project 21)	Nearest alternate boat ramp	Up to 35 min. of additional travel time for water-based rescue if a more distant boat ramp is needed. However, no boating accidents anticipated if USFS works with Reclamation to issue a closure for boating during construction.
Elk Creek Boat Ramp (Project 27)		
Fall Creek Boat Ramp (Project 25)		

Source: 6-foot Dam Raise Engineering Summary (Appendix C).

^aProject numbers correspond to Figure 2.

^bBased on conservative driving time of 25–35 miles per hour

Delays Due to Road Repairs

A total of 15 roadway improvement projects are planned around the reservoir (Figure 2). These projects range from wall construction to shoreline armoring. Construction vehicles may cause impacts to local roads, but contractors will be required to maintain the roads to conditions similar to or better than those before construction. Brief (up to 10 minutes),

intermittent traffic delays are not expected to impact emergency personnel responding to incidents.

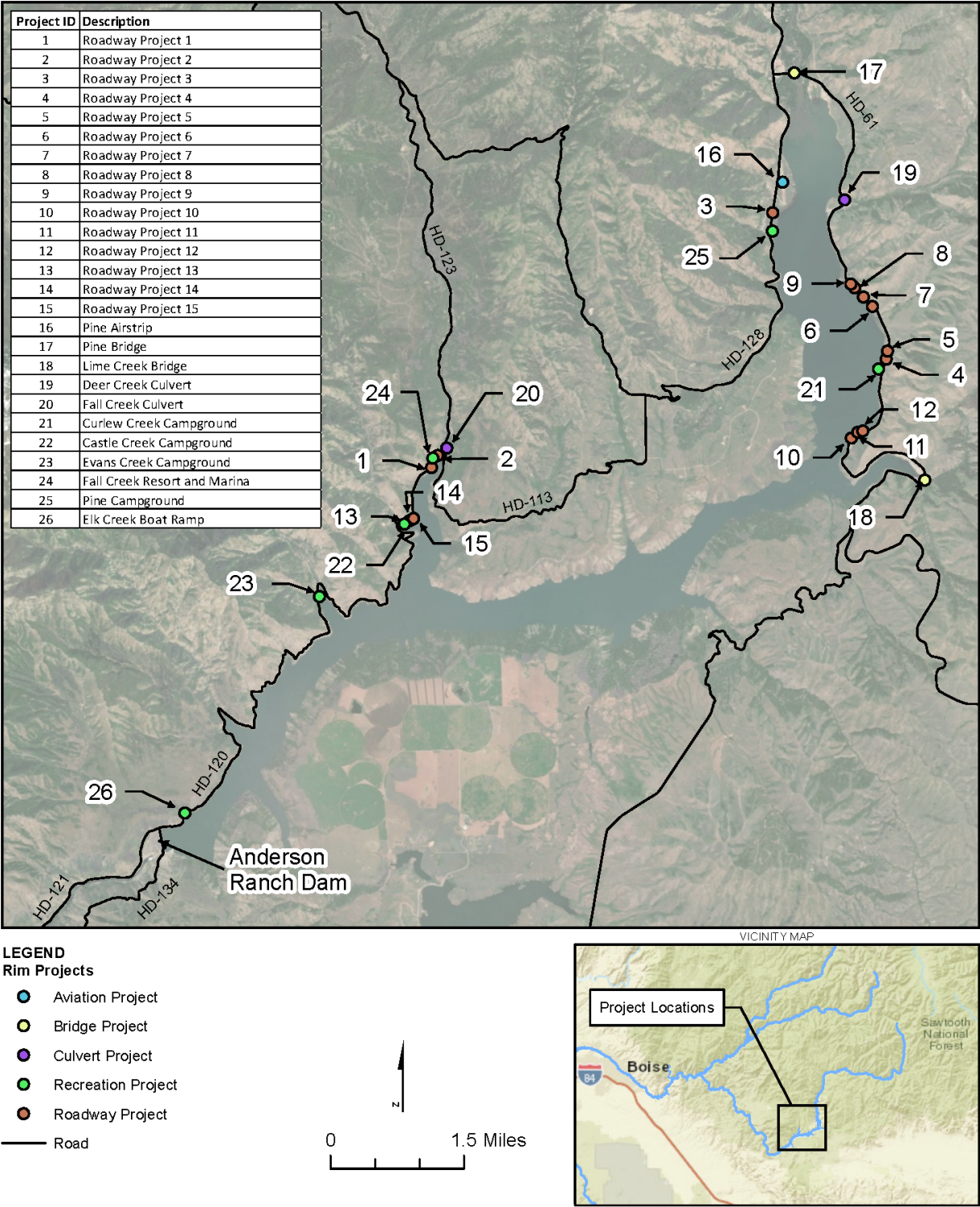
The delay durations will depend on traffic control methods and traffic volumes, and, since not all projects will be constructed simultaneously, the delays are not significant. The community of Pine would be most affected because both western and eastern access points would experience road repairs and delay. These delays would be short-term and temporary. Significant impacts to safety are not expected as a result of delays due to road repairs.

Boat Launch and Campground Reconstruction

Boat ramps managed by USFS will need to be built on higher ground at Curlew Creek, Fall Creek, and Elk Creek. Water rescues launch from the boat ramp closest to the incident, and emergency responses may be delayed by boat ramp closures. Elk Creek boat ramp reconstruction is estimated to last approximately 1 month. The existing Fall Creek boat ramp and dock will be demolished and replaced. This more extensive work is estimated to last 2 months. A portion of the Curlew Creek boat dock will need to be replaced along with the concrete access ramp. This is anticipated to last more than 1 month. While the change in response time varies depending on the location of the incident, the window of boat ramp closure for each is short and temporary. Significant impacts to safety are not expected as a result of boat ramp and campground reconstruction.

The effects of campground reconstruction projects on recreationists are described in the Recreation Specialist Report in Appendix B. The campground projects are not anticipated to affect emergency response access.

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Notes:

1. This map is provided as-is and may contain representations of property boundaries. It is intended for general references only. None of the parties involved in preparing this map or data contained herein warrant or represent information to be complete and accurate and cannot be held responsible for errors or omissions.

Figure 2: Reservoir Rim Projects Overview
Boise Project - Arrowrock Division
Boise River Basin Feasibility Study

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Summary Impact Level

Impact levels and mitigation are described here, and associated mitigation plans are summarized below. Due to the remoteness of the project area, response times are longer than in an urban area like Mountain Home. The potential magnitude of the direct effects of Alternative B is moderate because emergency response delays of more than 30 minutes could have fatal consequences. Mitigation measures to reduce the severity of the impact include staging emergency service resources locally to reduce response times to Pine and areas north of the reservoir, specifically those areas currently serviced from Mountain Home via HD 134 and HD 120. Also, building an ambulance shelter and improving lighting at the landing pad in Prairie would improve winter response time and create potential for nighttime helicopter rescue operations.

Delayed response times from Mountain Home to Pine during the Pine Bridge closure represent a relatively large percentage in total time. The indirect effect of recreational use reduction would decrease the demand for emergency services, but it does not change the magnitude of the effect. The duration would be temporary because it would cease after project construction.

Direct and indirect effects would be regional in geographic extent (extending throughout the project area) because both residents and recreational visitors to the area would be affected. Recreational visitors may be less accustomed to the long response times. The communities of Prairie and Pine would experience greater delayed response times during the window of the Pine Bridge repairs. Overall, delays associated with other reservoir rim projects would be short. With anticipated drop in recreational activity due to campground and boat launch construction, the volume of 911 calls may decline.

3.2.3 Alternative C – Anderson Ranch Dam 3-Foot Raise

The direct and indirect impacts for Alternative C – Anderson Ranch Dam Three-Foot Raise are identical to Alternative B with three differences. As described below, Alternative C would require 7 months less construction duration (44 months), not require closure of the Pine Bridge, and not require realignment or relocation of the Pine Airstrip. All other impacts would remain the same as Alternative B and are not repeated here.

Direct Effects

Similar to Alternative B, the direct effect of the proposed action is delayed response times as a result of roadway travel delays or access closures, which would increase the time of local response to safety incidences. No delays to fire response would occur because Pine Airstrip would remain open under Alternative C. No delays would occur waiting for the traffic signal at Pine Bridge under Alternative C.

Construction Traffic

Similar to Alternative B, the increase in vehicle traffic during construction would contribute to a minor increased safety risk to motorists or other users of local roads. The overall volume of construction vehicles is less under Alternative C. The short-term interruption of emergency

service vehicle access is not expected to result in more than a minor increase in emergency service response time, or safety risk to motorists or other users of roadways; therefore, significant impacts to safety are not expected due to increased construction traffic.

Temporary Road Closures

Similar to Alternative B, the longest roadway closure is HD 134 which would last for approximately 38 months under Alternative C. Response times and detour delay times from Mountain Home to Pine would remain the same as described in Alternative B, although the detour route restrictions are expected to end 7 months earlier under Alternative C.

Alternative C would require no closure of roads or detours associated with construction at Pine Bridge. Residents of Pine would not face travel delays associated with construction on Pine Bridge nor would emergency response times be affected by its closure.

Similar to Alternative B, temporary road closures and associated detours would increase emergency service response time for ambulances but not helicopters, and detours may change roadway user safety; therefore, based on the stated significance criteria, there is the potential for significant impacts to user safety due to temporary road closures.

Delays Due to Road Repairs

Same as Alternative B, the longest roadway closure is HD 134 which is approximately 47 months. Other roadway improvement projects planned around the reservoir as part of Alternative C (Figure 2) will result in brief (up to 10 minute), intermittent traffic delays, not expected to impact emergency personnel responding to incidents. Even without the Pine Bridge closure, the community of Pine would be most affected because both western and eastern access points would experience road repairs and delay. Significant impacts to safety are not expected as a result of delays due to road repairs.

Boat Launch and Campground Reconstruction

Same as Alternative B, significant impacts to safety are not expected as a result of boat ramp and campground reconstruction. The effects of campground reconstruction projects on recreationists is similar to Alternative B and are described in the Recreation Specialist Report. The campground projects are not anticipated to affect emergency response access.

Summary Impact Level

The potential magnitude of the direct effects of Alternative C is high because emergency response delays of more than 30 minutes could have fatal consequences, but the effects may be less than Alternative B. The suggested mitigation measures for Alternative C are the same as those for Alternative B.

Delayed response times from Mountain Home to Pine do not change under Alternative C. The indirect effect of recreational use reduction would decrease the demand for emergency services, but it does not change the magnitude of the effect. The duration would be temporary because it would cease project construction.

Direct and indirect effects would be regional in geographic extent (extending throughout the EIS project area) because both residents and recreational visitors to the area would be affected. Recreational visitors may be less accustomed to the long response times. Overall, delays associated with other reservoir rim projects would be short. With anticipated drop in recreational activity due to campground and boat launch construction, the volume of 911 calls may decline.

3.2.4 Cumulative Impacts

Cumulative effects are analyzed for the Alternative B and Alternative C. Cumulative effects are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The cumulative effects analysis considers projects, programs, and policies that are not speculative and are based on known or reasonably foreseeable long-range plans, regulations, operating agreements, or other information that establishes them as reasonably foreseeable. While no present actions are identified, Reclamation has identified two past actions: Pine Bridge replacement and the 4-foot Anderson Ranch Dam crest raise for security enhancement. Reclamation has also identified two potential future projects to be considered for the cumulative impact analysis: Cat Creek Energy Project and South Fork Boise River Diversion Project. Additional project proposal information for these, as known by Reclamation to date, is provided in Chapter 2 of the EIS.

The proposed 2025 dam construction date is well removed in time from the 2018 installation of the newly replaced Pine Bridge and the 2010 construction of the security berm along the dam crest. Any potential direct or indirect impacts to safety from the proposed Pine Bridge construction or dam raise would not be additive; therefore, no cumulative impacts to safety are identified for these past actions.

The Cat Creek Energy Project and South Fork Boise River Diversion Project would both impact local roads. In the unlikely scenario two or more of the projects would be constructed simultaneously, depending on the specific locations of the Cat Creek Energy and South Fork Boise River Diversion Projects, roads within the project area may see increased traffic during construction and associated delays in emergency response. For example, communities served by U.S. 20, HD 134, and HD 61 may experience emergency response times that may or may not exceed the significance criteria established for Alternative B and Alternative C. Any cumulative impacts to safety, although not expected to be significant, would be dependent on activities developed for construction and operations of the Cat Creek Energy Project and the South Fork Boise River Diversion Project.

3.2.5 Mitigation

Under Alternative B and Alternative C, response times to Pine and Prairie could be significant without staging additional emergency resources in Pine and closer to the reservoir. However, plans to reduce negative safety outcomes for both Alternative B and Alternative C would be similar and include the following:

- Develop traffic management plan before construction to identify and address potential safety risks.
- Use high-tech road signaling or additional flaggers to reduce vehicle wait time at single-lane road and bridge sections.
- Coordinate winter maintenance so detours and single-lane roads are cleared adequately.
- In Pine, stage additional emergency service resources during closures and provide helicopter lighting.
- In Prairie, create a covered ambulance shelter to reduce response times for winter EMS and a parking area and lighting suitable for helicopter landing to reduce response times year-round.

4. References

Elmore County, 2019. Personal communication with Bud Corbus, County Commissioner District 1 Mountain Home. September 4 and October 3.

Elmore County Sheriff's Office, 2019. Personal communication with Greg Berry, Chief of Operations. November 21.

Pine EMS, 2019. Personal communication with Brian Chevalier, Pine EMS Supervisor. September 6.

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