



# Front Country Infrastructure Improvements Project

## *Environmental Assessment*

*October 2022*





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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#### **ON THE COVER**

The Ranger Station located within the Cabin District at Valles Caldera. The Ranger Station would be a primary visitor contact location and become central to operations at Valles Caldera following the implementation of this project.

# Contents

	Page
<b>1. Purpose and Need.....</b>	<b>5</b>
1.1 Proposed Action .....	5
1.2 Purpose and Need for Action .....	5
1.3 Background .....	5
1.4 Impact Topics Retained for Further Analysis .....	7
<b>2. Alternatives.....</b>	<b>9</b>
2.1 Alternative 1: No Action .....	9
2.2 Alternative 2: Conduct Front Country Infrastructure Improvements at Valles Caldera (Proposed Action and Preferred Alternative).....	10
2.2.1 Cabin District Infrastructure Improvement.....	11
2.2.2 Entrance Station Infrastructure Improvements .....	17
2.3 Alternatives Considered but Dismissed .....	21
<b>3. Affected Environment and Environmental Consequences.....</b>	<b>22</b>
3.1 Cultural Resources .....	22
3.1.1 Affected Environment .....	22
3.1.2 Impacts of No Action .....	26
3.1.3 Impacts of Proposed Action .....	26
3.1.4 Cumulative Impacts.....	30
3.1.5 Summary of Impacts.....	31
3.2 Visitor Use and Recreation Setting .....	32
3.2.1 Affected Environment .....	32
3.2.2 Impacts of No Action .....	34
3.2.3 Impacts of Proposed Action .....	35
3.2.4 Cumulative Impacts.....	38
3.2.5 Summary of Impacts.....	38
3.3 Wildlife .....	39
3.3.1 Affected Environment .....	39
3.3.2 Impacts of No Action .....	42
3.3.3 Impacts of Proposed Action .....	42
3.3.4 Cumulative Impacts.....	46
3.3.5 Summary of Impacts.....	47
<b>4. Consultation and Coordination .....</b>	<b>49</b>
<b>5. References .....</b>	<b>50</b>
<b>Appendix A: Cultural Resource Properties Potentially Affected by the Front Country Infrastructure Improvements Project.....</b>	<b>54</b>
<b>Appendix B: Impact Topics Dismissed from Further Analysis .....</b>	<b>56</b>
<b>Appendix C: Best Management Practices .....</b>	<b>61</b>

## List of Tables

Table 1. Proposed Front Country Improvements within the Cabin District .....	16
Table 2. Proposed Front Country Improvements within the Entrance Station .....	21
Table 3. Previously Identified Historic Properties within the Cabin District .....	54
Table 4. Previously Identified Historic Properties near the Entrance Station.....	55

## List of Figures

Figure 1. Map of Valles Caldera National Preserve .....	8
Figure 2. Entrance Station and Cabin District Site Location and Existing Infrastructure .....	9
Figure 3. Cabin District Infrastructure Improvements Map .....	11
Figure 4. Schematic Drawing Showing the Proposed Layout for Parking Area A.....	12
Figure 5. Northeast Side of the Cabin District Ranger Station Showing Stairs Landing in an Unimproved Area.....	13
Figure 6. Entrance Station Infrastructure Improvements Map.....	17
Figure 7. The Corrals Located at the Entrance Station Shown from the Southeast Corner Shown to the Northwest.....	18
Figure 8. Schematic Drawing Showing Proposed Modifications to the Entrance Station Parking Area .....	19
Figure 9. Proposed Boundary for the Baca Ranch Cabin District Area Cultural Landscape also Showing the Area of Potential Effect for Cabin District Front Country Infrastructure Improvements .....	24
Figure 10. Visitors Parking on Unimproved Areas in the Cabin District .....	28
Figure 11. The Bond Cabin in the Cabin District. From the private collection of the Agnes and GW Bond Family, circa early 20 <sup>th</sup> century .....	29
Figure 12. Vehicles Recorded at the Valles Caldera Main Entrance; 2020-2021 (NPS 2022[c]) .....	33
Figure 13. Visitors to Valles Caldera Experiencing Views of the Park.....	36
Figure 14. The VC01 Road Looking from the Cabin District towards Cerro La Jara and the Entrance Station .....	38
Figure 15. Gunnison’s Prairie Dog at Valles Caldera National Preserve .....	41
Figure 16. The La Jara Creek Pond in the Cabin District Showing the Diverse Forest and Grassland Habitat Located in Project Areas .....	44
Figure 17. A Panoramic Photo of the Baca Ranch Cabin District Showing the Forest Grassland Ecotone .....	49

# 1. Purpose and Need

## 1.1 Proposed Action

The National Park Service (NPS) is proposing to make several improvements to the front country area of Valles Caldera National Preserve (Valles Caldera or park) which would include work in both the Baca Ranch Cabin District (Cabin District) and the Entrance Station areas of the park. Front country infrastructure improvements would remain in place until the NPS develops plans to guide the types and intensities of development associated with public enjoyment and use of the park. <sup>1</sup>Many of the improvements would be constructed in such a way that they could be feasibly removed, and the land returned to existing conditions, if their location or function is not in alignment with the subsequent management plans for this area of the park. Once Valles Caldera has solidified the long-term vision and direction for the management of this area, the interim facilities could be retained, removed, relocated, or modified in accordance with the direction contained in the long-term plan. Please see Chapter 2 for more details about the proposed actions.

## 1.2 Purpose and Need for Action

The purpose of the project is to provide visitors to Valles Caldera increased access into the Cabin District, enhance visitor services and experience, and make important accessibility improvements to park infrastructure. The goal of increasing visitor access to the Cabin District is to provide better opportunities for Valles Caldera to interpret and visitors to experience park resources such as the historic legacy of the park, traditional cultural landscapes and tribal connections, and the Valle Grande, which all occur in or near the Cabin District and are fundamental resource values outlined in the Valles Caldera National Preserve Foundation Document (NPS, 2018[a]). The goal of making accessibility improvements to park infrastructure is to ensure compliance with the Architectural Barriers Act and to make the park a welcoming and accessible place for all.

The project is needed because the park is interested in providing increased opportunities for high-quality visitor experience in the Cabin District but lacks the infrastructure there to support the increase without compromising the natural and cultural resource values of the area. The Ranger Station currently has limited parking which is not adequate to support demand, and the building is not retrofitted with accessibility improvements which presents a barrier to visitors with disabilities who wish to visit the area. Currently vehicles park along roads and driveways throughout the Cabin District which has led to resource impact concerns. Action is also needed to provide the infrastructure and visitor services in front country areas necessary to address accessibility deficiencies to existing infrastructure inherited by the NPS.

## 1.3 Background

The United States (U.S.) Government purchased Valles Caldera in 2000 and subsequently passed the Valles Caldera Preservation Act establishing Valles Caldera National Preserve as a unit of the national forest system under the management of the Valles Caldera Trust, a wholly owned government corporation overseen by a board of trustees appointed by the President of the United States. The Valles Caldera Trust managed Valles Caldera from 2000 – 2014 and during this period managed the lands to provide efficient and economically viable practices while conducting a real-world experiment in decentralized public land management and ecosystem restoration.

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<sup>1</sup> Potential environmental impacts related to the removal or relocation of interim infrastructure are not included in this environmental assessment as they are speculative at this time and would be based on the direction of subsequent management plans. Additional NEPA analysis would be conducted prior to removing or relocating interim infrastructure.

In 2014 the U.S. Congress designated Valles Caldera National Preserve as a unit of the National Park System through the passage of the Carl Levin and Howard P. ‘Buck’ McKeon National Defense Authorization Act for Fiscal Year 2015. This legislation transferred management from the Valles Caldera Trust to the NPS after a brief transition period.

Prior to purchase by the federal government in 2000, the property, then known as the Baca Ranch, was privately owned and not publicly accessible. Public access under management of the Valles Caldera Trust (2000-2014) was also limited, and one of the primary motivating factors for Congress to transfer administrative jurisdiction of the park to the NPS was to provide for increased public access and enjoyment. As such, public interest in accessing and experiencing the park has been growing since it became part of the NPS (NPS 2022[a]).

Since 2014 when Congress designated Valles Caldera a unit of the National Park System, the NPS has pursued a series of data gathering and planning efforts necessary to begin enhancing visitor access and the services and interpretive programs available to visitors when they visit Valles Caldera.

After an internal review of the visitor services and experience at Valles Caldera in 2016, the park determined that facilities, services, access, and visitor engagement levels within the front country of the park were not sufficient to meet the purposes for which the unit was established by Congress. For example, as was the case under the Valles Caldera Trust, due to the lack of infrastructure to manage visitors beyond the Entrance Station, private vehicle access was limited beyond that location to 35 vehicles at any given time, and most front country visitor activities conducted were limited to the Entrance Station area, the La Jara Trail, the Valle Grande Pond Trail, and the Valle Grande.

In 2019, the park received funding to prepare a preliminary project planning report to assess planning readiness by identifying and evaluating the range of issues, opportunities, past actions, supporting information, and data needs associated with the park’s request (NPS 2022[a]). The final report recommended that the park undertake comprehensive park planning efforts. However, recognizing the time required to complete this effort, it also recommended interim strategies, including to: establish basic, gravel parking lots for visitors to access the Cabin District; provide for handicap parking adjacent to ranger station; modify entrance station circulation and add an interim entrance booth; and replace existing cable gates with Architectural Barriers Act-compliant automatic gates near the entrance station and Cabin District. The actions contained within this interim strategy is intended to address some of the park’s most pressing and immediate needs for basic facilities and improved access (NPS 2022[a]). This project seeks to implement these interim strategies.

## 1.4 Impact Topics Retained for Further Analysis

The following topics are carried forward for further analysis in this EA:

- Cultural Resources
  - Historic Buildings, Historic District, and Cultural Landscape Inventory
  - Cabin District Archaeology
  - Entrance Station Corral
  - Entrance Station Archaeology
  
- Visitor Use and Recreation Setting
  - Visitor Use at the Entrance Station
  - Visitor Use at the Cabin District
  - Accessibility
  
- Wildlife
  - Jemez Mountain Salamander
  - Gunnison's Prairie Dog
  - Wrinkled Marshsnail
  - Migratory Birds
  - Rocky Mountain Elk

Impact topics which were considered but dismissed from further analysis in this EA can be found in Appendix B.

**Valles Caldera National Preserve**  
New Mexico

National Park Service  
U.S. Department of the Interior

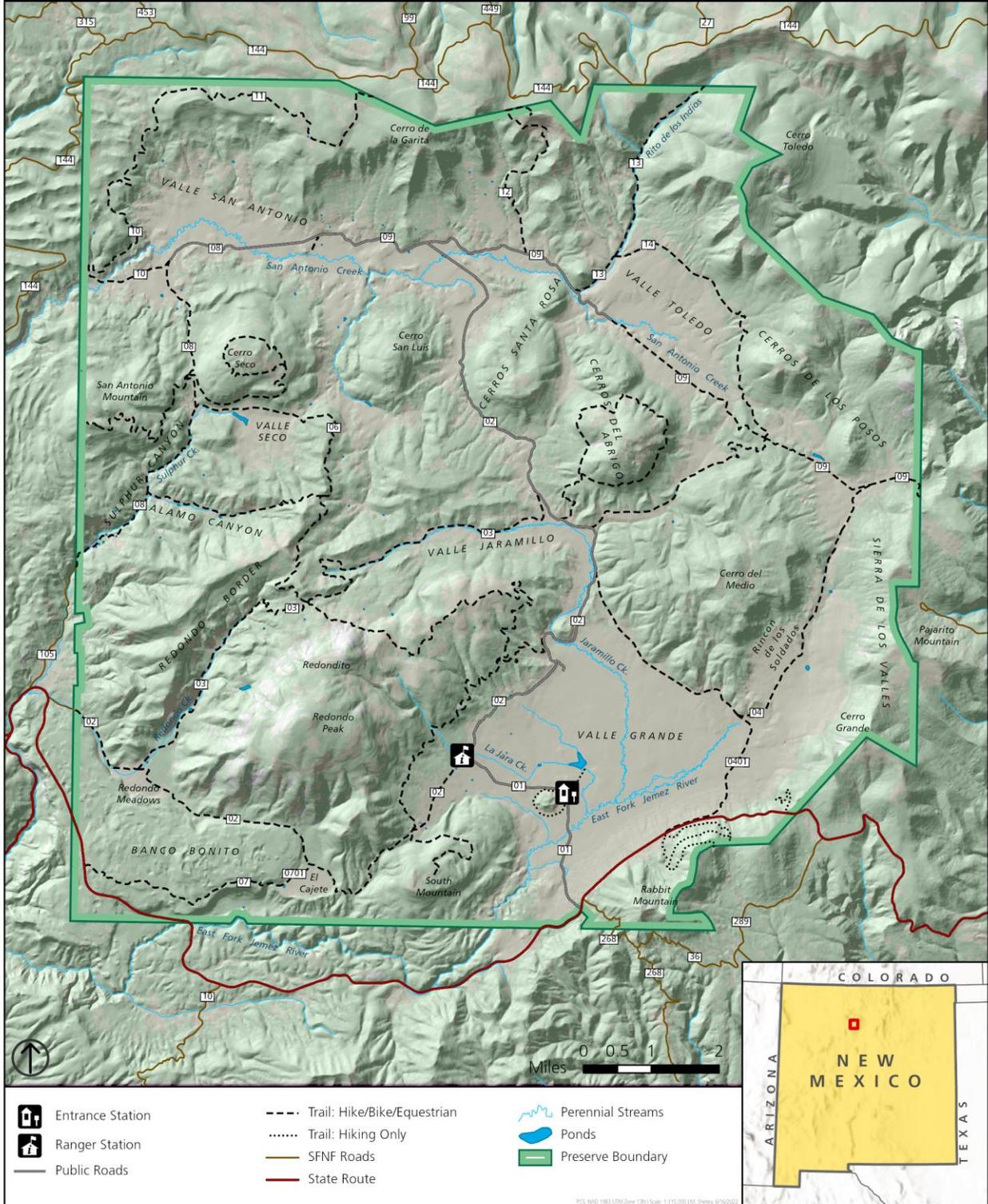


Figure 1. Map of Valles Caldera National Preserve

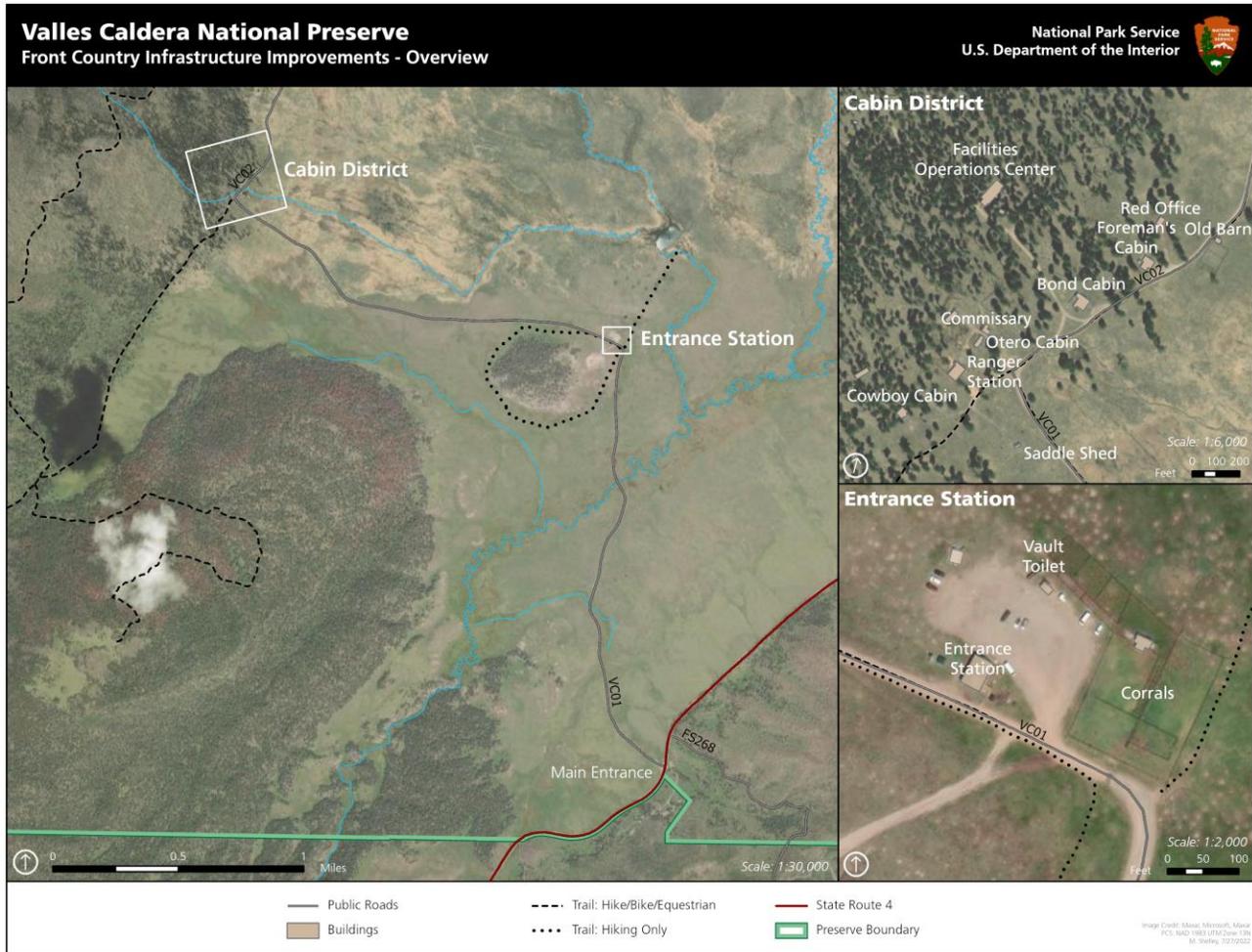


Figure 2. Entrance Station and Cabin District Site Location and Existing Infrastructure

## 2. Alternatives

### 2.1 Alternative 1: No Action

Under Alternative 1, the facilities and programs currently used at Valles Caldera to provide for visitor enjoyment, access, and accessibility would remain in place and unchanged. The park would continue to use the Entrance Station as the primary front country area for visitor engagement. Operations within the Cabin District would continue including visitor engagement at the Ranger Station. Visitors arriving there would continue to park in various unimproved locations and no formalized parking improvements would be made. Access to popular park areas, such as South Mountain, the VC0201 trail, and the History Grove, would continue to be limited to visitors who obtain a backcountry vehicle permit or who arrive there through non-motorized means.

Accessibility improvements to existing park buildings and infrastructure at the Cabin District and Entrance Station would not be implemented. Deficiencies in existing infrastructure would continue to exist that would not meet standards for accessible design put in place by the Architectural Barriers Act. The Ranger Station would continue to be an interactive location between NPS staff and visitors to Valles Caldera.

The current interpretive programs available to visitors in the front country would continue to operate. Direct visitor engagement inside of the Ranger Station would also continue to occur.

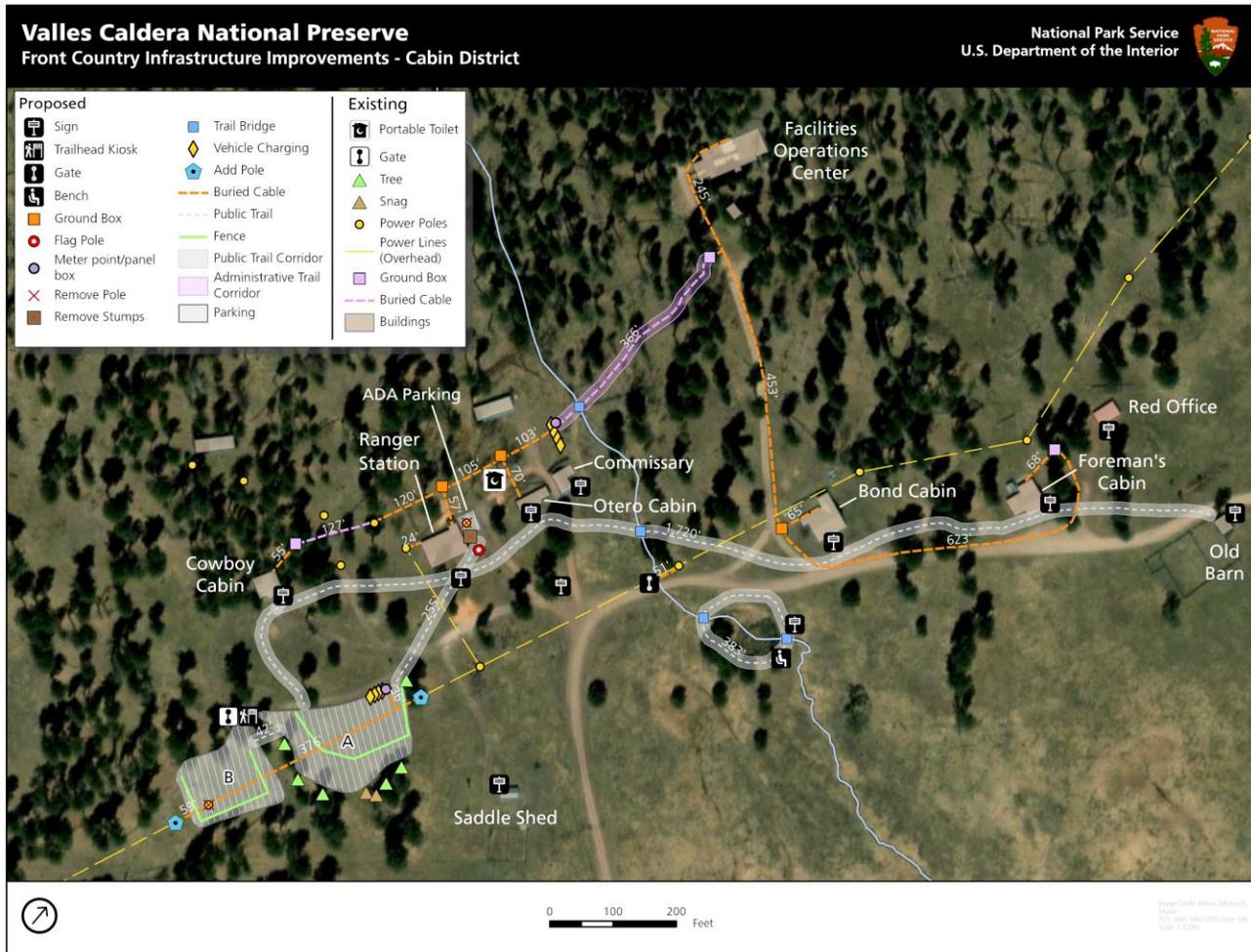
## **2.2 Alternative 2: Conduct Front Country Infrastructure Improvements at Valles Caldera (Proposed Action and Preferred Alternative)**

Under Alternative 2, Valles Caldera would construct front country infrastructure improvements at the Cabin District and the Entrance Station areas of the park. The improvements would occur in two distinct locations and are described below by the activities planned for each area (Cabin District [see Figure 3] and Entrance Station [see Figure 6]). Many of the improvements are intended to be interim in nature where the park could feasibly modify them as needed based on the direction of future plans for these areas. However, not all improvements would be temporary, and it is likely that some would become permanent (see tables 1 and 2).

Construction of parking areas and trails within the Cabin District would include the use of dump trucks, graders, backhoes, excavators, dozers, and compaction rollers. The construction of this infrastructure is anticipated to take approximately 8 months and be implemented between April and November. The work at the entrance station to widen the entrance road, redesign the parking lot, and reroute the section of the VC01 road will require the use of dump trucks, graders, backhoes, excavators, dozers, and compaction rollers. The construction period for improvements at the Entrance Station is anticipated to take approximately 6 months and be implemented between June and November. All equipment would be staged on existing roadways or other improved areas, staging of equipment would not occur on natural or unimproved surfaces. Additional information regarding the construction of these features can be found in section 2.2.1 and section 2.2.2.

Materials necessary for the construction of the parking lots and trails would be sourced from park stockpiles located at the La Jara pit, a formerly used gravel pit, which now serves as a storage location for earthen materials at the park. No new extraction of materials from La Jara Pit currently occurs or would occur in the future in relation to this project. Any materials needed in excess of what is currently available at the La Jara Pit would be acquisitioned from a regional source that is certified weed and seed free.

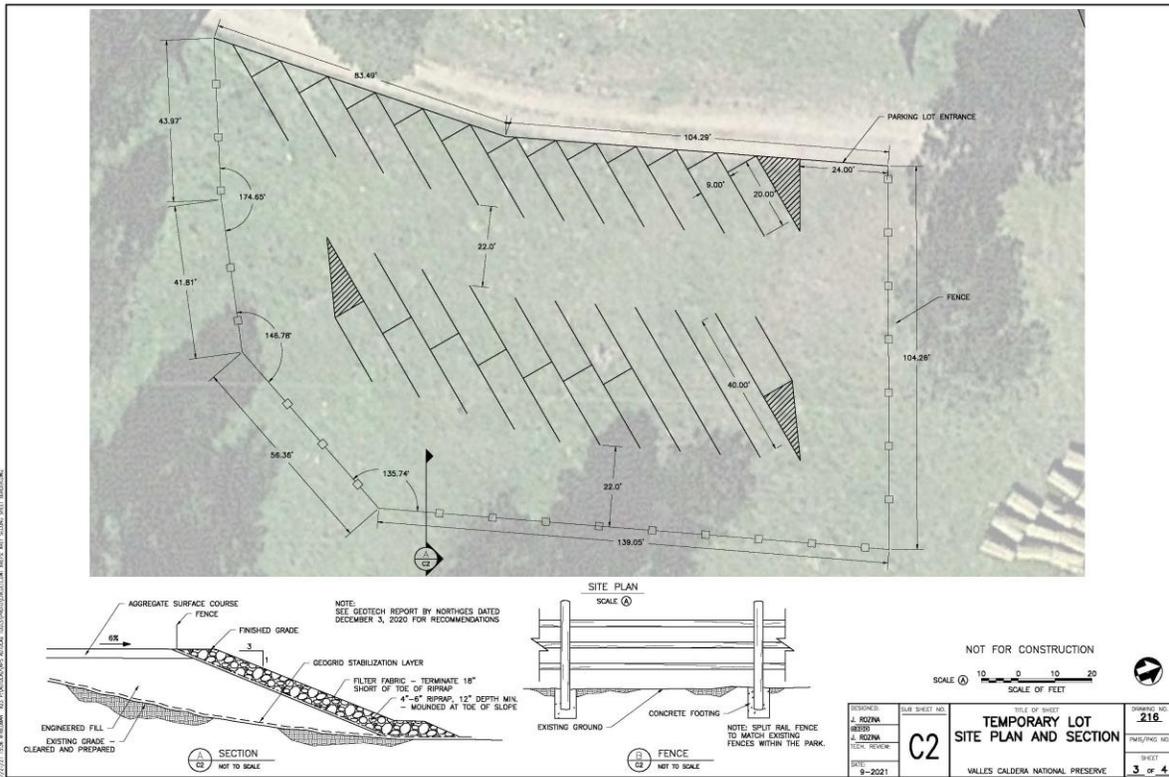
## 2.2.1 Cabin District Infrastructure Improvement



**Figure 3. Cabin District Infrastructure Improvements Map**

The improvements would include the creation of two new parking areas within the Cabin District (parking area A and parking area B). The parking areas would be built to accommodate a combined minimum of 40 vehicles at any given time. The park is estimating needing 4,500 cubic yards of construction fill, base, and surface materials to construct both parking areas. The parking areas would be constructed entirely above grade to eliminate the need for excavation in areas with sensitive natural or cultural resources. Prior to construction a layer of geofabric material will be placed to separate native soils from construction fill. The parking areas would be constructed among a stand of old growth ponderosa pine trees and would result in the removal of several trees determined by the NPS to be in a hazardous condition.

Parking area A (closest to the VC01/VC02 intersection) would be built directly in front of, but across the road from, the Cowboy Cabin. This lot would measure approximately 180' long by 100' wide and would have the designed capacity to accommodate approximately 25 vehicles. Parking area B would be built adjacent to the first lot further down the VC02 road. This lot would measure approximately 150' long by 115' wide and would have the designed capacity to accommodate approximately 15 vehicles. The parking lots would be surrounded by a fence on the three sides away from the VC02 road.



**Figure 4. <sup>2</sup>Schematic Drawing Showing the Proposed Layout for Parking Area A**

An overhead electric line crosses the area that would be occupied by parking areas A and B. Due to the construction method for these parking lots being entirely above grade, the ground level beneath the lines could be raised by as much as 7-feet in some areas, which would make it unsafe for people and vehicles to move beneath them. The park would have new poles placed approximately 25' from the south of parking area B, and north of parking area A, and would bury the section of the electrical line in between these poles. The lines would be buried 18" deep and laid in by digging a trench approximately 24" wide. The length of trenching required for the action would be approximately 435'.

Improvements would be completed in the Cabin District to make the Ranger Station accessible to individuals with a disability. This would include two accessible parking spaces constructed on the northeast side of the Ranger Station. These two spaces would be constructed using fill material to achieve the recommended grade and would be capped with 6" of concrete to create a hardened surface. An existing tree stump near the Ranger Station stairs would be removed. Included in this parking area would be a concrete landing for the ramp to the building. This landing would connect the ramp, parking area, and the back porch of the building. The area around the concrete parking area would have fill added to blend the ground to the existing grade and not exceed 4.5% slope. Handicap parking signs would be installed on posts centered on each parking spot. These posts would be pounded into the ground using a post pounder.

<sup>2</sup> This is a preliminary drawing generally showing the footprint and layout of parking area A. The final alignment and placement of features may differ from what is shown. Any changes as the design progresses would be evaluated to ensure the effects were adequately addressed under NEPA and other environmental compliance laws; if not, additional environmental compliance may be needed.

The stairs on the northeast side of the Ranger Station would be replaced by an Americans with Disabilities Act (ADA) and Architectural Barriers Act-compliant (ABA) accessible ramp. The ramp would replace the steps on the front porch and allow access by visitors with mobility issues. The ramp would be constructed out of in-kind material that is used on the front porch and be anchored to the building on one side and have post anchored to concrete piers on the other side. The concrete piers would have 12” diameter holes dug to a depth of 36” and filled with concrete with an anchored plate imbedded into them. Also, the existing electric pole would need to be removed and moved to a location behind the Ranger Station. In addition to the ramp, improvements to the front entrance door into the Ranger Station would be made to expand the doorway into the building to be no less than 36” wide, which is necessary to meet width requirements, and also to facilitate opening and closing to comply with other accessibility requirements.

Valles Caldera would install six electric vehicle charging stations in the Cabin District split between two separate locations. Three charging stations would be placed behind the Otero and Commissary Cabins near the pole barn in an area currently used for employee parking. Three charging stations would be situated at parking area A. Each charging station would require a hole to be dug to a depth of 36” and filled with concrete. Power would be provided to the electric vehicle charging stations in two ways. 1) From the pole located to the west of the Ranger Station; which is located in-line with the trench being used for the fiber optic cable connection, routed along the length of the trench to the parking area behind the Otero and Commissary Cabins; and 2) A box would be installed along the newly buried powerline which runs beneath the new parking areas. Routing power to the electric vehicle charging stations located at parking area A would occur entirely within the construction fill used to build the parking lot. Trenches needed to bury electrical lines would be 12” wide by 18” deep.



**Figure 5. Northeast Side of the Cabin District Ranger Station Showing Stairs Landing in an Unimproved Area.**

Three new trails are proposed for installation in the Cabin District. Two of the trails would be intended for public use and the third trail would be intended for employee use to connect the new Electric Vehicle Maintenance Garage and Facilities Operations Center (FOC) with the Ranger Station. The trails would be constructed entirely above ground by adding fill to achieve the desired grade and capping the trails with crushed rock to provide a firm surface for visitors to walk on. The trails would cross La Jara Creek in 4 separate locations. Creek crossing would be provided by foot bridges matching the width of the trail with footings installed outside of the riparian corridor associated with the creek. The trails would be 5 feet wide compatible with ABA standards. The park is estimating needing 100 cubic yards of construction fill, base, and surface materials to construct these trails. Prior to construction a layer of geofabric material will be placed to separate native soils from construction fill.

The first trail (Cabin District Trail) is intended to improve the ability for visitors to explore the Cabin District. This would be an interpretive trail running from southwest to northeast exploring many significant cabins throughout the area (see Figure 3). As the cabins throughout the Cabin District are all orientated towards the Valle Grande, the trail would purposefully be routed in front of the cabins in order to provide visitors with scenic views. The Cabin District Trail would be approximately 1,720' long and the main corridor of this trail would cross La Jara Creek in one location. The Cabin District Trail would also include a circular section which would surround a formerly used stock pond supplied by La Jara Creek. This section of trail would cross La Jara Creek in two additional locations and would be approximately 400' long. The circular stock pond section of the Cabin District Trail would include benches and other signage intended to improve the visitor experience.

The second trail (Parking Area Access Trail) would connect parking area A and parking area B to the Ranger Station and would also intersect the Cabin District Trail. The Parking Area Access Trail would originate at the north corner of parking area A and would travel in a northern direction towards the entrance ramp for the Ranger Station, approximately 250'. The trail would continue to connect parking area B with parking area A. The fence surrounding parking areas A and B would include a pedestrian pass through in these locations. This section of the trail would be approximately 50' feet long and would serve as a means for visitors parking in parking area B to make their way into the Cabin District along improved surfaces.

The third trail (Upland Cabin District Trail) would connect the FOC with the Ranger Station. This trail would be approximately 370' long and would also cross La Jara Creek at one location. The trail would originate along the access road south of the FOC, would meander in a southern direction, and would terminate at the existing parking area behind the Otero Cabin and Commissary Cabin. The trail would follow along the route of a previously installed utility corridor containing fiber optic cable, electrical cable, and waterlines. The primary purpose of this trail would be for administrative use.

The park would erect a flagpole in front of the Ranger Station on the southeast side. The flagpole would require a 36" wide by 42" deep hole to anchor the base plate. The hole would be filled with concrete and the anchor plate would be embedded into the concrete.

An automatic gate with programable keypads would be installed to control vehicle access further into the park (vehicle access beyond this point would still require a backcountry vehicle permit available from the Ranger Station) along the VC02 road just north of the intersection with VC01. Installation would require digging a 23" wide by 23" long by 48" deep hole to anchor the gate in concrete. An 8" round by 36" deep hole would be dug to anchor the keypad pole on the entry side of the gate and a pole for the entrapment sensor directly across from the gate opener. Also required would be an 18" deep by 20" wide by 50' long trench from the gate to the power pole next to the bridge to connect power to the gate. There would also be a 10" deep by 12" wide trench run from the gate to the road where a circular loop would be installed just under the road surface.

Valles Caldera would install a trailhead kiosk providing information about park natural and cultural resources and maps for the South Mountain Trail and other local area trails and features. The kiosk would require two

small holes dug to anchor the posts (6" x 36") into the ground. This kiosk would be located on the northwest side of parking lot B leading to South Mountain and VC0201 trails.

Cabins throughout the cabin district would be connected to fiber optic cable to provide internet connectivity. There are two sections of fiber optic cable needed for this component, one which would occur from the FOC south tying into a line that was previously established but never fully connected (fiber optic south), and the other which would extend from the FOC towards the north along a new alignment (fiber optic north).

Fiber optic south would require excavating a trench behind each cabin to tie into the previously existing conduit running parallel to the cabins, providing connection to the Otero Cabin, Ranger Station, and the Cowboy Cabin. At each tie in location a pull box would be installed. The pull boxes would be 24" wide by 30" long and 48" deep and would have an access door flush with the ground. The length of trenching required to connect the Ranger Station is approximately 60', to connect the Otero Cabin is approximately 70', and to connect the Cowboy Cabin is approximately 60'. The previously installed fiber optic cable supplying Fiber optic south was never continued on to the FOC (the place where internet is currently available). Trenching would also be required from the north end of the previously installed conduit, which terminated south of the FOC along the access road, to the FOC.

Fiber optic north is a new line that would originate at the FOC and would terminate near the Foreman's Cabin. A section of this line would follow the same trench that was excavated to run power lines to the FOC. Connecting the two northern cabins would also require pull boxes 24" wide by 30" long and 48" deep with access doors flush to the ground. This line would follow existing roads to minimize impacts to undisturbed areas for installation and maintenance. The entire length of fiber optic north would be approximately 1,400'. The point where the Bond Cabin is tied into Fiber Optic North would occur at the shortest possible distance from the line to the rear of the cabin, involving trenching of approximately 70'. From the end of the line to tie into the rear of the Foreman's Cabin additional trenching would be required of approximately 70'.

The park would implement programs in the Cabin District intended to provide education and engagement for park visitors and facilitate the opportunity for high quality desirable experiences in this area. This would include guided walks through the district exploring human history and interaction with the natural environment, ranger talks at the Ranger Station, new exhibits exploring the major themes of Valles Caldera, orientation and interpretation waysides in the cabin district, audio tours, and improvements to the park website covering the Cabin District. Ranger led programs would be available at the Ranger Station on a predictable and recurring basis. These programs would have seasonal variability but would likely occur at least daily during the peak visitation months of April – October, and on a reduced schedule for the off-season months November – March.

Facilities which provide essential services to visitors in the front country (restrooms, trash and recycling receptacles, and directional signage) would be installed within the Cabin District as necessary. The park would include a minimum of two additional wildlife resistance trash and recycling receptacles in the Cabin District near areas where visitors are likely to congregate (for example, the picnic tables outside of the Ranger Station). The incorporation of additional facilities and their placement would be determined by park staff prior to installation. If additional restrooms are recommended, they would be temporary portable toilets which would not require subsurface ground disturbance for installation. Informational signage within the Cabin District would be installed primarily along the newly constructed trails and in other areas where appropriate.

**Table 1. Proposed Front Country Improvements within the Cabin District**

<b>Feature</b>	<b>Estimated Duration</b>	<b>Purpose</b>
Parking area A	Interim	Visitor parking
Parking area B	Interim	Visitor parking
Buried electrical lines	Permanent	Safety
ADA Parking at Ranger Station	Permanent (for the life of the building)	Accessibility improvement
Ramp and entryway improvements to Ranger Station	Permanent (for the life of the building)	Accessibility improvement
Electric vehicle charging stations	Interim	Sustainability improvement
Electric Vehicle charging stations – power cable connections	Permanent (but could be abandoned in place)	Utility
Cabin District Trail	Interim	Visitor use and enjoyment Accessibility improvement
Parking Area Access Trail	Interim	Visitor use Accessibility improvement
Upland Cabin District Trail	Interim	Administrative use Visitor use and enjoyment Accessibility improvement
Flagpole	Permanent (as long as the Ranger Station continues to be used)	Visitor enjoyment
Automatic Gate	Interim	Vehicle access control
Trailhead Kiosk – South Mountain Trail	Interim	Visitor use and enjoyment
Fiber Optic Cable Installation	Permanent (but may be abandoned in place)	Administrative use
Increased interpretive programs	Interim	Visitor use and enjoyment
Restrooms, trash and recycling receptacles, and signage	Interim	Visitor use and enjoyment

## 2.2.2 Entrance Station Infrastructure Improvements



**Figure 6. Entrance Station Infrastructure Improvements Map**

Starting along the VC01 at the curve just before the Entrance Station the road would be extended into what is currently the corrals to bring the inbound lane of traffic to the center of the parking lot. This would allow for one way traffic into the parking lot and direct all visitors through the newly constructed entrance booth. Also, as part of this project a 300' section of VC01 that runs from the curve to 150' past the Entrance Station would be widened to a width of 30' to accommodate a 3' wide shoulder on each side of the road and two 12' wide lanes. This would allow larger delivery vehicles and employees to bypass the entrance booth. The inbound lane in front of the Entrance Station would have an automatic gate opener installed that could be operated by a keypad. For a 100' section of this widened road; where the gate opener would be, a 2' wide median would be built to differentiate the inbound lane from the outbound lane and to protect the keypad openers at the gates. Replacement of 3 existing culverts and installation of 3 new culverts would be needed to allow for water to flow through the bar ditches along the road. These would be 24" round culverts and would be at each entry point to the parking lot and where the new road intersects with the VC01.

The corrals that are next to the Entrance Station would be removed. Removal would include cutting up iron pipes and pulling up the concrete bases and disposing outside of the park. Cutting iron pipes would be done using acetylene torches, grinders, reciprocating saws, or other similar tools. The posts are anchored in concrete which would be completely removed or abandoned in place using heavy equipment and backfilled. The

concrete loading ramp and the weighing scales would also be demolished and removed using a backhoe or excavator and dump truck. Finally, the small building in the corrals would be removed and hauled away.

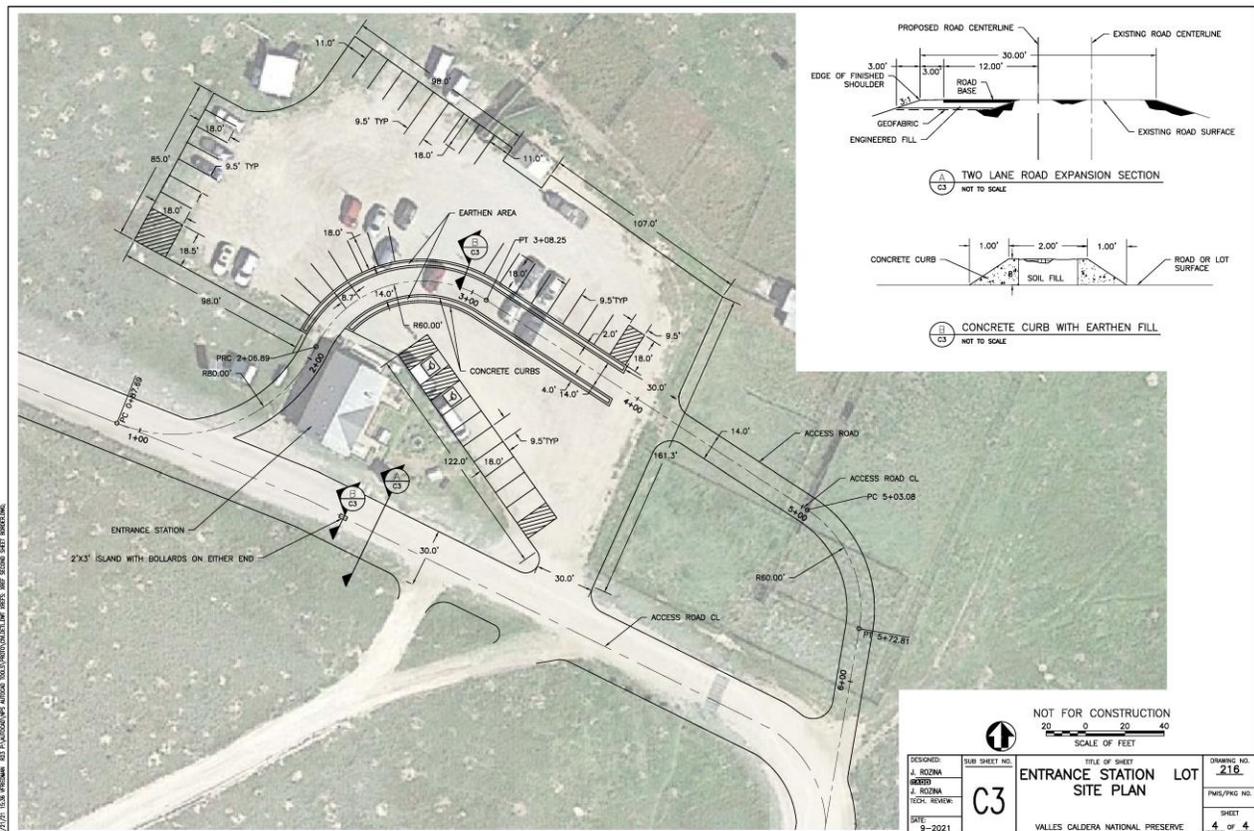


**Figure 7. The Corrals Located at the Entrance Station Shown from the Southeast Corner Shown to the Northwest**

After removing the corrals, the park would reroute a section of the Valle Grande Pond Trail so that the trailhead is located near the vault toilet. The rerouted section of trail would be built entirely above grade to reduce impacts to natural and cultural resources in the project area. Prior to construction a layer of geofabric materials will be placed to separate natural soils and construction and fill materials. The new section of trail would be constructed to meet ABA accessibility standards: 5' wide, have a hardened compacted gravel surface, and would meet the necessary grade requirements. The rerouted section of trail would be approximately 370' long and would transition through the area previously occupied by the corrals.

The park would construct a new entrance booth in the Entrance Station parking area attached to the west side of the Entrance Station. This would be a staffed booth where employees working inside the Entrance Station would be able to step down into the booth when vehicles are present. The entrance booth would have an adjacent swing gate which would remain open during park business hours. The park will utilize the entrance booth to provide for access control to the Cabin District during peak hours when capacity of the newly proposed parking areas may be exceeded, or when weather conditions or other safety considerations warrant limiting access to the Cabin District. The parking lot would be redesigned to allow for the entrance road to run through

the middle of the current parking lot and then by the side of the Entrance Station where the entrance booth would be located. On each side of the road would be parking spaces. The side closest to the Entrance Station would be reserved for ADA, electric vehicles, and staff parking, and the side by the existing vault toilet would provide general visitor parking. The first two parking spots next to the vault toilet would also be converted into ADA parking. All ADA parking spots would have a hardened surface to comply with ADA standards. This would be accomplished by digging the parking area 6" down and replacing the existing soil with compacted road base mixed with road base binder (such as PineBind or similar product). The overall footprint of the parking lot would remain the same, but additional curbing required to delineate the road from the parking lot would be installed on top of the existing grade. Additional fill dirt would be brought in to fill between the curbing to better define the road and parking lots. The only digging that would be required would be for the ADA parking spaces, signposts, bollards, and the installation and/or replacement of culverts.



**Figure 8. <sup>3</sup>Schematic Drawing Showing Proposed Modifications to the Entrance Station Parking Area**

An automatic gate with programable keypads would be installed to regulate visitor access along the VC01 road adjacent to the Entrance Station. This gate would provide entry to staff, contractors, researchers, and delivery drivers and would eliminate the requirement by visitors to exit their vehicle in order to open/close the gate as they exit the park. Installation would require digging a 23" long by 23" wide by 4' deep hole to anchor the gate in concrete. An 8" round by 36" deep hole would be dug to anchor the keypad pole on the entry side of the

<sup>3</sup> This is a preliminary drawing generally showing the footprint and layout of the redesigned parking area at the Entrance Station. The final alignment and placement of features may differ from what is shown. Any changes as the design progresses would be evaluated to ensure the effects were adequately addressed under NEPA and other environmental compliance laws; if not, additional environmental compliance may be needed.

gate and a pole for the entrapment sensor directly across from the gate opener. Also, an 18" deep by 20" wide trench from the gate to the Entrance Station would be necessary to connect to available power. The trench would extend approximately 20' long and would be routed underneath roads and parking lots. There would also be a 10" deep by 12" wide trench run from the gate to the road where a circular loop would be installed just under the road surface.

The propane tank that supplies heating fuel to the Entrance Station would be moved from its current location approximately 70' northeast to be co-located with existing solar panels and the solar shed. This would require a 12" wide by 18" deep trench to be dug from the new tank location to the Entrance Station to supply the gas line in. The tank would rest on top of 4 concrete pavers approximately 12"W x 12"L x 12"D under each leg of the tank.

Modifications to the Entrance Station would also include the installation of a new flagpole. The current flagpole is attached to the corrals, which are proposed for removal, and would be replaced. The new flagpole would be installed on the east side of the building and would require a 36" wide by 42" deep hole to anchor in place would not require lighting. The hole would have concrete added and then the anchor plate for the flagpole would be embedded into the concrete.

Valles Caldera would also replace the existing deck on the Entrance Station with a new deck using in-kind materials. The overall size of the deck would remain the same with one exception, the ramp on the front of the building would be extended to meet ADA/ABA standards for slope and width. This would include extending the ramp out in front of the deck to gain the extra length necessary to reduce the slope. Also, the post for the deck would be buried in the ground to a depth of 36" reducing the movement of the deck from summer to winter when the ground heaves due to freezing conditions.

Two electric vehicle charging stations would be installed in the Entrance Station parking lot adjacent to the building. This requires holes to be dug to a depth of 36" and filled with concrete to anchor the charging stations. Trenching from the Entrance Station would also occur to run the electrical cables to the charging stations, the trench would be 12" wide by 18" deep.

Solar panels would be installed on the roof of the Entrance Station to supply additional power to the building to run electric heaters and to power electric vehicle charging stations. These panels would be mounted on the roof at a similar angle as the existing solar array nearby. There would be a total of 21 solar panels in seven sets installed on the roof of the Entrance Station, the solar panels would occupy an approximate 5' x 12' area on the Entrance Station roof. The solar power generated would be stored in a previously established battery system connected to the nearby solar array and would provide direct power to the building and surrounding systems.

The trailheads for the Valle Grande Pond Trail and the La Jara Trail would have new kiosks installed providing information about park natural and cultural resources and maps for the trails. Each kiosk would require two holes dug to anchor the posts (6" x 36") into the ground. The Valle Grande Pond Trail kiosk would be located on the northeast corner of the Entrance Station parking lot near the restroom and where the newly rerouted section of trail connects to the parking lot. The La Jara Trail kiosk would be located on the southeast corner of the Entrance Station parking lot.

Following the infrastructure improvements, the Entrance Station building would be converted from use as a visitor engagement facility to administrative use by park staff. The bookstore operation currently located at the Entrance Station; operated by the park's cooperating association, Los Amigos de Valles Caldera, would transition to the Ranger Station in the Cabin District. Additionally, NPS rangers currently staffing the Entrance Station would be reorientated to provide primary visitor engagement services at the Ranger Station. Public access to the Valles Caldera Entrance Station building would no longer be available.

Interpretive programs at the Entrance Station would continue to be available but on a more limited basis. Educational waysides would be put in place to provide information and help orientate visitors to the park.

**Table 2. Proposed Front Country Improvements within the Entrance Station**

Feature	Estimated Duration	Purpose
Entrance Road (VC01) modifications	Interim	Visitor access improvements Safety
Corral removal	Permanent	Visitor enjoyment Restore natural conditions
Reroute section of Valle Grande Pond Trail	Interim	Visitor use and enjoyment Accessibility improvement
Entrance booth installation	Permanent Interim (location of booth)	Park administration
Parking lot redesign	Interim	Visitor access improvement
Entrance control gate along VC01	Interim	Vehicle access control
Propane tank relocation	Interim	Visitor access improvement
Replacement flagpole	Interim	Visitor enjoyment
Replace Entrance Station deck	Interim	Accessibility improvement
Electric vehicle charging stations	Interim	Sustainability improvement
Electric Vehicle charging stations – power cable connections	Permanent (but may be abandoned in place)	Utility
Solar panel installation	Interim	Sustainability improvement
Trailhead Kiosks – Valle Grande Pond Trail / La Jara Trail	Interim	Visitor use and enjoyment
Conversion of Entrance Station to administrative use	Interim	Administrative use
Modified interpretive programs	Interim	Visitor use and enjoyment
Informational signs and waysides	Interim	Visitor use and enjoyment

## 2.3 Alternatives Considered but Dismissed

The park considered various other alternatives related to implementing infrastructure improvements which would facilitate improving the visitor experience.

Some of the alternative elements considered and dismissed from further consideration included the relocation of the entrance booth from the Entrance Station to the intersection of NM4 and the main park entrance road (VC01), improvements to the pullouts along NM4 which overlook the Valle Grande, establishment of parking areas and infrastructure improvements outside of the Cabin District (near History Grove, closer to South Mountain, or Hidden Valley for example), removal of the backcountry vehicle permit requirement, and construction of a new visitor center adjacent to NM4. One primary goal of this project is to implement infrastructure improvements which leverages the facilities and infrastructure which are already existing within the park, specifically the developments at the Entrance Station and at the Cabin District, while the park works concurrently on the development of long-term plans which will provide guidance on the types and intensities of developed facilities appropriate for areas outside of the front country infrastructure improvements project areas. While these ideas warrant greater consideration, they are outside of the scope of front country infrastructure improvements for the Cabin District and Entrance Station.

Decisions on whether to move forward with these ideas and others would be made during long-term planning processes.

## 3. Affected Environment and Environmental Consequences

### 3.1 Cultural Resources

Valles Caldera has a rich prehistoric and historic record, with the area being an obsidian source area for prehistoric people and the grasses of the valles used for prehistoric hunting areas and historic sheep and cattle ranching areas (Norris and Elliot 2021), which has left numerous cultural resources in the area. The area was favorable in the past, as in the present, due to its setting at the interface of woodland areas, the Valle Grande meadows, or proximity to La Jara Creek, which is an upper tributary to the upper East Fork of the Jemez River. The area was used for hunting, camping, habitation, and other logistical use areas where lithic production activities took place. The Cabin District was also the historic ranching headquarters throughout the twentieth century and includes buildings and structures from the Otero, Bond, and Dunigan periods of ownership.

#### 3.1.1 Affected Environment

##### Historic Buildings, Historic District, and Cultural Landscape Inventory

The Baca Ranch Cabin District Area is historically part of the 19<sup>th</sup> century Spanish and U.S. land grant “Baca Location No. 1,” and is today managed as part of Valles Caldera. The buildings within the Baca Ranch Cabin District Area are the ranch headquarters buildings constructed throughout multiple ownership periods during the 20<sup>th</sup> century (Otero family, Bond family, and Dunigan family). The buildings within the Cabin District exemplify the ranching history of Valles Caldera. The buildings have been documented and individually evaluated for eligibility on the National Register of Historic Places (NRHP [Dennison et. al. 2007]). Six historic buildings occur within the proposed action area: Otero Cabin, Commissary Cabin, Cowboy Cabin, Saddle Shed, Bond Cabin, and Foreman’s Cabin. Whereas four of the buildings have been determined to be individually eligible to the NRHP, two of these buildings warrant further consultation with New Mexico State Historic Preservation Office (SHPO) to resolve eligibility: Saddle Shed and Foreman’s Cabin. The Ranger Station, which was constructed in 1992, is not eligible to the NRHP. See Appendix A for further information for each building, including NRHP eligibility. With the exception of the Saddle Shed, the historic setting has been identified as one of the characteristics that qualifies each of these buildings for NRHP eligibility (Dennison et. al. 2007).

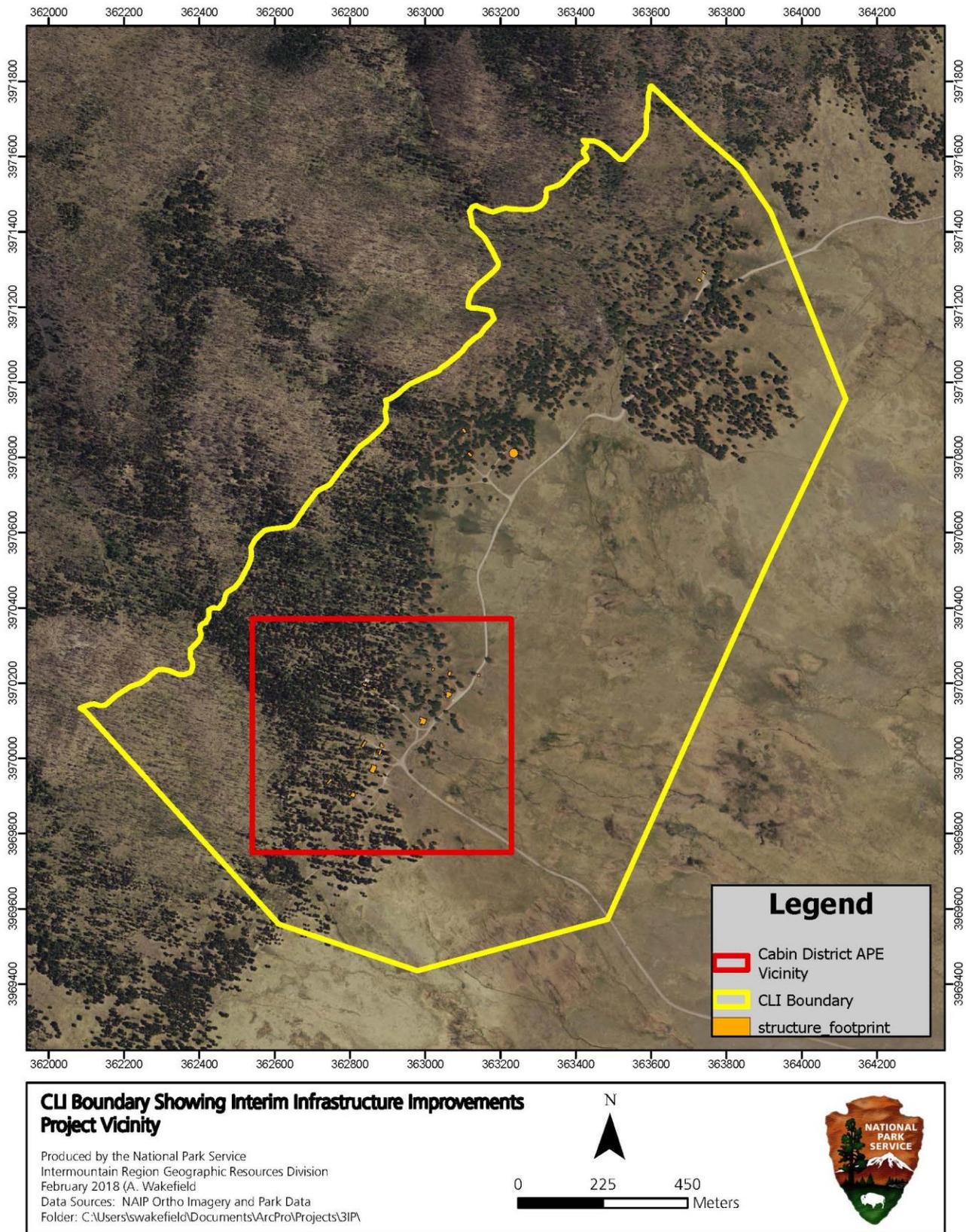
The Baca Ranch Cabin District Area has been identified as a potential historic district (Steely 2015, NPS 2020[b]). In the draft NRHP historic district nomination (Steely 2015), the historic district is identified as having statewide significance under criteria A and C during the period of 1899 – 1965. The historic district was proposed as a 43-acre rural landscape (Steely 2015) and consists of eight contributing buildings (log and rustic wood shelters), one contributing structure (the road), one contributing site (ruins of the Sheep Barn). Additionally, there are five noncontributing properties (Dunigan-era structures).

As with the individual buildings described above, the historic district documentation (Steely 2015 and NPS 2020[b]) identifies the historic setting as integral to the historic integrity of this historic property. Regarding the significance and integrity of the historic district, the draft NRHP nomination states: “This striking setting of forest meadow interface between Redondo Peak and Valle Grande Provides a physical environment appearing much today as it did at the turn of the 19<sup>th</sup> century (Steely 2015).” Closely aligned with setting are historic association and historic feeling: “All buildings representing the 1915-1965 development period, along with functional and largely compatible post-1965 additions, demonstrate the historic district’s strong integrity of association” with the natural and cultural features that “convey the district’s historic character (Steely 2015).” Based on the NRHP nomination form the historic setting, feeling, and association are important aspects of integrity to the historic district.

The draft Cultural Landscape Inventory (CLI) documented the same historic district as the draft NRHP nomination form, with the CLI naming the historic district the Baca Ranch District (NPS 2020[b]). The proposed CLI historic district encompasses the boundaries of the proposed historic district described above (Steely 2015), but the CLI expands the period of significance from 1860 to 1970 and expands the district boundaries to cover a 603-acre area to include the Dunigan-era pole barns, A-frame buildings, and lodge as well as History Grove (see Figure 9 for general CLI boundary in relation to the project area). The CLI proposes inclusion of other natural and built environment features (e.g., fences, earthen tanks, etc.) as contributing to district's NRHP eligibility (NPS 2020[b]). The CLI identified the Baca Ranch District "as a vernacular landscape significant under Criteria A, C, and D, stating: [The Baca Ranch District] includes segments of historic woodland and grassland that supported grazing, recreation, and cinema at the site. This landscape retains integrity of location, design, setting, materials, workmanship, feeling, and association. Its condition is good, both because of maintenance over time and because of the rehabilitation of previously over-grazed grassland (NPS 2020[b])." The old growth ponderosa pine trees, grasslands, open vistas of the Valle Grande, rustic log buildings and aspects of the physical environment all contribute to the historic district's setting.

Both the NRHP nomination form (Steely 2015) and CLI (NPS 2020[b]) describe the historic setting as being significant to the historic district. Although the setting retains a high degree of integrity, there have been some changes to the setting from past activities. The Ranger Station, FOC, and roads and parking areas affect the setting to different degrees. While the Ranger Station does impact the setting as it is a log building constructed in 1992 and sits between the Otero Cabin and the Cowboy Cabin, it has been present since 1992 before federal ownership of Valles Caldera and its log construction is not wholly out of character with the historic district's dominant historic architecture. The Ranger Station was determined to be non-contributing to the historic district (Steely 2015 and NPS 2020[b]). In 2021, the park completed a project to construct the new FOC within the Cabin District, which resulted in the addition of a non-historic features within the historic district and potential cultural landscape. The FOC is set back (behind and to the west of the historic buildings) from the main concentration of historic buildings and is almost completely obscured by trees from all of the contributing features. At the time of the drafting of the NRHP nomination form and the CLI, the FOC did not exist and therefore was not discussed in these documents. However, because the location of the FOC is obscured and has a minimal impact to the historic district's setting, it was determined by Valles Caldera in consultation with SHPO that its construction would result in no adverse effect to the historic district (NPS 2018[b]). Roads and parking areas also have limited effects to the historic setting primarily because the roads are not configured much differently than their historic configuration and in fact the VC02 is defined as contributing structure to the historic district (Steely 2015 and NPS 2020[b]). Although there are some modern, non-historic intrusions to the historic district (e.g., Ranger Station / HCPI 48496 and the recently NPS-constructed FOC), the historic setting is both significant to the historic district's NRHP eligibility and has a high degree of integrity (Steely 2015 and NPS 2020[b]).

Cabin District historic buildings and areas that are within the potential historic district and cultural landscape boundaries have been contemporarily impacted by visitor use activities. These impacts include vegetative trampling, development of social trails, parking in unimproved areas, unauthorized access into closed areas (e.g., onto historic building porches), improper trash disposal, aspen carving, and other visitor use related behaviors. Unauthorized collection of prehistoric and historic artifacts is thought to occur due to the abundance and visibility of archaeological resources in this area. Repeated vehicular or pedestrian use of unimproved areas has resulted in vegetation becoming trampled and leads to the exposure of barren ground which impacts natural resources and detracts from the historic setting of the area. Damage to historic buildings from graffiti or vandalism is not widely occurring with only discrete small-scale instances being observed. Generally, these conditions occur infrequently and have resulted in only minor damage, deterioration, or detracting from the natural and cultural resources and values of the area. Future planned actions include adaptively renovating and repurposing historic buildings within the Cabin District for contemporary administrative or visitor use.



**Figure 9. Proposed Boundary for the Baca Ranch Cabin District Area Cultural Landscape also Showing the Area of Potential Effect for Cabin District Front Country Infrastructure Improvements**

### Cabin District Archaeology

Based on previous cultural resources studies it is known that the Cabin District area is rich in prehistoric archaeological sites (Steffen 2002, Abbott and Cordua 2003, Cannon et. al. 2004, Jarman et. al. 2017, Scheintaub and Jarman 2017, Civitello et. al. 2017). All of these sites are prehistoric sites defined by obsidian lithic debitage and tools, with Archaic components identified at some of the sites. Approximately 90% or more of the Cabin District has been surveyed for archaeological resources, with a total of five archaeological sites documented within the Cabin District area where project activities will occur. These sites are LA136351, LA137534, LA137536, LA137537, and LA140252. The sites within the Cabin District listed above are eligible under Criterion D for their potential to yield significant information that may contribute to our understanding of prehistory. The FOC was built atop the prehistoric archaeological site LA140252. Although LA140252 was previously determined eligible, the FOC was subsequently constructed on this site resulting in an adverse effect, and the site currently needs to be updated to determine if any portion of the site remains eligible after construction of the FOC. Additionally in 2004, the Valles Caldera Trust implemented a project to replace underground utility lines in the Cabin District which directly impacted archaeology in LA135604 resulting in limited data recovery at this site. For additional information regarding individual sites, including NRHP eligibility status, see Appendix A.

Archaeological investigations in the form of shovel probe testing throughout the Cabin District has shown a high propensity of archaeological resources in this area (Decker 2010). Of the shovel tests with the highest artifact counts, 6 shovel tests identified over 100 artifacts; of these, one had historic (metal and glass) material. Artifacts recovered from the shovel tests is predominantly obsidian debitage. The shovel probe testing has demonstrated that the subsurface archaeological deposits within the Cabin District are much more extensive than the currently defined archaeological sites, which are primarily defined by their surface expression which corresponds with surface ground disturbance and erosion. Results of the Cabin District testing have demonstrated archaeological deposits across the area, likely representing multiple temporal components spanning several thousand years. Although some areas within the Cabin District may have discrete areas where subsurface archaeological materials are not present or present in low densities, the Cabin District area overall appears to be underlain by pervasive and continuous subsurface archaeological deposits.

Based on previous subsurface testing throughout the Cabin District, most of the project area has the potential for subsurface archaeological deposits immediately below the ground surface and up to 0.50 meters below the ground surface (Decker 2010). Where ground disturbing activities have not occurred, the archaeological deposits are generally stable and have not been exposed. However, where previous ground disturbance has affected the archaeological deposits, artifacts have been exposed and these areas largely define the currently recorded archaeological site locations which were originally defined by surface visibility of artifacts. Previous ground disturbance within the Cabin District includes construction of historic buildings, construction of the Ranger Station in 1992, construction of the FOC which adversely affected archaeological site LA140252, construction of waterlines to the cabins, and construction and use of roads and parking areas. Where ground-disturbing activities that are 0.50 meters in depth or deeper exist, it can be expected that there is a low potential for subsurface archaeological deposits.

### Entrance Station Corral

Within the vicinity of the Entrance Station there is a corral, the Valle Grande Corral, which is one of the dominant vestiges from the 20<sup>th</sup> century livestock grazing that occurred in the Valle Grande. Although a corral has been in this location since at least the mid-20<sup>th</sup> century, the corral underwent significant modifications during the latter part of the 20<sup>th</sup> century as it was converted from a wooden corral to a metal corral. The corral was previously determined not eligible for inclusion on the NRHP with SHPO concurrence (SHPO 2017); however, in a January 2022 meeting between Valles Caldera and SHPO, SHPO indicated that they would like to consult further on the NRHP eligibility of the corral to better understand its potential NRHP eligibility or its potential to contribute to a historic district. Whether NRHP eligible or not, the corral may have potential to

contribute to interpretation of the historic legacy of ranching activities that occurred at that Baca Ranch (per Fundamental Resources and Values in the category of Prehistoric and Historic Legacy (NPS 2018[b])).

### Entrance Station Archaeology

The Entrance Station overlaps with a large, multicomponent prehistoric archaeological site that extends onto the southwest quadrant of Cerro La Jara (LA 132045). The site known to be a location used by prehistoric aboriginal peoples for hunting and other diverse activities; in the historic period the area was likely also used for sheltering livestock such as sheep. LA132045 is a multicomponent site and is one of the few sites within Valles Caldera with a Paleoindian component based on a diagnostic projectile point. The site also has a significant Archaic component with dozens of projectile points and a possible game-drive documented. Lastly, the site has Puebloan component based on the presence of prehistoric ceramic artifact. Although LA 132045 is 1.5 miles from the Cabin District area, it is within a similar woodland-meadow ecotone environment and is also near a lower stretch of La Jara Creek and the upper East Fork of the Jemez River, making this a favorable location.

As with the Cabin District area, the Entrance Station area (within LA132045) has undergone subsurface archaeological testing. Testing showed that generally subsurface archaeological deposits are substantial and that subsurface archaeological deposits are present across multiple depth strata.

The integrity of the subsurface archaeological deposits in the Entrance Station area of the site have been affected by prairie dog burrowing. Prairie dog burrows were mapped in portions of LA132045 to the west of the current parking area (Civitello 2007). Investigations have indicated that the more deeply buried archaeological deposits are likely more intact due to being capped off from the alluvial fan and thereby more protected than areas not buried by the alluvial fan.

Existing disturbance at the Entrance Station area of LA132045 includes: construction of the Valle Grande Corral; historic use of the Entrance Station area as a staging area for cattle operations centered at the Valle Grande Corral; road construction of the VC01 through the site; a large borrow-pit located to the south of the Entrance Station; a large gravel parking area at the Entrance Station; the Entrance Station building and associated utilities (i.e., propane gas line, electrical lines, etc.); a solar array area that is fenced; and a vault toilet. Where previous ground disturbance has exceeded 0.50 cm in depth, archaeological deposits may be gone except in some areas more deeply buried by alluvial fans. Additionally, some archaeological deposits within this site have been disturbed where extensive prairie dog burrowing has occurred. However, previous testing indicates that there is a high potential for subsurface archaeological deposits at this site.

### **3.1.2 Impacts of No Action**

If the no action alternative is selected, there would be no direct or indirect impacts to historic buildings, the historic district, the cultural landscape, Cabin District archaeology sites, nor the Entrance Station corral or archaeology sites and the existing conditions and trends identified in the affected environment would remain the same.

### **3.1.3 Impacts of Proposed Action**

#### Historic Buildings, Historic District, and Cultural Landscape Inventory

Under the proposed action in the Cabin District, three new trails and two new parking areas constructed above grade are likely to negatively impact the Baca Ranch District and the contributing historic buildings (Otero Cabin, Commissary Cabin, Cowboy Cabin, Saddle Shed, Bond Cabin, and Foreman's Cabin). Impacts would come from adding non-historic components that would alter the historic setting, feeling, and association, would persist for the life of the project (est. ~8 – 10 years), and the impact would be minimal as it would not diminish any NRHP defining characteristics and impacts from the addition of non-historic components is unlikely to

affect NRHP eligibility. Under the proposed action, above-ground parking areas would be visible from four buildings (Otero Cabin, Commissary Cabin, Cowboy Cabin, Saddle Shed) and toward the Valle Grande vista. The parking areas would fall within the potential historic district's boundaries, regardless of whether these boundaries are defined by the draft NRHP nomination form (Steely 2015) or the CLI (NPS 2020[b]). With the proposed action, above-ground trails would be visible from all the buildings discussed above, and the trails, again, would be within the historic district boundaries. Removal of four old-growth trees for the parking areas would be a permanent alteration to the setting, although removal of only these few trees would be a minimal alteration of the historic setting. However, the proposed action's introduction of above-ground parking areas and trails and other features such as electric vehicle charging stations, gates, signs, trailhead kiosks, flag pole, and other newly constructed infrastructure would alter the Cabin District's historic setting with the introduction of modern built environment features that would detract from the historic setting, feeling and association, resulting in an adverse effect to both individual buildings and to the larger historic district. These effects to setting, feeling, and association would be present during construction activities. Moreover, these effects to setting, feeling, and association would also be present for as long as the infrastructure is in place.

### Cabin District Archaeology

The proposed action would primarily result in negative impacts to archaeological sites from ground-disturbing activities associated with the project, which include the installation of discreet features, tree stump removal, and subsurface fiberoptic cable installation (see table 1). Archaeological sites at the Otero Cabin, Ranger Station, Cowboy Cabin, and FOC would be impacted from installing fiberoptic cable from those buildings. Discrete features such as the flagpole near the Ranger Station and the electrical vehicle charging stations (both within LA136351), trailhead kiosk, directional signage, removal of the tree stump near the Ranger Station, and the access control gate also have the potential to likely impact intact subsurface archaeological deposits through potential data loss and disturbance. It is known from subsurface testing described above that outside known archaeological site boundaries within the Cabin District area, subsurface archaeological deposits are present. Where subsurface archaeological deposits exist and where ground disturbance is proposed, potential adverse effects may occur due to the loss of a data potential. These impacts would be mitigated through the implementation of archaeological monitoring during construction (see appendix C).

Proposed above-ground trails and parking areas within the Cabin District also have the potential to affect known archaeological resources (LA137534, LA136351, LA140252, LA137536, LA137537, and other areas that have been subject to subsurface testing) through the sites being partially buried by above ground infrastructure. Although the park is not proposing to completely bury any archaeological sites, above ground features such as new Cabin District trails would be constructed on top of sections of known sites mentioned above.

While construction of trail and parking lot infrastructure entirely above grade may reduce direct subsurface disturbance to underlying archaeology, the three new trails within the Cabin District would have the potential to bury archaeological artifacts. Although compaction may occur from the above-grade trails, this should be limited based on the relatively small amount of fill needed to construct trails and the light impacts of foot traffic. Overall, construction of the trails would be designed to avoid known artifact concentrations and the compressional force from the fill is anticipated to result in minor compaction issues to the subsurface archaeological deposits, and therefore, above-ground trail construction is not anticipated to adversely affect subsurface archaeological deposits. The parking areas, however, will also be above-grade and will also be utilized as staging areas accessed by vehicles and machinery for construction materials. The parking areas will require pre-construction ground compaction of the undisturbed ground-surface and addition of a large amount of fill to create a level parking area would result in additional compaction. The park estimates 4,500 cubic yards of fill would be necessary to build the parking areas to the required grade. Due to these conditions the parking areas will have a much greater load bearing on potential subsurface archaeological deposits should they exist compared to above ground trails. Compaction of subsurface archaeological deposits has the potential to compromise their data potential.

Archaeological resources in the Cabin District would also be impacted by trenching operations to bury fiber optic cable and electrical lines. Fiberoptic cable installation along the Fiber Optic North alignment would predominantly follow existing roadways which are pre-disturbed areas, however portions of the fiber optic cable where it branches from the main lines (which follow roads or other disturbed areas) and connect to historic cabins would transition through known archaeological sites (see Appendix A). The extent of subsurface trenching necessary to bury the electrical lines across parking areas A and B in the Cabin District would be minimized by relocating the point-to-point power lines to within 25 feet of the newly constructed parking areas and by burying the lines predominantly in construction fill materials used to construct the parking areas. However, subsurface utility burial in previously undisturbed or only surficial ground disturbance areas within the Cabin District has a high potential to impact subsurface archaeological deposits both within and outside of known archaeological sites as subsurface testing has shown the high propensity for buried archaeological deposits throughout the Cabin District area.



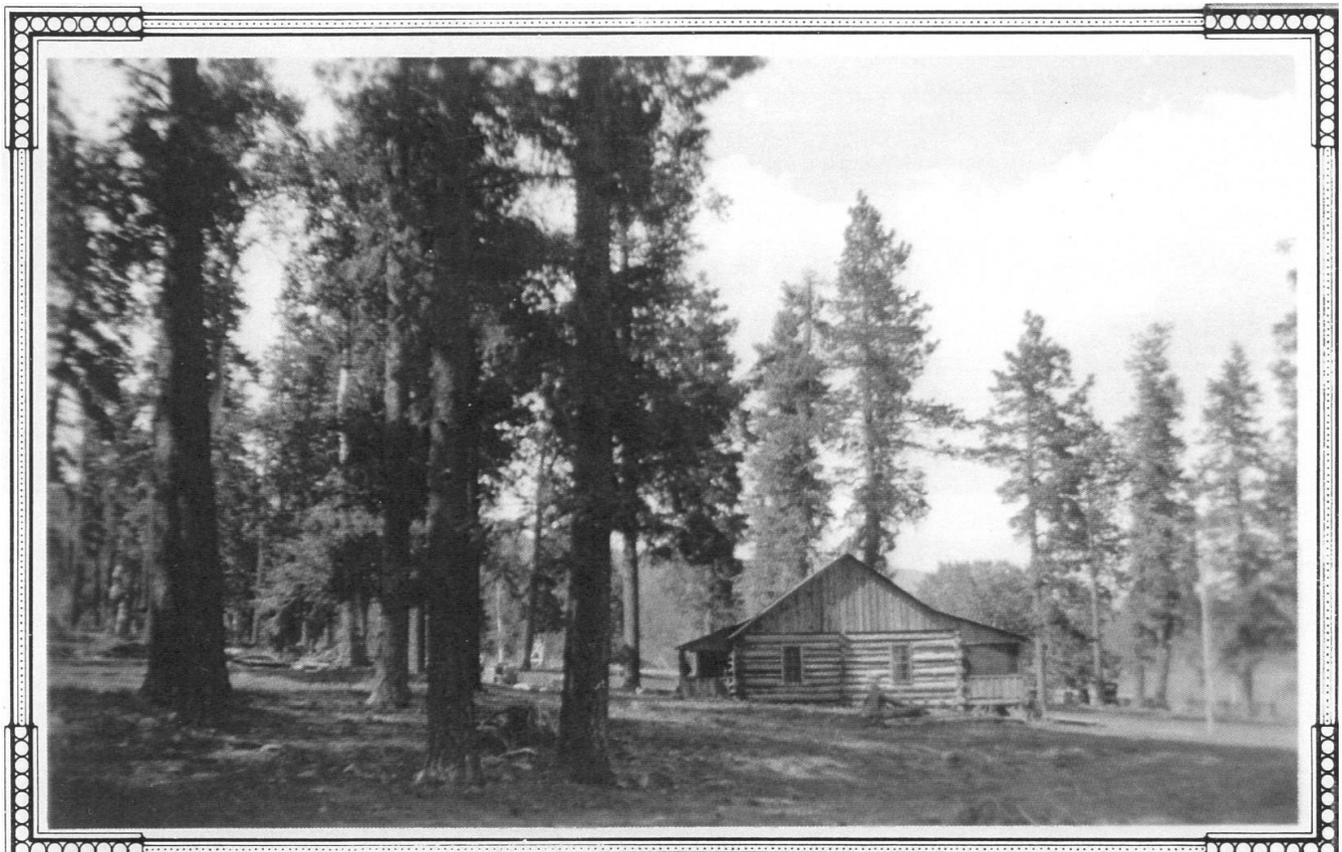
**Figure 10. Visitors Parking on Unimproved Areas in the Cabin District**

#### Entrance Station Corral

The VC02 road would be rerouted through the Valle Grande Corral (LA152304) at the Entrance Station, and the corrals and all associated structures would be permanently removed. Regardless of the corral's National Register eligibility, this proposed action would remove from the park a ranching feature that has potential for interpretation of the historic legacy of ranching activities (NPS 2018[b]).

#### Entrance Station Archaeology

Ground-disturbing activities will occur within the multi-component prehistoric site LA132045. The main park entrance road would be rerouted within the boundary of archaeological site LA132045. This reroute would go through the current location of the corrals where previous archaeological testing has not occurred although it can be assumed that some level of previous disturbance exists from historic construction and use of the Valle Grande Corral. Additionally, the reroute would go through the existing parking area. Given the depth of archaeological deposits at this site, additional archaeological testing in some areas of the road reroute will be conducted to better understand the potential for negative impacts from the proposed action. Additionally, the expansion of the main park entrance road (VC01) adjacent to the Entrance Station building would encroach into adjacent portions of LA132045, which has been previously documented and found to contain moderate densities of archaeological artifacts on the ground surface and has the potential for buried archaeological deposits. Further subsurface testing or excavation will occur to determine which archaeological component the surface and likely subsurface artifacts are affiliated. Approximately 150' of the park entrance road would be expanded from its current configuration and encroach approximately 12' into LA132045 in previously undisturbed site areas to the immediate south of the existing roadway. This proposed action would result in negative impacts to LA132045 by permanently removing a portion of the site that may hold data potential for understanding the site and altering the subsurface where rodent burrows are filled. More minor ground-disturbing activities, such as automatic gate installation (and the associated powerline) and installation of trailhead kiosks (Valle Grande Pond Trail and La Jara Trail Kiosks), also occur within the boundary of LA132045 and may negatively impact the data potential of the site, albeit to a much lesser degree. These impacts would be mitigated through pre-project subsurface testing, archaeological monitoring, and other best management practices (see Appendix C).



**Figure 11. The Bond Cabin in the Cabin District. From the private collection of the Agnes and GW Bond Family, circa early 20<sup>th</sup> century**

### 3.1.4 Cumulative Impacts

Past, present, and reasonably foreseeable future actions with the potential to impact cultural resources in the Valles Caldera front country areas include the 2004 replacement of underground utility lines in the Cabin District, the 2021 construction of the new FOC within the Cabin District, and actions identified in the Adaptive Reuse Planning Study (NPS 2020[c]) outlining recommendations for adaptive reuse of existing park buildings, and the future repair and rehabilitation of historic cabins in the Cabin District for visitor or administrative use.

The replacement of underground utilities in the cabin district in 2004 directly impacted archaeological site LA135604, and limited data recovery was completed at the site. Archaeological monitoring was conducted for the installation of the utility lines throughout the Cabin District area, which resulted in no discoveries; the lack of discoveries may have been, in part, due to the new waterline being placed in the same area as a 1960s waterline. The 2004 project was completed before the larger Cabin District area was subject to systematic subsurface testing demonstrating a high potential for buried archaeological deposits. The construction of the 2021 FOC in the Cabin District resulted in the addition of a non-contributing feature to the historic district but did not physically alter any contributing features within the potential district. The new building created a visual impact to the district in general, but the impacts were reduced through site selection, vegetative screening, and building material choice and did not diminish the historic character of the district. Due to the location and design of the garage the project did not affect the historical significance of the potential historic district, nor change the eligibility of the potential district to be listed on the NRHP. However, construction of the garage did result in an adverse effect to the prehistoric archaeological site LA140252, which was resolved through development of a memorandum of agreement with the SHPO.

The park completed an Adaptive Reuse Planning Study (NPS 2020[c]) and is in the process of developing a Historic Structures Report that will outline recommendations to better utilize existing facilities in the Cabin District for administrative- and visitor-related purposes. These assets (which include both historic and non-historic buildings) are already being used as the base of operations in the park, although most are closed due to their current condition, and are a Fundamental Resource and Value (Prehistoric and Historic Legacy) for visitor interpretation and education (NPS 2018[a]). Based on the recommendations from the historic structures report and adaptive reuse planning study, the park would proceed with repair and rehabilitation projects of these facilities as their usefulness for administrative- and visitor-facing purposes will continue to increase. Rehabilitating these facilities to support year-round use and preserve their contributions to the historic character of the area is a necessary investment regardless of future decisions about the use and development of the Cabin District. The adaptive reuse of historic buildings would likely have both beneficial effects from preservation efforts and adverse effects from the introduction of modern features to the historic buildings.

When the incremental impacts of Alternative 2 are combined with past, present, and reasonably foreseeable future actions, the overall cumulative impacts would contribute to negative impacts to cultural resources within the Cabin District, with most of the impacts coming from direct disturbance of archaeological resources and the additional of new and modern features affecting the historic setting of the area. Archaeological resources at LA140252 were adversely affected previously during the construction of the FOC in 2021 and further direct impacts are anticipated from the construction of above ground trails on top of portions of this site and the connection of subsurface fiber optic cable to the FOC building. The cumulative impacts from this project would likely be small scale because the above ground trails are anticipated to have minimal impacts to subsurface archaeology and the subsurface utility line installation would occur within previously disturbed portions of the site.

Infrastructure improvements upgrades within the Cabin District will add to the past, present, and reasonably foreseeable actions that adversely affect the overall character, association, and feel of the potential historic district or cultural landscape. However, the increase in negative impacts will be slight due to the non-historic components being small, unobtrusive, and able to be removed. Subsurface disturbances necessary to support

increased NPS management and visitor use activities in this area, for example the burial of electrical lines, maintenance or replacement of existing infrastructure, etc., are further likely to result in direct impacts to known archaeological sites and in-situ archaeological resources located within the Cabin District. However, cumulatively the additional impact from the project will be small in scale and only marginally increase the negative impact to archaeological resources. Under Alternative 1, there would be no impacts to cultural resources since no action would be taken, and therefore, there would be no cumulative effects.

### **3.1.5 Summary of Impacts**

Ultimately, the historic properties, cultural landscapes, and archeological resources in the Cabin District and Entrance Station would remain present and intact in a manner that will continue to display the continued cultural use of the area and the varied human history at Valles Caldera. Despite the impacts described above, the prehistoric and historic legacies from indigenous use for hunting, gathering, and resources; American Southwest land development; and ranching and grazing activities will persist and continue to exhibit the cultural continuity of the area.

Historic properties within the Cabin District area would be negatively impacted by the proposed action through the incorporation of new built environment features and ground disturbing activities that would occur within the district. Introduction of modern built environment features, such as the parking areas and pedestrian trails, would alter the historic setting of the Baca Ranch Historic District, resulting in the potential adverse effect to the historic district. These infrastructure improvements are unlikely to significantly modify the integrity of these sites nor change NRHP eligibility status because the overall historic setting, feeling, and association would remain along with the buildings and configuration that convey the historic character of the area. Additionally, the adverse impacts to the potential historic district are mitigated because primary intrusive features such as the parking areas and trails are being built in such a way where they could be feasibly removed in the future based on decisions reached during the development of long-term plans, and because mitigative measures intended to reduce the visual impacts and intrusiveness of these features such as visual screening, material choice, and site locations are being incorporated into the project.

The intentional partial burial of known archaeological sites (LA137534, LA136351, LA140252, LA137536, LA137537, and other areas that have been subject to subsurface testing) is unlikely to significantly modify the integrity of these sites nor change NRHP eligibility status because the project is using fill to build the parking areas and trails above grade and will not be ground disturbing.

Subsurface archaeological deposits located within the Cabin District would be directly impacted by ground-disturbing activities, and if present in the parking areas, from construction, staging, and compaction that would result from the parking areas. Similarly to the above-described archeological resources, they are unlikely to result in the loss or destruction of significant archeological resources. These impacts are apparent despite the fact that many of the more substantial interim infrastructure improvements, such as the parking areas, are intended to be built entirely above grade and could potentially be removed in the future based on decisions reached during the development of long-term plans. The multi-component archaeological site and corrals located at the Entrance Station would also be impacted from the implementation of this project from ground-disturbing activities and from the removal of the corrals.

Measures taken to reduce potential adverse effects include siting of the parking areas where they would not be visible from two of the historic buildings (Bond Cabin and Foreman's Cabin) and at the southeast edge of the main concentration of historic buildings. Additionally, the park will select available construction materials (i.e., gravel) for the parking areas and trails that most blends with the predominant natural colors in the Cabin District area. The fence around the parking area would be designed as a split-rail fence or a similar design that would be consistent with the rustic and natural historic setting. Although these measures will help reduce the proposed action's negative impacts to the historic setting, they will not eliminate potential adverse effects.

Valles Caldera will conduct phased identification and assessment of effects to historic properties in the process established in the PA. Should the park determine in consultation with SHPO and other consulting parties that adverse effects will occur or are likely to occur to intact subsurface archaeological deposits within the Cabin District, Valles Caldera will resolve the adverse effects through the PA and in a treatment plan that is developed in consultation with consulting parties per the PA.

## **3.2 Visitor Use and Recreation Setting**

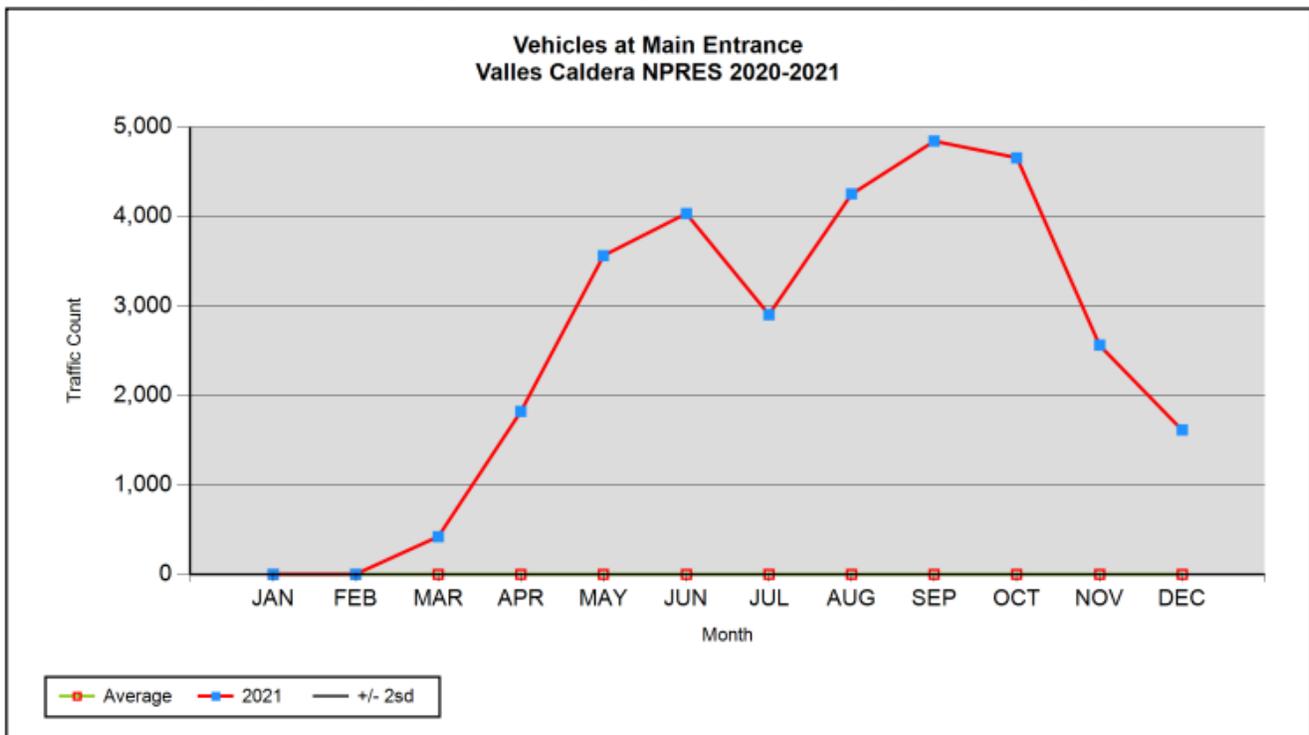
### **3.2.1 Affected Environment**

Public use of Valles Caldera did not occur during the period of private ownership. After the passage of the Valles Caldera Preservation Act the Valles Caldera Trust was established and public visitation to Valles Caldera began. In 2015, when management of Valles Caldera was transferred to the NPS, visitation to the new NPS unit dramatically increased. Since NPS management of Valles Caldera began in 2016 the park has experienced an approximate 110% increase in the number of visitors recorded at the Entrance Station: from 35,000 visitors in 2016 to over 75,000 visitors in 2021 (NPS 2022[c], NPS 2022[d]). Based on these trends, visitor use at Valles Caldera is projected to increase over the coming years.

Visitor use and recreation setting at the park has been modified in a variety of ways since federal ownership of Valles Caldera. Under the Valles Caldera Trust, a backcountry vehicle permit system was instituted (allowing 35 vehicles at one time beyond the entrance station) in an effort to improve safety on the backcountry one-lane gravel roads, provide access to the visiting public (including hunters, anglers, and other recreational users), and to protect park resources from overuse from motorized recreation.

The park has experienced several large-scale catastrophic wildland fires in the past ~10 years (notably the Thompson Ridge fire 2013 and Las Conchas fire 2011) which has resulted in the need for trail and road maintenance which exceeds that of regular recurring maintenance requirements. Trails in front country areas (the VC0201 trail, Cerro La Jara Trail, Valle Grande Pond Trail, Valle Grande Trail, Rabbit Ridge and Coyote Call Trails, South Mountain Trail, etc.) are also noticeably devoid of appropriate supporting infrastructure including trailhead kiosks, benches, mile and directional markers, maps, etc., and require substantial improvements to address the development of social trails, rutting, gullying, and riling due to increased erosion, clearing of downed trees, and improvements to trail surfaces.

The NPS assessed the acoustic environment at Valles Caldera and determined that while daytime noise levels were greatest in the park's front country during daytime hours, sound levels rarely exceeded ~35dBA in these areas. The baseline data suggest that the Valles Caldera acoustic environment is relatively quiet comprising primarily natural sounds with short periods of increased anthropogenic noise. Results from multiple surveys of the American public indicate that hearing the sounds of nature is an important reason for visiting national parks (NPS 2016[a]).



**Figure 12. Vehicles Recorded at the Valles Caldera Main Entrance; 2020-2021 (NPS 2022[c])**

Visitor Use at the Entrance Station

The majority of front country visitor use of Valles Caldera occurs at the Entrance Station, located along the main park entrance road (VC01). Visitors receive general information about the park by stopping at the Entrance Station, including hours of operation, activities, information on natural and cultural resources, and to provide maps, pamphlets, and other materials. Visitors may participate in the park Junior Ranger Program and are issued fishing, equestrian, and backcountry vehicle permits. Visitors can also attend interpretive experiences such as pop-up programs (implemented when sufficient visitors are present or when a particular interest is organically triggered), routinely scheduled porch talks, park led interpretive hikes, and interactions between roving rangers and the public (NPS, 2022[d] and 2022[e]). The Entrance Station is also the location of the park bookstore, operated by the park’s cooperating association, Los Amigos de Valles Caldera.

Front country recreation visitor use primarily occurs at the Entrance Station area of the park where visitors arrive, park, interact with park staff and volunteers at the Entrance Station building, and depart to explore adjacent area trails (Cerro La Jara Trail, Valle Grande Pond Trail), or into other adjacent areas such as the Valle Grande or along the VC01 park entrance road. A portion of visitors to this location obtain a backcountry vehicle permit and are able to travel by private vehicle beyond the entrance station area along roads within the park that are open to the public (including to the Cabin District). Additional front country attractions located beyond the Entrance Station such as the South Mountain Trail, VC0201 Trail, and History Grove are desirable destinations for visitors and currently experience low levels of use due in part to management practices. Infrastructure to promote a positive visitor experience and meet the basic expectation of park visitors is lacking in these areas.

Adjacent to the Entrance Station are two popular park trails: the La Jara Trail, which consists of a 1.5-mile loop hike around Cerro La Jara to the west of the Entrance Station, and the Valle Grande Pond Trail, which consists of a 1.0 mile out and back hike from the Entrance Station to a stock pond in the Valle Grande. The La Jara Trail is a popular for birding, cross-country skiing, and hiking and is open year-round. The Valle Grande Pond Trail is also open year-round, and the pond is a pretty destination which offers good opportunities for

viewing elk, birds, and wildflowers. Elk viewing is also a popular activity in the Valle Grande, especially during biologically sensitive periods such as the rut which typically occurs August through October.

#### Visitor Use at the Cabin District

Motorized access to Cabin District has been limited by backcountry vehicle permit since transitioning to the NPS in 2015. This requirement was instituted under the Valles Caldera Trust and was continued under NPS management of Valles Caldera. Currently visitors accessing Valles Caldera via the main park entrance road (VC01) are unrestricted up to the Entrance Station. Visitors who wish to travel beyond the Entrance Station, to the Cabin District or backcountry areas of the park, are limited to 35 vehicles having access at any given time. Once the 35-vehicle limit has been reached, additional private vehicle access beyond the Entrance Station is halted until another vehicle has returned to the Entrance Station.

Visitors to the Cabin District typically arrive by privately owned vehicle and park in unimproved areas in front of historic cabins, in natural areas, or in various small lots scattered throughout the area which were intended to serve as driveways or service roads for existing cabins. Once in the Cabin District visitors use the existing roadways to navigate the district, to access the Ranger Station, to visit historic cabins and buildings, or to depart to other adjacent park areas (along the VC02 Road). Many buildings within the Cabin District are closed due to health and safety concerns, which will require rehabilitation before being re-opened. Services available to the public at the Cabin District Ranger Station are generally similar to those described above at the Entrance Station but are more limited and utilized less than those available the Entrance Station. Pedestrians, cyclists, and equestrian visitors share the road with vehicles and can be subjected to dust exposure from gravel roadways as vehicles pass by.

Generally, associated visitor use in these areas have led to conditions affecting the recreation setting from minor damage, deterioration, or detracting from the natural and cultural resources and values of the area. Visitor use in the Cabin District has resulted in contemporary impacts to the recreation setting. These impacts include vegetative trampling, development of social trails, parking in unimproved and undesignated areas, unauthorized access into closed areas (e.g., onto historic building porches), improper trash disposal and other visitor use related behaviors. Repeated vehicular or pedestrian use of unimproved areas has resulted in vegetation becoming trampled and leads to the exposure of barren ground creating unsightly areas within the Cabin District. These conditions contribute to the deterioration of the recreation setting in front country areas.

#### Accessibility

Many existing facilities now intended to be accessed or utilized by the public (buildings, parking, ramps, entryways, gates) were not designed for this purpose and currently do not meet ABA requirements for accessibility. The park currently meets the minimum requirement for accessible restrooms in concentrated visitor use areas (one ADA accessible restroom at both the Cabin District and the Entrance Station). The Entrance Station ramp is not currently compatible with ABA standards, the entry into the building is also inadequate, and there are cable gates which require visitors to get out of their vehicle to open and close. There is no ADA accessible parking available in the Cabin District or the Entrance Station. Valles Caldera is prioritizing ADA/ABA accessibility improvements throughout park projects to reduce or eliminate deficiencies in order to provide a more welcoming recreation setting for visitors (NPS 2015[b]).

### **3.2.2 Impacts of No Action**

If the no action alternative is selected, there would be no direct or indirect impacts to visitor use and recreation setting through modifications to visitor use at the Entrance Station or within the Cabin District and the existing conditions and trends identified in the affected environment would remain the same.

### 3.2.3 Impacts of Proposed Action

The proposed action will shift the majority of front country recreational visitor use to the Cabin District from the entrance station, which will then be the starting point for further recreation into the park. This would provide increased access to South Mountain, the VC0201 Trail, History Grove, and other front country areas (including public roads and adjacent areas), which will increase opportunities to recreate within the interior of the park. As a result, it is reasonable to expect an increased number of recreationists year-round within and adjacent to the Cabin District.

During the initial construction season visitors would be exposed to increased noise from the operation of heavy machinery (described in section 2.2), activity from construction crews, and periods of temporary road and area closures or delays. During construction noise levels would increase in front country areas from an average ~35dBA to 70-90dBA (WSDOT 2020). Construction of infrastructure improvements would overlap with the primary visitor use periods at Valles Caldera which occur between July – October (see Figure 12 [NPS 2022{c/d}]). Temporary construction closures and delays would potentially inhibit vehicular access to the Entrance Station or areas beyond along publicly available roads within Valles Caldera. In some cases, these closures and delays could potentially last several days at a time during high construction activity periods and would primarily affect visitors arriving at the Entrance Station along the VC01 road, and to a lesser extent those wishing to travel further into the park along the public road system near the VC01 and VC02 intersection in the Cabin District. Disruptions to visitor use and recreation setting in subsequent construction seasons would be small scale installation type projects affecting discrete areas and are unlikely to result in any temporary closures or affect visitor activities.

#### Visitor Use at the Entrance Station

With the entrance station building being converted to administrative use, visitor services such as the park bookstore, junior ranger program, the park passport stamp, and NPS rangers and volunteers would no longer be available to the public at this location; instead NPS rangers and volunteers would be reassigned to provide these visitor services at the Ranger Station located within the Cabin District. Additionally, visitors would no longer be able to collect a park passport stamp at the Entrance Station as this service would be moved into the Cabin District Ranger Station. Additional services typically provided in this area by NPS Rangers, and Volunteers would also be limited. These factors could negatively affect visitor use at this location for visitors who do not desire to travel further into the park.

The Entrance Station parking area will be redesigned so that visitors would be able to remain in their vehicle as they enter and exit the park, eliminating the need to get out and open/close vehicle access control gates resulting in streamlined access into the park and an improvement which addresses accessibility issues for visitors with disabilities. Parking will remain available at the Entrance Station for visitors who wish to use the La Jara Trail, the Valle Grande Pond Trail, or as a starting location for other excursions into the park.

The recreation experience on area trails such as the Valle Grande Pond Trail and the Cerro La Jara Trail will be improved as kiosks would be positioned at the trailheads providing information on the trail and area natural and cultural resources. The availability of fully electric vehicle charging stations at the park will allow visitors with electric vehicles to recharge vehicle batteries during their visit providing a new service and extending the distance from which visitors with electric vehicles could travel from to visit the park.



**Figure 13. Visitors to Valles Caldera Experiencing Views of the Park**

#### Visitor Use at the Cabin District

The public will no longer be required to obtain a backcountry vehicle permit to access the Cabin District. This will result in more areas within Valles Caldera being accessible by all park visitors. There would be a new automatic gate constructed within the Cabin District which would restrict private vehicle access further along the park road system and would continue to be regulated by the park backcountry vehicle permit system allowing for 35 vehicles to travel beyond the Cabin District at any given time. Allowing additional access to the Cabin District will provide more visitor recreation opportunities to explore the 18<sup>th</sup> and 19<sup>th</sup> century ranching history of the area, and to explore adjacent areas such as South Mountain (along South Mountain Trail), the History Grove (located further north along the VC02 road), the VC0201 trail (which runs along the Redondo foothills behind the Cabin District), as an alternative departure point into the Valle Grande, or other areas of the park. Unrestricted access beyond this area will be available to the public seeking to engage in non-motorized recreation affording visitors greater opportunities to explore interior areas of the park. Visitor recreation opportunities and experiences would be improved in the Cabin District through improved signage, audio tours, and orientation and interpretation waysides.

It is likely that most park visitors would proceed beyond the Entrance Station into the Cabin District following the implementation of this project. The recreation setting may be affected from impacts to park resources resulting from visitor use in the form of vegetation trampling, trash accumulation, and other impacts related to visitor behavior; impacts are anticipated to increase proportionately with visitation (described in section 3.1.1 and 3.2.1). These impacts would be minimized in the Cabin District through the construction of new parking areas, connecting trails, and other improvements implemented to accommodate increased visitor use. Areas adjacent to the Cabin District such as South Mountain, the VC0201 Trail, History Grove, and other adjacent areas may experience increased levels of visitation, corresponding increases in the levels of localized visitor

use impacts and are not being considered for improvements designed to accommodate increased visitor use (such as trash receptacles, restrooms, trail improvements, etc.) at this time. These types of impacts can create unfavorable impressions of front country areas and negatively impact the recreation setting for some visitors, while for others it would go unnoticed. However, additional improvements outside the Cabin District will be contemplated in subsequent planning.

### Accessibility

Accessibility improvements to the Ranger Station would allow visitors with disabilities to park adjacent to the building and experience barrier free access to entry. With the Ranger Station becoming the centralized visitor service location, visitors would be provided a more formalized experience within the Cabin District, as visitors would be able to explore the district along improved trails, would have more access to waysides and information about the historic buildings, and increased opportunities to experience in-person NPS ranger programs. The recreation experience would be improved for the South Mountain Trail as a new trailhead kiosk would provide visitors with information about the trail and area natural and cultural resources. Visitors who obtain a backcountry vehicle permit would no longer have to exit their vehicle to pass by the new automatic access gate located within the Cabin District along VC02.

At the Valles Caldera Entrance Station, a more traditional and streamlined entrance process would be experienced by visitors as they would no longer have to exit their vehicle to receive basic orientation, obtain permits, or travel further into the park. Visitors would experience better access and circulation from formalized parking and accessibility improvements that would result in improvements to the recreation setting.



**Figure 14. The VC01 Road Looking from the Cabin District towards Cerro La Jara and the Entrance Station**

### **3.2.4 Cumulative Impacts**

Past, present, and reasonably foreseeable future actions with the potential to impact the visitor use and recreation setting in Valles Caldera front country areas include the requirement that visitors traveling by personal vehicle beyond the Entrance Station obtain an NPS permit. The backcountry vehicle permit requirement began under the Valles Caldera Trust as a way to improve safety on the backcountry 1-lane gravel roads, provide access to the visiting public (including hunters, anglers, and recreational users), and to protect park resources from overuse from motorized recreation. Contemporarily, visitor use can be negatively affected as those intending to drive beyond the Entrance Station after all the permits have been issued must either wait at the Entrance Station for a vehicle to exit prior to driving beyond this location or abandon plans to drive further into the park and depart.

Alternative 2 would contribute to both beneficial and negative impacts to the visitor use and recreational setting at Valles Caldera when considered in combination with past, present, and reasonably foreseeable future actions due to the expansion of visitor use and activities into greater areas of the park. Allowing all private vehicles to travel beyond the Entrance Station to the Cabin District would result in a beneficial improvement to cumulative visitor use impacts because visitors would no longer need to obtain a backcountry vehicle permit to experience the Cabin District or other popular park areas adjacent to the Cabin District. The cumulative impact from this project contribute to a positive trend in visitor use of Valles Caldera.

### **3.2.5 Summary of Impacts**

In summary, Alternative 2 would increase the opportunities for visitors to experience a landscape that inspires continual attraction, connections, and use independent of culture, heritage, and time. The shift in visitor use to the Cabin District and greater facilitation of visitor to the interior of the park will all the park to create an improved recreation setting for allowing visitor to appreciate the power of place-based cultural continuity and community. Visitor use and recreation setting within front country areas of the park is anticipated to be impacted, both positively and negatively, from the implementation of this project. Accessibility improvements represent a positive improvement for visitor use of these areas. Front country trail improvements are likely to increase visitor use in these areas and would provide a more beneficial recreation setting for park visitors. Adaptive reuse and rehabilitation of existing buildings within the Cabin District are anticipated to return buildings which are currently closed into service for NPS management and visitor use purposes.

Impacts to the visitor use of the park resulting from construction activities including increased levels of anthropogenic noise, activity of construction crews, and temporary park road closures are anticipated. These impacts would be temporary existing primarily during construction periods in 2023, and to a lesser extent in subsequent years (although park road closures are not anticipated outside of the 2023 calendar year). Impacts to visitor use of the park during construction would be reduced through the incorporation of best management practices contained in Appendix C. Additionally, ample visitor opportunities, including those that exhibit resources and values fundamental to the purpose of the park would remain available.

Successful implementation of Alternative 2 would allow the NPS to provide opportunities for an improved visitor experience at Valles Caldera during the interim period while the park is developing subsequent management plans. The majority of improvements being considered would be implemented in an interim manner and could be retained, removed, relocated, or modified based on the guidance provided by park planning documents. The park would be better able to accommodate increased visitation levels at Valles Caldera by utilizing the Cabin District as the primary engagement area for intensive visitor use and engagement.

## 3.3 Wildlife

### 3.3.1 Affected Environment

The Cabin District has been the site of contemporary human occupation since the late-19<sup>th</sup> century which has resulted in habitat degradation, vegetation modification, manipulation, and loss, and affected the ways in which wildlife species use this area for natural processes. Since NPS management of Valles Caldera human-use of the Cabin District area has resulted in relatively continuous low-intensity use with periods of moderate-to-high intensity activities (e.g., during construction periods for new facilities). The Entrance Station area has been used as a livestock staging area since at least the mid-20<sup>th</sup> century and as a visitor contact center for Valles Caldera since the land transferred into federal ownership (under the Valles Caldera Trust; circa 2000 – 2014). Over the last ~10 years the area has experienced intensive visitor use in the forms of vehicular and pedestrian activities, NPS management activities and programs, and as a staging area for government owned equipment. The use and activities conducted in these areas have resulted in modified wildlife behavior including both spatial and temporal avoidance, tolerance, attraction, sensitization, and habituation. Human activity in these areas primarily occurs between May – October with lower intensity periods during the November – April months.

Wildlife within the Cabin District has also been impacted by a variety of park projects and environmental conditions since the park came into federal ownership in the year 2000. In 2004 the Valles Caldera Trust implemented a project to replace underground utility lines in the Cabin District which involved trenching operations in areas of suitable habitat for the Jemez Mountains salamander (although the species was not listed under the Endangered Species Act [ESA] at the time).

The construction of the FOC in 2021 impacted ~4.4 acres of habitat area within the Cabin District, and due to the construction techniques for the building including earthwork and subsurface excavation activities it is likely there was an impact to salamander habitat from soil degradation and compaction.

The Cabin District was directly affected by predominantly low intensity fire from the Thompson Ridge Fire in 2013. This fire resulted in the removal of much of the understory downed woody debris, herbaceous vegetation, and ground level habitat features within this area of the park. The removal of much of the herbaceous understory vegetation in the area provided an overall improvement in foraging habitat in subsequent years. Areas upslope from the Cabin District along the Redondo foothills and the VC0201 trail experienced varying levels of fire intensity which was predominantly moderate with smaller areas of both low and high intensity. The effects to the Cabin District were increased levels of surface runoff and erosion in the La Jara Creek watershed.

#### Jemez Mountains Salamander

The Jemez Mountains salamander was listed as an endangered species under the ESA in 2013. Salamanders spend the majority of their lives underground but can be found above ground when relative environmental conditions are warm and wet, which is typically from July through September. During this period salamanders emerge and will occur along the ground surface in forest areas supporting moderate to high volumes of large fallen trees and other woody debris, especially coniferous logs at least 10” in diameter, particularly Douglas-fir, that are in contact with the soil and in varying stages of decay from freshly fallen to nearly fully decomposed, or near structural features such as rocks, bark, and moss providing food and cover (NPS 2022[e]). All of Valles Caldera is included in the known range for this species with approximately 25% of the critical habitat for the Jemez Mountains salamander occurring within Valles Caldera. There is no proposed or designated critical habitat for the salamander within project areas. Valles Caldera contains approximately 41,500 acres of potentially suitable habitat for the Jemez Mountains salamander and the areas where the front country infrastructure improvements project would occur overlap with approximately 1.25 acres of mixed-conifer vegetation, which is considered preferred habitat for the endemic salamander (NPS 2022[e]). The

species has been confirmed to be present within Valles Caldera, but specific surveys within parts of the Cabin District for salamanders in 2017, and again in 2019 have produced negative results. Historically, mixed conifer forests surrounding the Cabin District (VC0201 Trail, South Mountain) were shown to be occupied.

The project areas near the Entrance Station contain no suitable habitat for Jemez Mountains salamander, and no surveys have occurred for the species in this location. Surveys in 2015, confirmed continued occupancy near the VC0201 Trail. Overall, population size and trend are difficult to determine due to low survey detection probability and individuals exist in the area without being detected. Threats identified by the U.S. Fish and Wildlife Service (USFWS) for the Jemez Mountains salamander include severe wildfire, forest management practices, recreation, and disease (NPS 2021[a]). Although we are unable to estimate population trends, the number of surveys resulting in no salamander detections is increasing and the number of salamanders at remaining known locations appears to be decreasing.

#### Gunnison's Prairie Dog

The Gunnison's prairie dog is identified as a species of greatest conservation need by the New Mexico Department of Game and Fish (NMDGF [NMDGF {2016}]). Gunnison's prairie dog habitat includes either flat shortgrass and mid-grass prairies and grass shrub habitats in low valleys, or mountain meadows. The prairie dogs are semi-fossorial (meaning they live primarily underground) and require well drained, deep soils for burrow construction (NPS 2021[a]). Prairie dog burrows have been identified as an import habitat feature in grassland ecosystems where they influence ecosystem processes and support an extensive array of associated species (NMDGF 2008). It is estimated that there are approximately 6000 - 7000 acres of Gunnison's prairie dog colonies located throughout Valles Caldera (Beeley et. al. 2002). Although species trends are unknown since the previous comprehensive survey was completed in 2002, plague events continue to threaten individual colonies with periodic die-offs observed.

One of several prairie dog colonies that occur throughout the Valle Grande is located within and adjacent to the Entrance Station project locations. Project activities are anticipated to impact approximately ~0.2 acres of active Gunnison's prairie dog colony. Prairie dogs within this colony occur at relatively high densities and are a frequent attraction to park visitors. Intensive visitor use in the Entrance Station area creates human-wildlife conflicts with prairie dogs including vehicle-wildlife collisions (often resulting in prairie dog mortality) and colony encroachment on developed areas. Current management practices include discouraging and restricting new colony burrows in developed areas. This is achieved through obstructing entrances to newly constructed burrows or in areas where burrows create hazards, burrows are filled with dirt or gravel. In limited cases this may result in individual fatalities, with impacts most pronounced in Spring if pups are unable to utilize multiple burrow entrances. This colony does not extend all the way towards the Cabin District as there are areas of wetlands in the Valle Grande which inhibit expansion in that direction, however discrete populations of prairie dogs do occur near the Cabin District. Although Gunnison's prairie dogs are considered a "wildlife species of concern" by the State of New Mexico, management of prairie dog colonies intended to promote recovery of the species is not currently being undertaken on a Statewide level, including within Valles Caldera.



**Figure 15. Gunnison's prairie dog at Valles Caldera National Preserve**

#### Migratory Birds

The USFWS has identified eight birds of conservation concern with the potential to occur within the project area: bald eagle, Cassin's finch, evening grosbeak, Grace's warbler, Lewis's woodpecker, olive-sided flycatcher, pinyon jay, Virginia's warbler (USFWS 2022). These birds utilize all habitats within the park including ponderosa pine, mixed conifer forests, and montane grasslands located near the Cabin District as breeding and nesting habitat in the spring and early summer and persist in the park through late fall when chicks fledge and migration south or to lower elevations for the winter months takes place. Snags (standing dead trees) are common in the Cabin District, especially among the ponderosa pine trees as they have been contemporarily affected by insect infestation, disease, drought, and sever weather events. These snags provide important habitat for birds within Valles Caldera as they provide perching, nesting, and foraging habitat. Based on surveys conducted in the park between 2016 – 2020 the community composition of migratory bird species was rated as good with a stable to improving trend.

The NPS assessed the acoustic environment at Valles Caldera and determined that while daytime noise levels were greatest in the park's front country during daytime hours, sound levels rarely exceeded 35 decibels in these areas. The baseline data suggest that the Valles Caldera acoustic environment is relatively quiet comprised primarily of natural sounds with short periods of increased anthropogenic noise. The acoustic environment is an important natural resource and plays an important role in wildlife communication, behavior, and other ecological processes. Excluding wind sounds, the most common natural sounds recorded were from birds and insects (NPS 2022[b]).

#### Rocky Mountain Elk

Rocky Mountain elk were reintroduced to the Jemez Mountains in 1948 after they were extirpated due to heavy hunting pressure in the late 19<sup>th</sup> century. It is estimated that there are approximately 2,500- 3,000 elk that reside in the park (NPS 2022[b]). Valles Caldera contains year-round habitat for elk which is particularly important during the fall breeding and summer calving seasons. Elk hunting is an authorized activity at Valles Caldera in accordance with the park’s enabling legislation and applicable federal and state laws and regulations. This activity contributes to elk within Valles Caldera demonstrating an aversive response to human presence and activities. Elk resource selection at the park varies across seasons and throughout the day (Roberts et al. 2017), use of the Cabin District and Entrance Station by elk is common as animals move between forested areas and the Valle Grande. Additionally, vehicle use in Valles Caldera has resulted in vehicle – animal conflict, including elk. Vehicle use along the VC01 main park entrance road has modified the behavior of elk as many animals avoid the sights, sounds, and dust generated by vehicles traveling along roadways within the park.

#### Wrinkled Marshsnail

The Wrinkled marshsnail is identified as endangered by NMDGF. Although widely distributed throughout North America, there are limited populations within New Mexico. One of the known locations in New Mexico where the Wrinkled marshsnail occurs is within Valles Caldera in the Valle Grande in two ephemeral pools located ~100-200 meters from the Entrance Station project area (NMDGF 2020). This key habitat area occurs adjacent to the VC01 main entrance road in the Cerro La Jara area of the park. Identified habitat for this species in the park consists of vernal grassland pools in the Valle Grande, although a widespread survey of the park has not occurred. Additionally, culverts located at the Entrance Station are performing poorly and water often pools within the existing parking lot and surrounding areas creating impoundments for waters that might otherwise contribute to adjacent wetland areas occupied by the snail.

### **3.3.2 Impacts of No Action**

If the no action alternative is selected, there would be no direct or indirect impacts to Jemez Mountains salamander, Gunnison’s prairie dog, migratory birds, Rocky Mountain elk, or the Wrinkled marshsnail and the existing conditions and trends identified in the affected environment would remain the same.

### **3.3.3 Impacts of Proposed Action**

Alternative 2 contains actions including infrastructure development which may impact wildlife and their habitat in a variety of ways. Some of these impacts will likely persist for the life of the project (est. to be ~8 – 10 years for the purpose of the analysis). The Cabin District has been a site of human use since before federal ownership, and habitat degradation and wildlife disturbance has previously occurred. However, contemporary intensive visitor use of this area has not previously occurred. As a result, some species and habitats which have adjusted to human use will only be minimally impacted (e.g., high mobility or opportunistic species such as crows, magpies, and elk) while impacts will be greater and additive to species which are averse to human activities or unable to adjust (e.g., low mobility species or habitat specialists such as the Jemez mountains salamander and prairie dogs). Likewise, the Entrance Station has been in operation since before NPS management, and currently functions as the primary visitor service area for the park experiencing routine intensive visitor use and operations. Wildlife behavioral responses will likely remain largely unchanged in this immediate area under the preferred alternative.

The project would also result in increased vehicle access further into the park along the park entrance road VC01, and VC02 - the road that travels in front of the Cabin District. Increased vehicular traffic along these roads has the potential to alter movement and habitat use of terrestrial wildlife species and increases the risk of vehicle to animal collisions potentially resulting in injury or death.

#### Jemez Mountains Salamander

Activities in potentially suitable habitat that involve digging, trenching, and soil compaction have the potential to impact individual salamanders in the project area. Although these impacts would be mitigated through the implementation of surveys to detect the species and monitoring during construction (see Appendix C), due to low detection probability and high uncertainty regarding salamander surface activity it is unlikely that impacts to individual salamanders would be completely avoided. Proposed activities may also result in potential habitat loss by removing suitable physical habitat features such as downed logs and rocks which provide shelter, movement and reproductive areas, and available insects for food.

Combined infrastructure actions from the preferred alternative are expected to result in surface impacts to 1.25 acres of mixed-conifer vegetation potential habitat. This same 1.25 acres is expected to also have subsurface soil impacts resulting from soil compaction and trenching. Trenching activities are anticipated to occur up to a depth of 4 feet. If salamanders are present on a site during trenching activities, physiological stress or mortality is possible as a result of subsurface vibratory effects and direct harm. Subsurface construction activities (such as trenching) are planned to occur between April – November and would occur during the active period for salamanders when conditions are optimal for surface activity. To further reduce potential harm to individuals site specific surveys would occur during the active season (July – September), prior to trenching in each location.

Best management practices described in Appendix C would be implemented in order to protect the salamander and reduce potential harm to the species. These include deliberately leaving surface features and cover objects which provide essential salamander habitat features in place wherever possible, concurrent trenching and backfilling, survey work, and close coordination between project managers and park biologists.



**Figure 16. The La Jara Creek Pond in the Cabin District Showing the Diverse Forest and Grassland Habitat Located in Project Areas**

#### Gunnison's Prairie Dog

Construction activities including rerouting and expanding the VC01 main entrance road and parking in the Entrance Station area will result in the loss and/or degradation of an additional ~0.2 acres of montane grassland habitat. Although small in scale compared to the total acres of prairie dogs present at the park, these impacts are expected to last 3-4 generations of prairie dogs for the duration of the proposed project (est. ~8–10 years). During construction it can be reasonably assumed that impacts to individual prairie dogs will occur including loss of burrows, increased conflict between prairie dogs within the larger colony, and individual fatalities. Existing wildlife-conflict in the form of prairie dog burrow encroachment into parking and walking areas and prairie dog mortality from vehicle collisions will likely continue over a larger area of newly developed infrastructure.

In addition to habitat loss, there would be increases in the number of privately owned vehicles traveling through prairie dog habitat. This would increase the potential for wildlife-vehicular collisions occurring in the Valle Grande and the Entrance Station area resulting and injury and/or death to Gunnison's prairie dogs. As the number and frequency of vehicles increases these impacts will become more pronounced with primary potential collisions occurring around the Valle Grande to slow moving species such as Gunnison's prairie dogs. Management strategies to deter prairie dog encroachment into developed areas are anticipated to continue, impacts to prairie dogs including displacement and in some cases mortality of individual prairie dogs would

occur on an addition ~0.2 acres. To protect prairie dogs the park would also implement the reverse dispersal technique to expel prairie dogs occupying areas where infrastructure improvements would be implemented. This technique involves surveying for prairie dog activity and if detected modifying the entrance to those burrows to where prairie dogs may exit but not reenter. Once attempts to reoccupy the burrow have been abandoned the entrance modifications are removed and the tunnel is filled. The fill is applied from the entrance and placed as deep as possible while backfilling towards the surface. The reverse dispersal method may increase conflict between prairie dogs as excluded prairie dogs establish burrows elsewhere however, this project area is very small compared to the size of the prairie dog colony(s) and impacts will be limited to a few individuals from within the project area. Prairie dogs are most active above ground between late Spring – late Fall which corresponds both with the construction periods for infrastructure improvements, and the peak visitation period at Valles Caldera (see section 3.2.1 and Figure 12). Impacts to Gunnison’s prairie dogs would be further minimized through the implementation of best management practices contained in Appendix C.

### Migratory Birds

The project would result in the removal of 1.5 acres of surface vegetation and the removal of approximately four hazardous trees (three snags, one live hazardous) of potential habitat in the Cabin District. The removal of surface vegetation displaces migratory birds that would otherwise use the habitat for ground nesting, foraging, and shelter. The removal of three snags and one live hazardous tree from the project area would remove cavity nesting sites outside of nesting season and displace migratory birds utilizing this habitat into other surrounding areas. This displacement may lead to territorial disputes and increased strife within a population and increase vulnerability to predation to displaced individuals. Although difficult to quantify at a population level, this displacement will likely be most pronounced on specialist species (e.g. woodpeckers, hummingbirds, and flycatchers) while opportunistic generalists (e.g. crows, jays, and magpies) would likely benefit from changes in human use leading to community changes in the immediate area.

Increased noise levels in the Cabin District during both the initial construction phase and the longer-term changes in human use on nearby recreational trails would disrupt natural behavior and interactions for migratory birds, with expected impacts being most pronounced on native birds. “Anthropogenic noise can acoustically mask, and decrease, the efficacy of avian vocal communication. Warning calls, territorial defense and mating signals can be impaired, and this effect is often indicated by behavioral changes (Schroeder et. al. 2012).”

Construction activities are expected to occur between April – November utilizing non-impact earth moving equipment operating at an average maximum noise level of 70 - 90 dBA at 50 feet from the equipment. Increased noise levels within the project area can be expected to occur intermittently throughout the project implementation (2–4-year timeframe). Construction related noise is expected to attenuate to natural ambient sounds at a distance of ~0.5 miles (WSDOT 2020). Impacts to migratory birds during construction periods from habitat disturbance and vegetative removal would be minimized through the incorporation of best management practices contained in Appendix C.

Increased vehicular traffic along the 2 miles of gravel road and within the Cabin District for parking will contribute to increased daytime background noise levels for the foreseeable duration of the project (8-10 years). Vehicle noise levels may be variable with noise levels being highest during peak periods of park visitation. With slow speed limits (20mph) and a peak daily vehicle count of 315 we can expect a linear background noise level of ~ 50dBA, with periodic levels exceeding that of light traffic as heavy trucks or other louder vehicles arrive or depart (WSDOT 2020). In open grassland, on soft soil this noise level would be expected to attenuate to background levels between 0.25 – 0.5 miles from the access road.

Increased visitation over the foreseeable duration of the project (est. ~8-10 years) will contribute to an increase in background noise levels. Anthropogenic noise will lead to increased stress response and alterations in breeding and nesting behavior with primary impacts at Valles Caldera expected to occur in May and June (peak

nesting season), reducing individual fitness and potentially resulting in reduced nesting success in high density visitor use areas around the Cabin District. These impacts are expected to be most pronounced during the initial construction phases of the project (est. 1 – 3 years) with impacts occurring up to 0.5 miles from construction activities. Long term alterations to avian behavior and occupancy are expected for the remainder of the foreseeable project (est. 8 – 10 years) with impacts most pronounced 0.25 – 0.5 miles from higher visitor density areas and the main entrance road.

#### Rocky Mountain Elk

Increased human use including construction, vehicular access to the Cabin District and nonmotorized recreation in the surrounding areas will influence elk movement and resource selection in vicinity of the entrance station, e.g., the Valle Grande and the forested slopes of South Mountain and Redondo Peak. Elk physiological and behavioral responses to vehicles may vary, with flight initiation and distance influenced by numerous factors, but avoidance of recreationists is largely consistent across studies. Avoidance of nonmotorized recreation may occur both spatially and temporarily, with flight distance of up to 400 meters depending on the setting. Any shift in resource selection by elk during initial construction (2-4 years) and longer-term increased visitation, may have implications for calving seasons and calf survival. There is the potential for elk to become tolerant or habituated in the long term to human presence in the Valle Grande and nearby areas. Increased human disturbance may lead to decreased breeding success and increased vulnerability of elk calves to predation resulting in impacts to individual elk.

#### Wrinkled Marshsnail

Rerouting and expanding the VC01 main entrance road and parking in the Entrance Station area will require the replacement of three culverts and the installation of three additional culverts. This expanded road surface has the potential to alter hydrology and vegetation in the surrounding areas. The infrastructure improvements may positively contribute to hydrologic flow by improving nearby wetland functions and habitat, however vernal grassland pools may be impacted by petroleum or other contaminants running off of roadways and parking areas which may degrade water quality and harm the marshsnail. Direct effects such as loss of habitat, trampling, and localized displacement are not anticipated from this project in areas known to be occupied by Wrinkled marshsnail.

### **3.3.4 Cumulative Impacts**

Past, present, and reasonably foreseeable future actions with the potential to impact wildlife species in the Valles Caldera front country areas include the 2004 replacement of underground utility lines in the Cabin District, wildfire management and response during Thompson Ridge Fire in 2013, and the construction of the new FOC in 2021.

The replacement of underground utilities in the Cabin District in 2004 involved trenching operations in areas of suitable habitat for the Jemez Mountains salamander, although the species had not been listed as endangered under the ESA at that time. The areas impacted by the project have since recovered and while impacts were likely to have occurred to individual salamanders, monitoring was not in place at the time, so it is not certain to what extent.

The effects from the Thompson Ridge Fire response in 2013 were the removal of much of the understory downed woody debris, removing many potential cover objects for salamanders including standing dead and downed wood features. Subsequent post-fire flooding resulted in erosion and continued degradation of soil and potential cover objects for salamanders. The flood risk in this area also promoted the installation of point protection features such as sandbags and jersey barriers, intended to divert water away from sensitive built environment resources. This resulted in modified hydrological conditions within the Cabin District keeping some areas unnaturally dry while other areas were increasingly wet. The FOC construction project in 2021

resulted in impacts to approximately ~4.4 acres within the Cabin District, with trenching, soil compaction and the loss/degradation of mixed-conifer salamander habitat.

Generally, these construction projects would have similar impacts to migratory birds and elk as described above due to increased anthropogenic noise levels within the Cabin District and human activity (in the form of construction crews) resulting in reduced hunting and foraging success for migratory birds, and increased avoidance of the area by both birds and elk. The Wrinkled marshsnail is not known to exist in the Cabin District area of the park and is unlikely to be affected by future projects there.

In summary, these actions likely had and would continue to have a detrimental impact to suitable Jemez Mountains salamander habitat and individuals. However, as a result of previous disturbance throughout the Cabin District and the placement of proposed parking areas in grassland dominated vegetation, the impacts to potential surface cover objects (a key habitat feature) is to contribute minimally to cumulative effects to salamander habitat (NPS 2022[e]). Standard best management practices required on future projects would help to ensure that individual salamanders are not harmed during project implementation.

Alternative 2 would contribute to adverse impacts to wildlife when considered in combination with past, present, and reasonably foreseeable future actions due to ground disturbing and compressional activities within areas of wildlife habitat. However, the total cumulative impact with the additional negative impacts from Alternative 2 would continue to result in adverse impacts to wildlife but would only be a slight increase from the existing condition. Additionally, the incremental adverse impact will be even less for more mobile wildlife species impacted and disturbed by these activities. Under Alternative 1, there would be no cumulative impacts to wildlife species since no action would be taken, with no increased potential for impacts.

### **3.3.5 Summary of Impacts**

In summary, long-term (est. ~8 – 10 year) impacts, mostly related to disturbance resulting from nonmotorized summer recreation, would likely occur in park areas adjacent to the Cabin District. Valles Caldera will maintain the rich vegetation diversity, including valley wetlands, expansive grasslands, and forested mountain slopes creates a mosaic of wildlife habitats, that is unique in the southwestern United States generating high-desert and mountain-dwelling wildlife communities that include numerous sensitive species and abundant game. These impacts would result in slight changes in habitat use and alteration of wildlife behavior in the project area. The degree of disturbance will vary by species, and by the success of project mitigations and best management practices. The proposed project would result in direct impacts to approximately 400 cubic yards of native soils and approximately 1.5 acres of surface vegetation. Loss of wildlife habitat for both terrestrial and subterranean species would occur in frontcountry areas that are already in use as areas of infrastructure and development to accommodate visitation. These impacts would continue to occur for up to 10 years in some cases, or potentially longer, depending on the guidance provided from subsequent park planning decisions. Additional wildlife impacts, mostly resulting from increased nonmotorized recreation, will alter wildlife habitat use and behavior in high visitor density areas within and adjacent to front country areas. However, wildlife use of these habitat areas is not likely to completely cease following the implementation of this project but would likely be modified both spatially (accounting for increased distances between people and wildlife) and temporally (accounting for wildlife not occupying habitat areas while humans are present) to adjust for increases in visitor use throughout these areas.

Collisions between Gunnison's prairie dog and vehicles along the VC01 road are expected to increase from existing levels as more visitors travel beyond the Entrance Station into the Cabin District. The increase in injury or death resulting from vehicle collisions is also likely to continue to increase in parallel with visitor use increased projected over the next ~10 years. Loss of habitat would primarily affect the Gunnison's prairie dog town located near the Entrance Station as approximately 0.2 acres of occupied prairie dog habit would be removed. Prairie dogs would be incrementally excluded from occupied burrows in construction areas and

would no longer be able to access the colony network. While these actions would have a detrimental effect on prairie dogs, potentially injuring, killing, or displacing individual prairie dogs, the park sustains approximately 6000 – 7000 acres of prairie dog colonies and the impacts related to this action are unlikely to meaningfully decrease population levels or long-term viability of the species within the park.

Potential impacts to the Wrinkled marshsnail would be minimal as the areas known to be occupied by the snails would not be directly impacted by this project. In fact, installation and repair of culverts in the Entrance Station area of the park would help to restore natural hydrological conditions which may result in an improvement to adjacent vernal grassland pool habitat areas. There is the potential that once hydrological conditions are restored following the installation and replacement of culverts near the Entrance Station that petroleum contaminants that runoff from adjacent roads and parking areas may affect these pools. Continued water quality monitoring in this area of the park would occur to detect any detrimental changes which might occur.

As a result of previous disturbance throughout the Cabin District and the placement of proposed parking areas in grassland dominated vegetation, the impacts to Jemez Mountains salamander potential surface cover objects are anticipated to be minimal. Project mitigations to focus disturbance to previously disturbed areas, and to reuse existing subsurface conduit for much of the fiber optic cable will greatly reduce potential for impacts to individual salamanders. Additional mitigations to leave woody debris in place and avoid rocks and boulders to the maximum extent possible will also reduce potential for impacts to suitable habitat features. Surveys will assist to identify any locations of habitat and NPS biologists will work with NPS facilities staff to protect suitable habitat to the maximum extent possible. If habitat features are lost this could result in changes in shelter, movement and reproductive behavior, and available insects for food for individual salamanders located in the immediate area. The ability to identify salamanders from the proposed project areas ahead of time using existing survey techniques directly relates to the assessment of impacts to salamanders resulting from this project. If survey and other best management practices (described in Appendix C) are successful, then impact to both population and individual salamanders would likely be avoided. However, should salamanders remain undetected in the project area there is the potential for impacts to salamanders from construction activity which could result in increased stress, injury, or death.

Rocky Mountain elk would experience altered movement and behavioral patterns due to increased visitor use in the area surrounding the Cabin District. Elk response to increased human activity is likely adverse partially because the herd is hunted elsewhere in the park and have developed specific behavioral patterns related to human presence, and also because other anthropogenic conditions such as increased noise levels (heightened during the construction periods), larger pedestrian group sizes, and more vehicular activity are likely to create both spatial and temporal changes in natural behavior. Resource selection in high-activity areas would be modified. Elk would also experience increased exposure to human activity and pressure during biologically sensitive periods like rutting and calving seasons. The Valles Caldera portion of the Jemez Mountains elk herd is estimated to be approximately 2,500- 3,000 elk, a majority of which would not be affected by localized activity in park front country areas. While detrimental impacts to elk individuals are anticipated from this project, they would not result in population level effects affecting the overall health and abundance of the herd.

There is the potential for disturbance-related effects from construction activities to migratory birds. Occasional disturbances to these species during such activities could cause them to move short distances away from construction activities. These disturbances could result in displacements during construction periods from project areas resulting in the increased expenditure of energy. However, these inadvertent effects are not likely to have impacts beyond the individual level in the project areas and ample surrounding habitat exists for birds to disperse to.



**Figure 17. A Panoramic Photo of the Baca Ranch Cabin District Showing the Forest Grassland Ecotone**

## **Consultation and Coordination**

### New Mexico State Historic Preservation Office

- Valles Caldera met with the SHPO on January 11, 2022, to discuss preliminary information regarding the proposed project and to hear their initial thoughts and opinions regarding potential impacts to historic properties. The result of the meeting was an agreement that the development of a PA between Valles Caldera, SHPO, and other consulting parties was the best way to move forward in accordance with the National Historic Preservation Act (NHPA) Section 106. Following this meeting the park sent an official invitation to the SHPO on February 7, 2022, requesting the development of a PA to address potential adverse effects to historic properties at Valles Caldera. On March 4, 2022, SHPO concurred (HPD Log 116730). The Advisory Council on Historic Preservation (ACHP) was notified on March 30, 2022, of the finding that this undertaking may adversely affect historic properties, that NPS proposes to develop a PA, and to invite ACHP to participate in this Agreement. The NPS will work collaboratively with the SHPO and other consulting parties to minimize adverse impacts to historic properties within the park.

### Consultation with Native American Tribal and Pueblo Governments

- Consultation with tribal governments on the Valles Caldera Front Country Infrastructure Improvements Project began on December 17, 2021. The park sent out letters to 38 associated tribes and pueblos with an attached map describing the project, requesting input, and offering formal consultation.
  - Initial consultation with Native American Tribal Governments resulted in 7 response letters being received for this project. The park reviewed and considered all the responses from tribes and pueblos. The initial round of consultation on this project resulted in the park engaging in formal in person consultation on this project with 1 Tribal Government.
- The park is developing a PA to address adverse effects to historic properties at Valles Caldera in accordance with the NHPA Section 106. Native American Tribes and Pueblos with a cultural connection to Valles Caldera have been formally invited to participate in the PA. Invitations to participate in the development of the PA and to join as consulting parties were sent on March 8, 2022. The NPS will continue to work collaboratively with interested Tribal Governments on this agreement and in the development of this project.
- Valles Caldera is aware that the park is culturally significant to several tribes. Based on current information, the locations of the proposed action (Cabin District and Entrance Station) may overlap with Traditional Cultural Properties that have been identified through tribal consultation. The extent which the proposed project might affect these areas requires further consultation between the park and interested tribes. Therefore, the PA will include a process through which the park and participating tribes can continue consultation regarding the identification of Traditional Cultural Properties and culturally significant areas, assess potential effects to those locations, and consult to develop measures to avoid, minimize, and mitigate any potential adverse effects.

### Public Participation

- Public participation on the Front Country Infrastructure Improvements Project began in 2021 when Valles Caldera sent out a news release with preliminary information regarding the issues at the park which we intended to address and ideas for how to solve them. The project was opened for public comment through the NPS Planning, Environment, and Public Comment (PEPC [project #106210: available at <https://parkplanning.nps.gov/projectHome.cfm?projectID=106210>]) system from December 22, 2021, through January 14, 2022.
  - The initial round of public participation generated 44 unique public comments on the proposed project. The park reviewed and considered these comments during the project planning stage of this project.

U.S. Fish and Wildlife Service, Endangered Species Act: Section 7

- The park has consulted with the USFWS on the proposed Front Country Infrastructure Improvements Project at Valles Caldera which has included the initial assessment of impacts to threatened and endangered species within the park in accordance with the ESA Section 7. Valles Caldera has prepared a Biological Assessment analyzing impacts from this project to listed species in the project area. The draft Biological Assessment indicates that the proposed project “*may affect but is not likely to adversely affect*” the Jemez Mountains salamander, New Mexico meadow jumping mouse, and the Mexican spotted owl. The draft Biological Assessment was transmitted to the USFWS in May 2022, and the park received concurrence from the USFWS in August 2022.

New Mexico Department of Game and Fish

- The park has been engaged in consultation efforts with the NMDGF regarding this project and the potential impacts to State listed threatened and endangered species. NMDGF is aware of the potential impacts to State listed species and has requested continued consultation on the project, impacts to wildlife species of concern, and mitigative measures as they are being developed and implemented.

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## Appendix A: Cultural Resource Properties Potentially Affected by the Front Country Infrastructure Improvements Project

The Cabin District is within a 19<sup>th</sup> – 20<sup>th</sup> century historic district and cultural landscape which encompasses several historic buildings and maintains the historic feeling and character of Western U.S. ranching. This area, assessed under a draft NRHP historic district nomination in 2015 and a draft cultural landscape inventory in 2020, is likely eligible for listing on the NRHP. The Valles Caldera Front Country Infrastructure Improvements Project would potentially impact the historic setting, feeling, and association of the area. Several archaeological sites within the Cabin District and Entrance Station areas also have the potential to be adversely affected through the implementation of this project.

The following tables identify the extent of cultural resources which would be affected by this project.

**Table 3. Previously Identified Historic Properties within the Cabin District**

Site/HCPI Number	Site Type	Period(s)	Date	Eligibility	SHPO Concurrence	Comments
LA 136351	Lithic Scatter, Historic Cabins, Modern Cabin	Late Archaic, Historic	2000 BC- 300 AD 1915 - 1991 AD	Eligible A, C, D	Log Nos. 65649, 69091, 87734, 106765	
LA 136372	Same site as LA 136351					
LA 137534	Lithic Scatter Historic Struct.	Unknown Prehistoric, Historic	10000 BC - 300 AD 1951- 2000 AD	Eligible A, C, D	Log Nos. 69061 and 87734	
LA 137536	Lithic Scatter, Historic Cabin	Late Prehistoric/ Protohistoric, Historic	900 - 1800 AD 1918 - 2000 AD	Eligible A, C, D	HPD Log Nos. 69091, 87734, and 106765	
LA 137537	Lithic Scatter, Historic Cabin	Unknown Prehistoric, Historic	10,000BC - 300AD 1918 - 2000 AD	Eligible A, C, D	HPD Log Nos. 69091 and 87734	
LA 137539	Historic Cabin	Historic	1941	Eligible A, C	HPD Log Nos. 69091 and 87734	
LA140252	Prehistoric Lithic Scatter, Historic Foundation	Unknown Prehistoric, Historic	Unknown prehistoric; 1970s	Eligible D	Log Nos. 69091, 106765, 107021	New Maintenance Garage Location: site was adversely affected and needs to be reevaluated
HCPI 34120	Historic Cabin	Historic	1915	Eligible A, C	Log Nos. 65649, 69091, 87734, 106765	Otero Cabin; within LA 136351
HCPI 34121	Historic Cabin	Historic	1941	Eligible A, C	Log Nos. 65649, 69091, 87734, 106765	Commissary Cabin; within LA 136351
HCPI 34126	Historic Cabin	Historic	1951	Eligible A, C	Log Nos. 69061 and 87734	Cowboy/Greer Cabin; within LA 137534
HCPI 34128	Historic Cabin	Historic	1918	Eligible A, C	HPD Log Nos. 69091, 87734, and 106765	Bond Cabin; within LA 137536.
HCPI 34130	Historic Cabin	Historic	1918	Both Eligible A, C; and Not Eligible	Log 69091 (Eligible) Log 87737 (Not Eligible)	Foreman's Cabin; within LA 137537.
HCPI 34132	Historic Barn and Corral	Historic	1941	Eligible A, C	HPD Log Nos. 69091 and 87734	Old Barn and Corrals (aka Salt

						Barn); also, LA 137539.
HCPI 48496	Modern Building	Modern	1991	Not eligible	Log Nos. 65649, 69091, 87734, 106765	Ranger Station (aka Cabin District Contact Station; Bunkhouse); within LA 136351
Historic District	Historic Dist. (Encompasses Cabin District area)	Historic	1899-1965 or 1860 - 1971 (Period of Significance)	Eligible	Consultation on eligibility pending	2015 draft NRHP historic district nomination and 2020 draft CLI.

**Table 4. Previously Identified Historic Properties near the Entrance Station**

Site/HCPI Number	Site Type	Period(s)	Date	Eligibility	SHPO Concurrence	Comments
LA 152304	Historic/ Modern Corral	Historic, Modern	1960s; post 1979	Not eligible (SHPO 2017)	HPD Log No. 102957	Converted to pipe in 1960s and remainder was converted to pipe after 1979.
LA 132045	Lithic Scatter, Structural Prehistoric	Paleoindian, Archaic, Ancestral Puebloan	7500 - 6500BC 3500BC-400AD 875 - 1050AD	Eligible A, C, D	Log Nos. 62073, 65737, 106804, 108566	

## Appendix B: Impact Topics Dismissed from Further Analysis

### Soils and Vegetation

The proposed project would result in the subsurface disturbance and removal of approximately 400 cubic yards of soils at Valles Caldera. However, many of these soils are planned to be returned following infrastructure improvements (e.g., after installing buried fiber optic cable or electrical lines) and most of the remaining infrastructure being proposed for construction (parking lots and trails) are planned to be implemented in such a fashion where they would be built at grade requiring little to no excavation greatly reducing subsurface disturbance. While approximately 1.5 acres of soils would be covered by new surface infrastructure, most of this infrastructure would be constructed upon a layer of geofabric which will purposefully separate native soils from construction base and fill materials. This would allow the park to identify the distinction of previously existing soils and newly constructed infrastructure should the new facilities need to be modified, relocated, or removed in accordance with the outcomes of long-term management planning for the park. As a result, there would be no meaningful impacts to soil function and soils are dismissed from further analysis in the EA.

The project would also result in impacts to vegetation and trees located in the Cabin District and Entrance Station. Approximately 1.5 acres of vegetative ground cover would be lost due to the construction of new facilities. Additionally, the placement of parking lot A and B within the Cabin District will result in the removal of approximately 4 hazardous old growth ponderosa pine trees located near the proposed parking areas (NPS 2021[b]). Hazardous trees adjacent to park facilities would be evaluated for their apparent risk and may be modified or removed to eliminate the potential risk in accordance with the park hazard tree management plan (NPS 2020[a]). Potential impacts resulting from the removal of old growth trees are analyzed in the EA under the affected environment and environmental consequences for Cultural Resources. While there would be a loss of small amounts of vegetation from this project, this loss would not affect the overall composition, health, or abundance of the vegetative community at the park. For these reasons impacts to vegetation were dismissed from detailed analysis in the EA.

### Socioeconomic Impacts/Environmental Justice

The project would improve conditions at the park as they relate to environmental justice due to accessibility improvements to park buildings and infrastructure. Infrastructure development and accessibility improvements would not affect any reliance on a particular resource or disrupt community mobility and access currently relied upon. In 2021, 76.6 thousand park visitors spent an estimated \$5.5 million in local gateway regions while visiting Valles Caldera National Preserve. These expenditures supported a total of 73 jobs, \$2.3 million in labor income, \$4.0 million in value added, and \$7.1 million in economic output in local gateway economies surrounding Valles Caldera National Preserve. Further enhancements to visitor services and experiences are likely to increase visitation to the park and surrounding region, which would increase economic growth potential for gateway communities and business, including food, lodging, retail, recreation industries, and other sectors directly affected by visitor spending. For these reasons socioeconomic and environmental justice impacts are being dismissed from detailed analysis in the EA.

### Wildlife and Special Status Species

An official species list (consultation code 2022-0019393) was obtained from the USFWS Information for Planning and Conservation (IPaC) website (<https://ecos.fws.gov/ipac/>) on March 14, 2022. The list identified 8 threatened, endangered, or candidate species with the potential to occur within the proposed action area: New Mexico meadow jumping mouse (*Hudsonius luteus*), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), Jemez Mountains salamander (*Plethodon neomexicanus*), Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*), Rio Grande silvery minnow (*Hybognathus amarus*), and Monarch butterfly (*Danus plexippus*). There is no designated critical habitat for any of these species located within the project area. Seven of these species (excluding the Jemez Mountains salamander) are being dismissed from detailed analysis in the EA due

to the absence of critical habitat within the project area, and areas of suitable habitat for listed species which have been previously surveyed have produced negative results indicating the areas are not likely to be occupied.

#### Mexican Spotted Owl

The proposed project area does not intersect with critical habitat areas for the Mexican spotted owl (USFWS, 2022), however the forested areas near the Cabin District are considered to be suitable habitat for the species. The Mexican spotted owl is susceptible to increased levels of noise and may be temporarily displaced during construction periods for infrastructure improvements in the Cabin District. The Cabin District will function as the future primary starting point for recreational visitors, which will contribute to an increase in visitor density and non-motorized recreational use of the surrounding landscape including South Mountain and Redondo Peak. These surrounding areas contain mixed-conifer vegetation suitable for the Mexican spotted owl. However, surveys conducted in the Cabin District and nearby South Mountain in 2020 and 2021 did not detect any current occupancy of owls and there is no known historic occupancy of these areas. Project mitigations to monitor and conduct surveys for the presence of the Mexican spotted owl in nearby suitable habitat (South Mountain, Redondo Peak), and consider recreational seasonal restrictions as necessary, in consultation with USFWS if a Mexican spotted owl is detected, will reduce the potential for disturbance to this species.

#### New Mexico Meadow Jumping Mouse

The preferred alternative would create a 383-foot trail around the La Jara Pond in the Cabin District adjacent to potential riparian habitat for the jumping mouse. This trail would be located on the berm surrounding the pond, with foot bridges constructed crossing La Jara Creek. The project would create four additional new improved foot crossings across La Jara Creek associated with the Cabin District Trail and the Upland Cabin District Trail. Foot bridges would be constructed without the use of culverts, therefore allowing continued habitat connectivity. La Jara Creek is identified as potential secondary habitat for the jumping mouse. It does not provide the identified USFWS minimum patch size and connectivity requirements for viable and healthy populations of jumping mouse but may provide limited habitat connectivity to the East Fork of the Jemez. Track plate surveys in 2018 conducted throughout the Cabin District on La Jara Creek did not identify current occupancy. Due to previous impacts to potential habitat and negative survey detections, La Jara Creek is not thought to be currently occupied by the jumping mouse.

#### Bald and Golden Eagle

Migrating bald eagles arrive on the park in October and November with primary concentrations along San Antonio Creek and the headwaters of the East Fork of the Jemez River (Johnson 2006). No nesting eagles have been identified at the park, and primary roosting/perching habitat is located beyond any potential disturbance created by construction related activities or increased visitation in the Cabin District. Individual eagles (both bald and golden) have been observed hunting prairie dogs and other small mammals in and around the Entrance Station project area, including occasional perching on the corrals which are planned for removal. Although the Entrance Station area is not known to be frequently used by eagles, hunting habitat may be reduced by approximately ~5 acres during the removal of the corrals and avoidance of the area during the construction period. Some alteration of eagle movements and behavior may occur because of this project. However public visitation usually decreases by October, and this trend is expected to continue in the future, further limiting any potential for disturbance of migratory or overwintering eagles. In addition, only a small fraction of available hunting habitat would be impacted, and avoidance of the area would be temporary occurring primarily during the construction period for Entrance Station improvements (described in section 2.2.2).

#### Bats

The historic cabins within the Cabin District also function as a maternity colony for fringed myotis (*Myotis thysanodes*) and may include other bat species. Although bats are protected species their presence within these structures is a nuisance as it results in damage to historic resources, park infrastructure, and creates human

health and safety concerns. Biologically sensitive periods for bats include the pupping season which occurs May through July. Impacts to bats located in the Cabin District from construction noise and increased human activity are anticipated but unlikely to affect pup rearing and development. Although specific actions to manage bats are not included as part of this project, when managing bats, the park will follow the guidelines outlined by the white-nose syndrome conservation and recovery working group (USFWS 2015). Subsequent management actions regarding bats would be analyzed under a separate NEPA assessment. For these reasons impacts to bats are being dismissed from detailed analysis.

#### **Food Conditioning and Black Bear**

Although many wildlife species avoid areas of frequent human activity, some species may respond differently and become habituated, or food conditioned with increased human presence. Many generalist species such as squirrels, chipmunks, mice, crows, and jays may become attracted to human food sources. This can result in certain wildlife species occurring in higher numbers in human occupied areas, competition and aggression for free and easy food, and other various abnormal psychological behaviors. Visitor education to ensure wildlife is not being fed is important in preventing food conditioning.

Black bears are another generalist species that frequently use the areas near the Cabin District, South Mountain, and the slopes of Redondo, and are known to utilize existing recreational trails. Increasing recreational use of the Cabin District and surrounding landscape will increase encounters beyond current levels. Although black bears often avoid nonmotorized recreationists (USDA 2020), they can become habituated or attracted to visitor use areas which may require additional management steps (NPS 2016[b]). Food conditioned bears may demonstrate abnormal tendencies such as increased risk of human injury, increased likelihood that animals will congregate in unnaturally dense aggregations, and an increased risk that the animal will receive food or other rewards. Black bear-human conflict is known to have occurred in the Jemez Mountains, and visitor education/awareness and proper infrastructure (food storage, bear-proof garbage receptacles) will be used in this project to reduce the risk of additional conflict. Bears that become attracted to visitor use areas may experience displacement or alteration of movement patterns as a direct result of NPS management, but impacts are anticipated to be minimal due to the current existing use of the area.

#### **Human Health and Safety**

The proposed project to implement infrastructure improvements in front country areas of Valles Caldera would not negatively affect human health and safety conditions that currently exist at the park, specifically the risk posed from the contraction of zoonotic diseases which are known to occur within prairie dog populations. In fact, the risk may be decreased by the implementation of this project as more visitors would transition through the Entrance Station area to the Cabin District away from existing prairie dog colony locations. Management to control the spread of zoonotic disease is outside the scope of this project and would be completed under a separate future planning initiative that would be subject to additional review under NEPA. It is for these reasons that human health and safety have been dismissed from detailed analysis in this EA.

#### **Lightscaapes**

The front country infrastructure improvements project does not propose the addition of any artificial light sources including during construction periods. The use of the area would occur during regular business hours and staff presence during times of lighting requirements would be limited to dawn and dusk during fall-winter-spring periods. Lighting of existing buildings and entryways is managed under the guidelines provided by the International Dark Sky Association and contained in the 2020 Valles Caldera Lighting Retrofit Project report (NPS 2020[d]) and are not anticipated to change because of this project. As no additional lighting is being proposed and existing conditions of lighting will not change, impacts to park Lightscaapes is being dismissed from detailed analysis.

#### **Soundscapes**

Sounds in the project area are currently a mixture of both natural and man-made noises generated from human activity, vehicle operation, wind, and wildlife. The largest increase in anthropogenic sound is anticipated to occur intermittently throughout project implementation (est. ~2 – 4 years) attributed to additional equipment, vehicle use, and construction crews. The existing ambient sound levels in front country areas of Valles Caldera are approximately ~35dBA, with most of those noises being attributed to wind, bird and insect calls, and other natural wildlife noises. Noise levels from construction activity could range anywhere from ~70 – 90 dBA but would only exist intermittently during the construction period, described in section 2.2.2. Following the implementation of this project the sound levels within the Cabin District are anticipated to increase as visitor and vehicle use of the area increases. Vehicle noise levels may be variable with noise levels being highest during peak periods of park visitation. Considering the capacity limits of proposed parking areas, slow speed limits (20mph), and a peak daily vehicle counts we can expect a linear background noise level of ~ 50dBA, with periodic levels exceeding that of light traffic as heavy trucks or other louder vehicles arrive or depart (NPS 2016[a], WSDOT 2020). Ambient noise at these levels during business hours would not result in impacts to the human environment. While soundscapes are being dismissed from detailed analysis, wildlife impacts resulting from increases in anthropogenic noise (specifically to migratory birds) have been carried forward for analysis in the EA.

### **Wetlands**

The locations for proposed front country infrastructure improvements at Valles Caldera would not occur in wetland areas of the park. Project components occurring adjacent to La Jara Creek and the La Jara Creek Pond would be located outside of the riparian zone. The creek has a narrow channel (not exceeding ~3 feet in most areas) and footings for bridge crossings would be anchored outside of associated wetland areas. Other project areas have been previously investigated and were not found to contain properties associated with wetlands.

### **Floodplains**

The locations for proposed front country infrastructure improvements within the Cabin District are located within the 100-year floodplain associated with the La Jara Creek. The foot trails and bridges associated with these improvements are the only facilities located within the FEMA-designated 100-year floodplain. These facilities would not affect the function of the floodplain. Any larger improvements, such as footbridge footings would be located outside the stream bed and have no effect on the function of the FEMA-designated floodplain. The FEMA map which depicts the floodplains have not been updated since the recent fires and it is likely the floodplain has been modified due to fire history and restoration activities which further reduces the potential for any impacts to floodplains. The activities proposed for this project are exempt from the requirement to complete a Statement of Findings in accordance with NPS Director's Order 77-2, and Procedural Manual 77-2. Potential impacts to floodplain function are further reduced due to design elements (e.g., no culverts) and heavy equipment would not be used within the 100-year floodplain for the La Jara Creek. Based on these factors and the assessment from the park hydrologist, the potential impacts to floodplains would not affect the natural resources and functions of floodplains and are being dismissed from further analysis.

### **Indian Trust Resources and Sacred Sites**

Trust resources are those natural resources reserved by or for Indian tribes through treaties, statutes, judicial decisions, and executive orders, which are protected by fiduciary obligation on the part of the United States (NPS 2006). After review, the NPS concluded that there are no Indian Trust Resources in the project area. No Indian Trust Resources would be impacted as a result of implementing either alternative discussed in the EA. Sacred sites are those places having established religious meaning and as locales of private ceremonial activities (NPS 2006). Through consultation efforts (see EA Chapter 4: Consultation and Coordination), the park is aware that the entire landscape of Valles Caldera National Preserve is of great traditional religious and cultural significance for many Indian peoples, with specific importance placed on sacred sites located within the park. However, the known locations of Indian Sacred Sites within Valles Caldera are outside of the area of

potential effect for this project and the sites would not be impacted through the implementation of the proposed action.

## Appendix C: Best Management Practices

NEPA promotes efforts to prevent or eliminate environmental harm. Mitigation often plays a central role in the avoidance or minimization of adverse environmental impacts. Often, mitigation consists of best management practices designed to minimize potential impacts from an agency action (NPS 2015[a]). Based on the potential impacts to resources described in this EA, Valles Caldera would implement the following best management practices as part of Alternative 2 to protect park resources and values.

### Cultural Resources

- All subsurface excavations necessary to install new front country infrastructure improvements will be monitored by park archaeologists.
- The color of the top layer of fine gravel materials used for parking lot and trails construction should be selected to match most closely with the colors of other dominant natural colors located within the project areas.
- Where ground disturbance or compressional issues (e.g., below proposed parking areas) will occur, subsurface archaeological testing would be conducted to better assess the potential for adverse effects. Should there be adverse effects they will be resolved per the PA between the NPS, SHPO, and other consulting parties.
- The final alignment of trails and fiber optic cable trenching will be made to minimize potential impacts to archaeological resources.
- All base, fill, and finish materials used in the implementation of this project must be free of artifactual or geological contaminants, as reviewed by the park cultural resources program.
- Design of above-ground elements in the Cabin District will be developed to minimize visual intrusions to the historic setting.

### Vegetation

- All construction base, fill, and finish materials sourced from outside of the park must be acquired from a certified seed and weed free source.
- All construction vehicles entering the park must be clean of dirt and vegetative matter; inspection of vehicles would be conducted by park staff prior to entrance.
- Upon project completion, the park biologist shall survey and monitor the project area for invasive plants and respond accordingly to eliminate any invasive species.
- To prevent the introduction of non-native plant species, weeds, and seed all equipment will be power washed and cleaned prior to entering the park.

### Visitor Use and Recreation Setting

- The park will consult with the NPS regional office to conduct a full assessment of accessibility deficiencies in the Cabin District and Entrance Station areas of the park. Information gained from the survey will be used to develop subsequent projects to improve visitor access and accessibility.
- A combination of trail counters and visual surveys will be used to monitor visitor use impacts at South Mountain, History Grove, La Jara Creek and the VC0201 trail. Based on conditions consider implementation of visitor management and/or additional infrastructure (improved trails, signage, trash receptacles, bathrooms, benches, elimination of social trails, etc.) designed to minimize impacts from visitor use.
- Information regarding any anticipated closures or delays related to construction activities would be communicated to the public prior to the activity commencing and would be made available on the park website

### Wildfire Safety

- Acetylene torches, grinders, reciprocating saws, and other tools necessary for the dismantling of iron pipe corrals will only be used during period of low fire danger. The park will consult with wildfire management officials prior to using this equipment.

### Wildlife

- Warning signs will be placed in areas where prairie dog colonies occur near visitor use areas informing visitors about wildlife distance regulations, dangers of zoonotic diseases, and other safety information.
- The park will continue to deter and expel prairie dogs from developed areas using existing management practices and will incorporate the reverse dispersal technique to remove prairie dogs from areas where infrastructure improvements would be implemented. The reverse dispersal method would occur between the time when young pups emerge from the burrows (around mid-June to early-July until the local population hibernates in the fall).
- The park will continue to monitor and conduct surveys for the presence of threatened and endangered species in areas where intensive visitor use occurs and if detected further consultation with USFWS will occur to identify strategies to minimize effects.
- During trenching operations, the park should prioritize concurrent trenching and backfilling. Trenches that have been left open overnight should be inspected the following day by a qualified biological monitor and trapped animals removed as soon as possible, especially where State or Federally listed threatened or endangered amphibians, reptiles, or small mammals occur.
- If Jemez Mountains salamanders are observed in an area scheduled for excavation or soil compaction, work will stop in the project area until such time as the NPS has consulted with the USFWS on an agreed upon strategy.
- Live trees and dead/downed woody debris, rocks, and boulders will be left in place wherever possible, except where it endangers public safety.
- Work with heavy machinery will be performed from existing access roads whenever possible to reduce soil disturbance and compaction.
- All equipment used during maintenance activities will be fueled, stored, and cleaned prior to use on NPS lands or at NPS-approved staging areas located outside of floodplains and sensitive habitat areas.
- In areas where vegetation removal and excavation would take place during the late spring and summer, which would coincide with the nesting season for many migratory bird species, a preconstruction nesting bird survey will be conducted to avoid unintentional take of an occupied nest, birds, eggs, or parts. If active bird nests are located the activity will be suspended until such time as the birds have left the nest.
- Bear-proof trash cans will be provided for public use near Cabin District to reduce potential wildlife conflict.
- The park will continue to monitor the Jemez Mountains elk herd, in continued collaboration with NMDGF (conducting annual population estimates and demographic counts), to ensure human recreation intensity isn't having undesired effects on the herd.
- The park will provide information to visitors regarding wildlife viewing distance and appropriate viewing behavior.
- The park will continue partnerships with the State of New Mexico to monitor the water quality of ephemeral pools in the Valle Grande.