# Environmental Assessment

## Proposed Facility and Resource Restoration Projects:

(Medicine Lake and Main Park Roads Intersection Realignment, New Park Equipment Garage, Crescent Borrow Pit Rehabilitation, and Caldwell Borrow Pit Rehabilitation)

National Park Service, Lava Beds National Monument

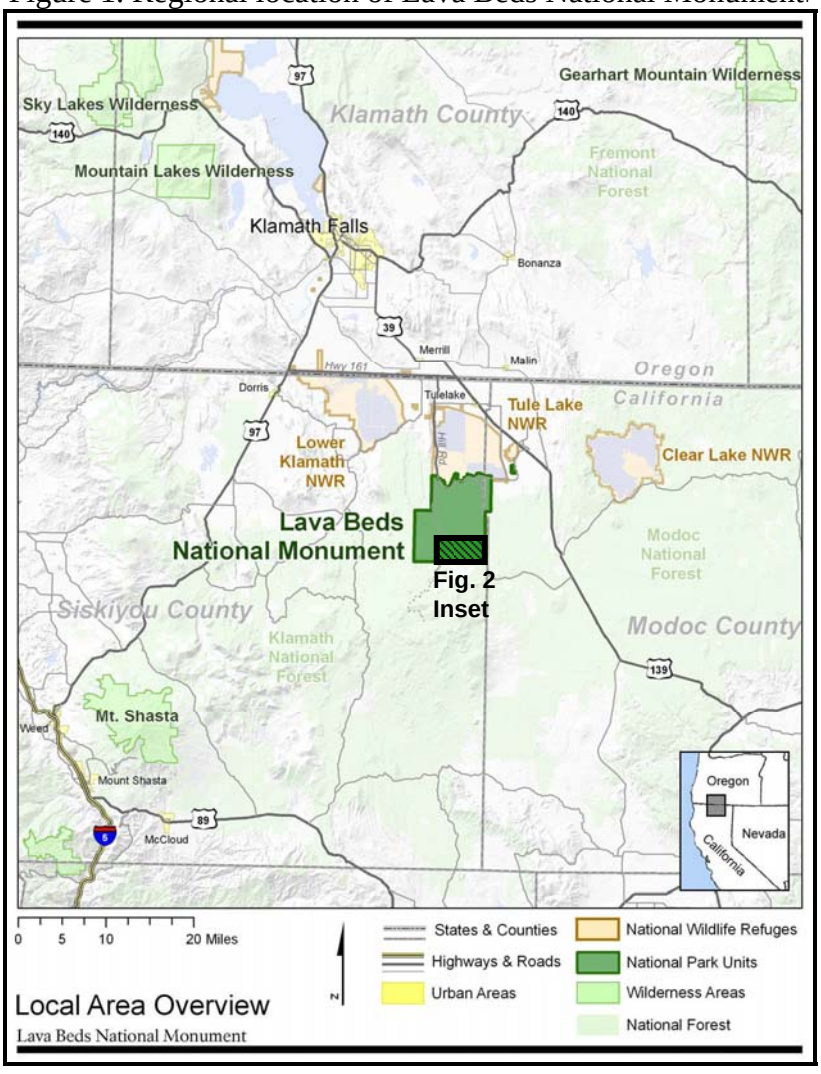
Siskiyou County, California

February 2008

## Setting

The 46,560 acre Lava Beds National Monument is located within Siskiyou and Modoc counties in Northeastern California, approximately 50 miles southeast of Klamath Falls, Oregon. The monument shares borders with the Modoc and Klamath National Forests, the Tule Lake National Wildlife Refuge, and several private land owners (Figure 1).

Figure 1. Regional location of Lava Beds National Monument.



## Purpose and Need

There are two facility improvement projects and two resource restoration projects being evaluated in this environmental assessment (EA). These projects have been developed to address identified deficiencies that affect visitor and employee safety, park operations and would restore impacted landscapes. These projects have been grouped together for analysis in this document because they comprise the projects likely to occur at Lava Beds in the next 12- to 24-months.

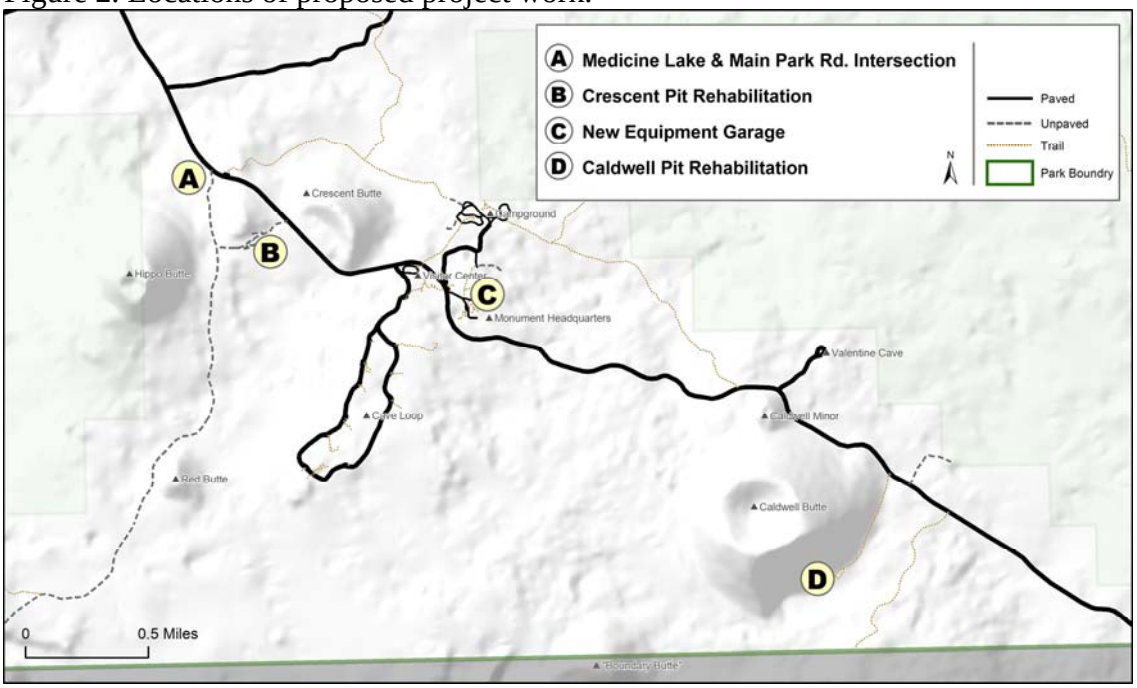
The management of Lava Beds National Monument is based on a number of guiding policies and planning documents (2006 Management Policies, 1996 General Management Plan, 1999 Resource Management Plan). These references provide the overall guidance on how the proposed actions will be developed.

The following would be the goals and objectives of the proposed actions. Alternatives would be evaluated in their relative effectiveness in meeting and fulfilling the project goals and objectives:

- Improve visitor and employee safety
- Improve the efficiency of park operations
- Restore damaged resources and disturbed sites

All of the proposed projects in this environmental assessment are located in the southern portion of the National Monument within approximately two miles of the Visitor Center (Figure 2).

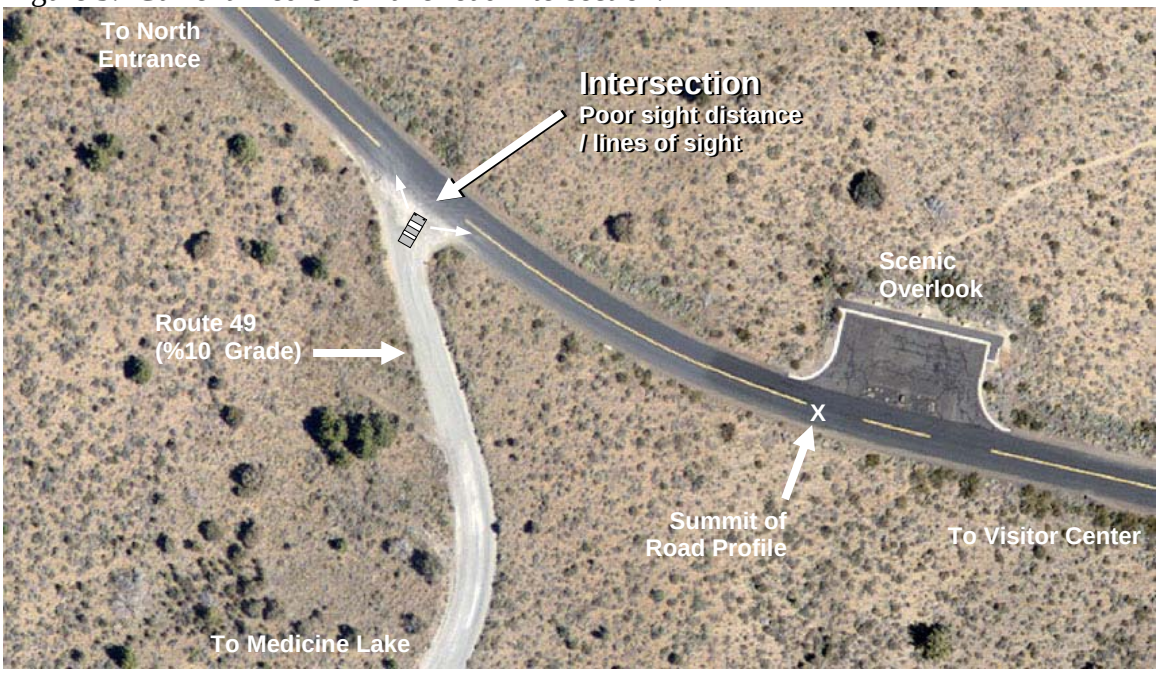
Figure 2. Locations of proposed project work.



**Medicine Lake & Main Park Roads Intersection**

The intersection of the Medicine Lake Road (extension of Forest Route 49) with the Main Park Road, approximately one mile north of the Park Visitor Center, is located on a curve in the road. The intersection is also located approximately 300-feet north of a summit on the road causing the current intersection to have poor line of sight. Traffic that is on the Medicine Lake Road has a difficult time in seeing traffic on the Main Park Road and vice versa (Figure 3). Traffic on the Medicine Lake leg of the intersection is controlled by a stop sign, and traffic on the Main Park Road does not stop. The Medicine Lake leg of the intersection also has a steep (approximately 10%) grade that in the winter, when covered with snow and ice makes stopping for downhill (northbound) traffic at the intersection very difficult. Each winter several accidents occur when northbound Medicine Lake Road traffic is not able to stop on the snow covered road and slides across the Main Park Road and off the road shoulder. Although accidents at other times of the year due to the inadequate sight distance have not been reported in recent years, there is also a risk of a serious accident due to the speeds (35-45+ MPH) that vehicles travel on the main park road in the vicinity of the intersection.

Figure 3. Current Medicine Lake road intersection.



**Heavy Equipment Parking Area**

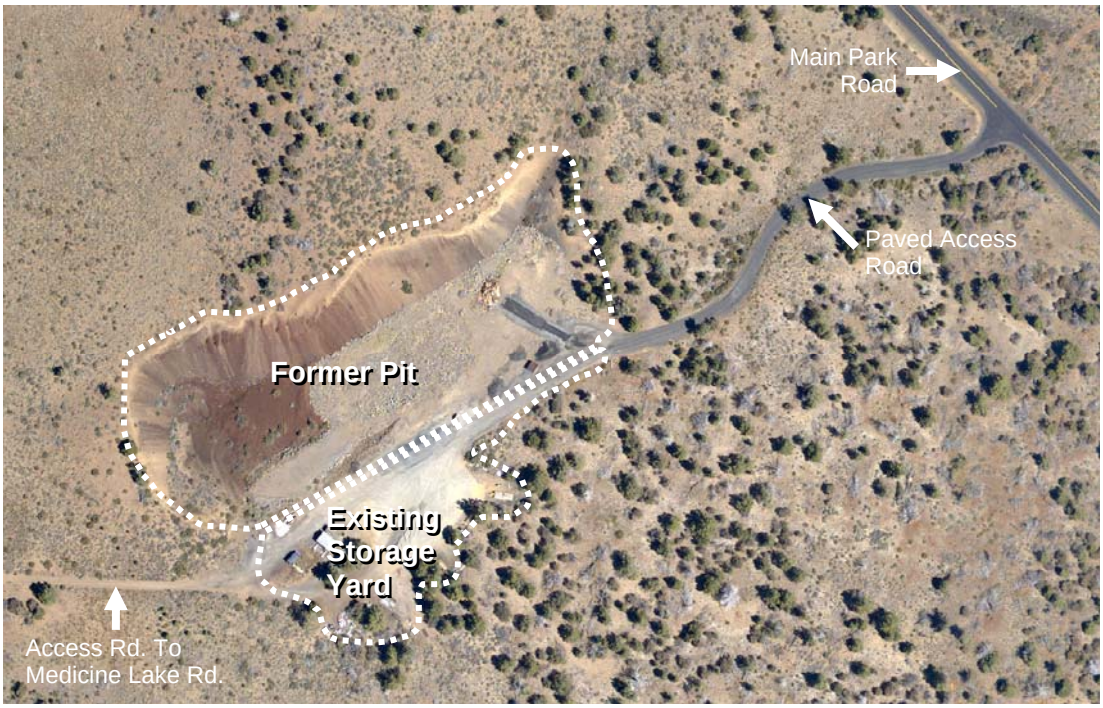
In the administrative and operations area of the park headquarters, the heavy equipment and maintenance trucks of the National Park Service are parked out in the open weather on a paved parking area (Figure 4). During the winter when this equipment is used for snow plowing, starting cold equipment can be problematic and time consuming. When repairs are required they must be accomplished out in the cold weather and snow with inadequate lighting if work occurs early or late in the day. The equipment is also plainly visible year round to park visitors traveling on the main park road south of the visitor center, and detracts for the visual quality of these views. Along the south edge of the equipment and truck parking area are six 20-foot long shipping containers and one former 40-foot long semi-truck trailer used for tool and miscellaneous storage. Although these containers partially screen the views of the parking from the main road, they also add to the general clutter and visual degradation of the area.

Figure 4. Administration area of Lava Beds and proposed location of maintenance garage.

**Crescent Borrow Pit**

Approximately ¾ of a mile north of the park visitor center is the Crescent Borrow pit. Although no longer used as a borrow pit or quarry, this site was mined for rock, soil and cinders up to the early 1960's when these materials were used for park road and infrastructure construction (Figure 5). Approximately one acre of the approximately 2.9 acre excavated area is currently used as the park's outdoor materials storage yard and also is the site of a debris burn pit. The primary access to the pit is via a paved road connecting to the Main Park Road. In addition there is an approximately 525-foot long unpaved access road (0.12 acres) connecting the pit to the Medicine Lake Road. The vertical cut "headwall" scars caused by the decades of mining of the hillside, are highly visible to park visitors on the Medicine Lake Road and from the Cave Loop Road vicinity. The acre used for the storage yard is mostly out of the view shed of visitors from the Medicine Lake and Cave Loop Roads.

Figure 5. Overview of Crescent Pit area.

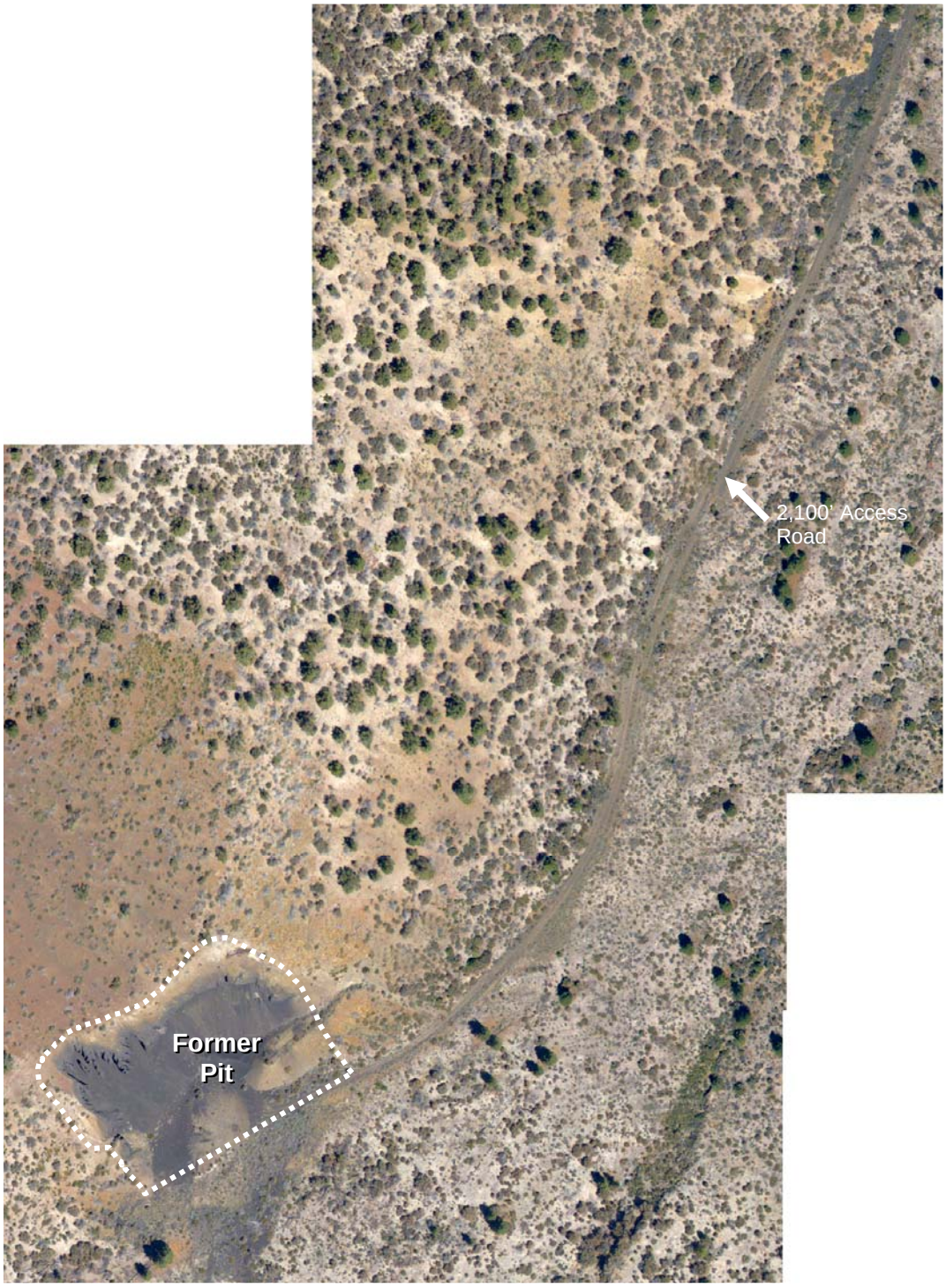



**Caldwell Butte Borrow Pit**

Approximately two miles south of the park visitor center is the Caldwell Butte Borrow pit. Like the Crescent Pit this site was also mined for rock, soil and cinders between the 1930's and the mid-1960's when these materials were used for building and maintaining the park infrastructure (Figure 6). However the site is no longer used for any other functions and the access road is gated to all vehicles. The vertical cut "headwall" scar caused by the mining of the hillside, is highly visible to park visitors on the Caldwell Ice cave trail (1/4 mile east), and other areas of the southern portion of the park backcountry. The disturbed area of the Caldwell Pit site is approximately 4.5 acres. The main pit area is 3.3 acres and is a visual scar on the landscape that has been subject to severe soil instability, erosion, and habitat destruction. Safety hazards are associated with this site as

a result of a steep, unconsolidated slope cut into the bottom flank of the 600-foot high volcanic cinder cone (Caldwell Butte). Two smaller borrow pits located on the east side of the butte, totaling 0.63 acres, are partially re-vegetated. In addition, the access road to the pit (2,100 feet long), totaling 0.6 acres of disturbance, presents an invitation to visitors, leading to concerns for public safety.

Figure 6. Overview of Caldwell Pit area.



## Alternatives Considered

A total of two alternatives (including the No Action Alternative) were developed by the project interdisciplinary team in response to the identified purpose and need, project objectives, and relevant impact topics. A wider range of alternatives were not considered because of the relatively simple nature of the proposed actions, and the lack of viable alternative solutions that fulfill the project purpose and need. The issues being addressed are either to be addressed by the proposed actions, or they will not be addressed and will be left as they presently exist. The No Action (existing) and Proposed Action alternatives are described in the following section.

### Alternative 1 (No Action) – Continued Management of Park Infrastructure and Resources.

This alternative continues park management actions based on the 1996 GMP. The goals emphasized under this alternative are to:

- Provide basic infrastructure for visitor services and park management.
- Maintain general safety requirements for visitor services and park staff.

Under this alternative, the park and resources would be managed without the implementation of the four proposed projects.

**Medicine Lake & Main Park Roads Intersection**
The intersection realignment of the Medicine Lake and the Main Park Road would not be completed. Visitors and employees using this intersection would continue to be exposed to the risk of the poor sight distance and slippery conditions on the steep grade during the winter months. Park staff and local emergency service personnel would continue to respond to traffic accidents when and if they occur.

**Heavy Equipment Parking Area**
The new facility to house park maintenance equipment would not be constructed in the administrative area. Heavy equipment and maintenance trucks would continue to be parked out in the weather, visible to users of the Main Park Road. This portion of the 1996 Lava Beds General Management Plan would not be implemented.

**Crescent and Caldwell Borrow Pit Rehabilitions**
Under this alternative the two borrow pits would not be restored. Gates at the entrance to the Caldwell pit and Crescent pit would be maintained to keep visitors out of the area. Visual impacts to users of the Medicine Lake and Cave Loop Roads as well as the Caldwell Ice Cave trail would continue from these borrow pits.

## Alternative 2 (Proposed Action) – Improve Visitor Safety, Park Operations, and Rehabilitate Former Borrow Pits.

This alternative meets the purpose and need by improving infrastructure that provides for improved visitor services, safety and park operations. The goals emphasized under this alternative are to:

- Improve safety by realigning Medicine Lake Road intersection with the main park road.
- Develop a new building to house maintenance heavy equipment and vehicles.
- Rehabilitate and restore two former borrow pits for landscape preservation and visitor safety.

Under this alternative, all four projects would be implemented to provide improved safety and visual quality, increase the efficiency of park operations, and restore previously degraded resources.

**Medicine Lake & Main Park Roads Intersection**

To improve the safety of this intersection by increasing the sight distance and reducing the grade on the Medicine Lake Road, the intersection is proposed to be realigned approximately 160-feet eastward along the Main Park Road (Figure 7). Approximately 200-linear feet of the existing Medicine Lake Road would be shifted eastward. This shift would move the intersection to a point closer to the summit in the main park road where the sight distance will be greatly increased for all traffic. By moving the intersection higher on this hill, the gradient on the Medicine Lake Road will also be reduced and that will reduce the likelihood of vehicles sliding through the stop sign when the road is snow and ice covered.

Figure 7. Realignment of Medicine Lake Road, showing new location.

The existing road would be decompacted, regraded to natural slopes and revegetated as part of the realignment project. Approximately 50 linear feet (two car lengths) of the Medicine Lake Road south of the intersection would be paved with asphalt in order to provide a solid surface when vehicles are braking to a stop at the intersection and to aid in snow and ice removal during the winter. The remainder of the 2.6 mile Medicine Lake Road within Lava Beds National Monument would remain surfaced with crushed rock aggregate. The new segment of road would be built to the same width as the existing road which is 26-feet wide (two 12' wide lanes and 1' wide shoulders). The proposed intersection would actually occupy 0.1 acre less area than the existing intersection alignment. Implementation would be dependent upon the availability of funding, but likely would occur sometime between 2009 and 2015.

**Heavy Equipment Garage**

A new 5,550 SF, six stall garage for the NPS heavy equipment and snowplow trucks would be constructed on the site presently used to park these vehicles (see Figure 4). This proposed new building was included as part of the 1996 Lava Beds National Monument General Management Plan and Environmental Impact Statement/Record of Decision. Construction would likely occur in the fall of 2008 or the spring of 2009. All disturbance required to construct the building and connect to utilities would be confined to the already disturbed parking and utility area. The 47-foot wide by 102-foot long and 24-foot high (to the peak of the roof) building would have heated spaces to store and repair equipment out of the inclement weather. Although this new building would be larger and taller than the equipment presently parking on the sites, it will visually enclose the current clutter of equipment, vehicles and shipping containers that currently occupy the site. The six 20-foot long shipping containers and one former 40-foot long semi-truck trailer used for tools and storage on the site would be removed from the Monument as part of the project. The new building would be colored dark brown in order to blend into the landscape to the greatest degree possible, and the slope of the roof would also match the adjacent building in order to improve the visual continuity. The proposed building would include an employee lunch room, accessible restroom and above that space a 500-SF storage mezzanine to partially replace the storage presently contained in the shipping containers and truck trailer. Additional tool and materials storage would be accommodated in racks and cabinets along the inside of the garage walls. To improve the visual screening of the new building and the Administrative area from visitor views along the Main Park Road, additional Ponderosa Pine and Western Juniper trees will be planted between the road and the new building site. The proposed new garage has incorporated several sustainable design features including fully meeting the State of California Title 24 energy conservation code and constructing the building using long lasting, resource efficient, and totally recyclable steel framing and siding materials. The roof of the new garage would be designed and constructed to allow for the future installation of photovoltaic (PV) solar panels for a grid-tied alternate electrical generation system.

**Crescent Borrow Pit Rehabilitation and Restoration**

Restoration of the Crescent Borrow extraction area will require the movement of approximately 20,000 cubic yards of soil materials. The total area involved in the restoration of the Burn Pit will be 4.12 acres - 2.9 acres of existing extraction area, 0.12 acres of access road removal, and an additional 1.1 acres of new disturbance at the top of the pit highwall. This new area of disturbance will be required to reduce the slope of the pit highwall, enhance the revegetation potential of the disturbed slopes, and provide material for backfilling the extraction area and to blend the pit area into the surrounding terrain. The existing one acre outdoor park storage yard would remain. The existing debris burning pit would be relocated from within the former pit area to a new site in the existing outdoor storage yard. Implementation would occur in the spring of 2008. The restoration will require the use of heavy equipment (bulldozer, excavator, loader and dump trucks) and the following steps:

- Establish monitoring photo points and other monitoring points as needed.
- Stake site as prescribed in the Burn Pit Restoration Diagram and Cross-Sections.
- Set aside rock, limbs, and vegetative debris that can be used to scatter over the scarified and recontoured site.
- Salvage all surface soil (3"- 4" if present) vegetated surface material (1"- 3") and duff from non-weed infested areas within the area to be disturbed. Salvage 1’ to 2’ of light-colored pumice from the new disturbance above the highwall. Stockpile salvaged materials in 2 separate windrows along edges of disturbance.
- Remove gate from back access road to Medicine Lake Road, decompact and regrade roadbed, block road with barrier rocks
- Areas to be back-filled should be ripped to a minimum depth of 2 feet.
- Recontour site as prescribed in the Burn Pit Restoration Site Map and Cross-Sections.
- Spread salvaged pumice over the disturbed area to a depth of 8" to 10".
- Spread salvaged soil and growth medium over the disturbed area to a depth of 3". Alternative: if salvaged soil material will not cover the entire disturbed area, create irregular tongues, patches or islands of 3" deep growth medium concentrating on the upper portions of the recontoured slope.
- Apply revegetation prescription.
- Hand scatter rocks, duff and vegetative debris.
- Monitor restoration and revegetation progress, control weed infestations.

**Caldwell Butte Borrow Pit Rehabilitation and Restoration**

The Caldwell Pit site would be partially restored. The partial restoration approach was selected because obtaining a total restoration would require disturbing a much larger area than could be justified given the lesser numbers of views degraded by the pit scars. The cut highwall and the revegetated portion of the working area would be left essentially as is, except for the salvage and re-spreading of approximately 700 cubic yards of pumice material. This material will be used to augment growth medium to revegetate the pit floor and base of the cut bank. The access road will be recontoured, and revegetated to reduce erosion, reduce visual impacts, minimize invasion of exotic plant species and to accelerate native plant establishment. Eliminating the vehicle pull-out on the main park road and intensive revegetation of the access road entrance will help to reduce visitation

at the site thereby reducing the hazard to the public from the remaining highwall. Implementation would occur in the spring of 2008. The restoration will require the use of heavy equipment (bulldozer, excavator, loader and dump trucks) and the following steps:

- Establish monitoring photo points and other monitoring points as needed.
- Stake site as prescribed in the pit Restoration Diagram and Cross-Sections
- Set aside limbs and vegetative debris that can be used to scatter over the scarified and recontoured site.
- Salvage all soil (3"- 4" if present) vegetated surface material (1"- 3") and duff from non-weed infested areas within the area to be disturbed. Windrow material along edges of disturbance.
- Areas to be revegetated should be ripped to a minimum depth of 2 feet, regrade area to block vehicle access.
- Remove gate from access road
- Salvage or import approximately 500 cubic yards of weed-free pumice or fines to increase moisture retention in the growth medium and to lighten the soil color (decrease heat).
- Spread salvaged soil and growth medium over the disturbed area to a depth of 3". Alternative: if salvaged material will not cover the entire disturbed area, create irregular 15'-40' diameter patches or islands of 3" deep growth medium.
- Apply revegetation prescription.
- Hand scatter rocks, duff and vegetative debris.
- Monitor restoration and revegetation progress, control weed infestations.

For the above stated reasons, the upper portions of the highwall would be left to stabilize itself naturally over time and the lower portions of the highwall would be backfilled, contoured and revegetated.

## Alternatives Considered and Dismissed

Additional alternatives that were evaluated during the planning process, but were found to be less effective or would result in greater impacts and costs, are listed below:

**Medicine Lake & Main Park Roads Intersection**
In addition to the proposed realignment of the intersection, retaining the existing alignment and lowering the speed limits or installing stop signs on all three legs of the intersection was considered. The existing speed limit on the Main Park Road at the intersection is 35 miles per hour (mph). The speed limit on the Medicine Lake Road is 25 mph. The main park road was constructed with design speed of 45- to 50-mph, thus the road alignment feels comfortable to drive at these speeds. In such cases simply lowering the speed limit has been shown to generally have little effect on actually slowing traffic speeds unless accompanied by much a greater law enforcement effort. Lowering the speed limit would also not address the accidents that occur at the intersection each winter due to vehicles northbound on the Medicine Lake Road not being able to stop due to the steep grade and icy road conditions. Installing stop signs on all three legs of the intersection was also considered and dismissed because of the poor

sight distance on the Main Park Road due to the curve and the hill. Vehicles traveling on the Main Park road would not have adequate sight distance to see the stop sign or vehicles stopped at the intersection thus installing stop signs on all intersection legs could actually increase the risk of and severity of accidents. Because the Preferred Alternative (Alt. 2) would actually result in a smaller footprint facility on park land than the existing alignment, these less effective measures were considered and dismissed.

**Caldwell Butte Borrow Pit Rehabilitation and Restoration**
Complete recontouring of the Caldwell Pit highwall was also considered during the planning process. The full restoration would not be completed for the following reasons:

- The natural slope above the highwall is at, or near, the angle of repose. Reducing the highwall to the angle of repose would require removing vegetation, cinders and soils for several hundred feet upslope. This would result in a visual impact much greater than the existing condition.
- The dark volcanic cinders are covered by a 1'-2' pumice layer. Removal of the pumice layer during recontouring would result in a noticeable visual color contrast.
- Reduction of the highwall to the angle of repose is not likely to accelerate revegetation or reduce erosion at the site.
- Given the location of the headwall scar, it is not as highly visible to as many Park visitors as the Crescent Pit is.

## Environmentally Preferred Alternative

The National Park Service is required to identify the environmentally preferred alternative(s) for any of its proposed projects. That alternative is the alternative that will promote the national environmental policy expressed in NEPA (Section 101 (b)). This includes alternatives that:

1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

2) Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;

4) preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;

5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and

6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

In essence, the environmentally preferred alternative would be the one(s) that "causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources". In this case, Alternative 2 is the environmentally preferred alternative for Lava Beds National Monument since it meets five of the six above listed goals. Under this alternative, the rehabilitation and restoration of disturbed lands would be implemented. This alternative would reduce visual impacts to visitors in the administration area and backcountry and would improve safety for park employees and visitors. Finally, Alternative 2 best protects and helps preserve the historic, cultural, and natural resources in the park for current and future generations. Alternative 1 does not fully meet any of the above listed goals. Alternative 1 does not improve safety or preserve and restore resources.

## Comparison of Impacts

Table 1 summarizes the potential long-term impacts of the alternatives. Short-term impacts are not included in this table, but are analyzed in the Environmental Consequences section.

**Table 1. Comparison of Long-Term Impacts from the Alternatives Considered**

| Impact Topic | Alternative 1 (No Action) | Alternative 2 (Proposed Action) |
|---|---|---|
| **Human Health and Safety** | Minor, adverse, long-term impacts | Minor, beneficial, long-term impacts |
| **Cultural Resources** | Minor, adverse, long-term impacts (No adverse effect) | Minor, beneficial, long-term impacts (No adverse effect) |
| **Vegetation** | Minor, adverse, long-term impacts | Minor, beneficial long-term impacts |
| **Wildlife** | Negligible impacts | Minor, beneficial, long-term impacts |
| **Cave Resources** | Negligible impacts | Negligible impacts |
| **Visitor Use and Experience** | Negligible impacts | Moderate, beneficial, long-term impacts |

## Affected Environment and Environmental Consequences

This section summarizes the existing environmental conditions and the probable environmental consequences (effects) of implementing the action and No Action alternatives. Effects and impacts can be either adverse (negative) or beneficial (positive). This chapter also provides the scientific and analytical basis for comparing the alternatives. The probable environmental effects are quantified where possible; where not possible, qualitative descriptions are provided.

### Impact Topics Evaluated in this Environmental Assessment

Impact topics were derived from issues raised during internal scoping. Not every conceivable effect or impact of a proposed action is substantive enough to warrant analysis. The following topics, as determined by the interdisciplinary project team, did merit consideration in this environmental assessment.

**Human Health and Safety**: Vehicle collisions, visitor safety, employee safety, while at Lava Beds, are all components to be analyzed for this environmental assessment.

**Cultural Resources**: Section 106 of the National Historic Preservation Act of 1966 provides the framework for Federal review and protection of cultural resources, and ensures that they are considered during Federal project planning and execution. The monument contains many cultural resource sites ranging from archeological sites to historic buildings. These cultural resources can be affected by park management projects, thus potential impacts to cultural resources are addressed in this analysis.

**Vegetation**: The projects proposed for this EA would potentially involve disturbance of vegetated lands. The potential for the spread of non-native plants and removal of native species will be covered.

**Wildlife**: There are resident populations of various species of reptiles, amphibians, birds, mammals, and invertebrates in the park and project areas, therefore, impacts of the alternatives on wildlife will be evaluated.

**Cave Resources:** NPS policies require the protection of caves from the adverse effects of human activities. The monument is home to more than 700 lava tube caves. Projects proposed in this EA will be analyzed to determine potential impacts on cave resources.

**Visitor Use and Experience**: The 1916 Organic Act directs the Service to provide for public enjoyment of the scenery, wildlife and natural and historic resources of national parks “in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” The projects proposed in this EA can potentially result in changed visitor services and experiences. Therefore, the potential impacts of the proposed projects on visitor use and experience are addressed in this analysis.

## Impact Topics Dismissed in this Environmental Assessment

**Threatened and Endangered Species**: The proposed activities under this environmental assessment will have "no effect" on listed or proposed species that may occur in Siskiyou and Modoc Counties of California. None of the species identified on the Klamath Falls Fish and Wildlife Service Office (KFFWO) "Listed, Proposed, and Candidate Species" list are found within Lava Beds National Monument.

**Air Quality**: The Federal 1970 Clean Air Act stipulates that Federal agencies have an affirmative responsibility to protect a park's air quality from adverse air pollution impacts. Moreover, Lava Beds National Monument is designated as a Class I area. All project alternatives identified under this EA will have short-term minor impacts to air quality that only last three to five days during project implementation. Dust control techniques (primarily watering, mulching and revegetation of disturbed soils) will be part of each project.

**Soil & Water Resources**: NPS policies require protection of water resources consistent with the Federal Clean Water Act. Projects proposed in this EA will have no significant impact to soil and water resources. Due to the highly permeable volcanic soil and rock of Lava Beds, there is no surface water present thus the risk of surficial soil erosion and sedimentation impacts to water bodies is nearly non-existent. Based upon this site condition, the State of California, North Coast Regional Water Quality Control Board determined that a NPDES II permit, or Storm Water Pollution Prevention Plan would not be required for the projects. The proposed work would contain mitigation measures of reapplying salvaged surface soils, mulching and revegetating all disturbed soils to reestablish vegetative and stable soil surfaces.

**Resource Conservation (Energy, and Pollution Prevention)**: The National Park Service's *Guiding Principles of Sustainable Design* provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of biodiversity, and encourages responsible decisions. Proposed project actions in this EA would potentially minimize or add to resource conservation or pollution prevention within Lava Beds National Monument. However the proposed new garage building has incorporated several sustainable design features including fully meeting the State of California Title 24 energy conservation code, incorporating the capability of adding grid tied photovoltaic electrical generating panels and constructing the building using long lasting, resource efficient, and totally recyclable steel framing and siding materials. The pit restoration and the intersection realignment projects would not consume any resources or energy following their completion. Therefore the topic was not further analyzed in this assessment.

**Socio-economics**: NEPA requires an analysis of impacts to the "human environment" which includes economic, social and demographic elements in the affected area. These three proposed projects have a total estimated value of less than $600,000, and would not result in any new permanent employment, or alter any visitation or tourism patterns. Given the scale of the economies of Northern California and Southern Oregon, such a

small one time expenditure of project funds spread over a one- to five-year implementation period would be insignificant. Therefore, this impact topic is dismissed and not further analyzed in this assessment.

**Wilderness:** None of the proposed actions would occur within the Lava Beds Wilderness Area. The realignment of the Medicine Lake Road would not be visible from locations within Wilderness areas. The development of a new garage building located in the park Administrative area would not be visible from park Wilderness locations. The borrow pit restoration work would improve wilderness values by removing all of the existing Crescent and most of the Caldwell Pit visual scars that visitors can currently see while in the backcountry or wilderness of the park.

**Cumulative Effects Analysis**

The Council on Environmental Quality (CEQ 1978) regulations for implementing NEPA requires an assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

To identify and analyze cumulative effects, it is necessary to identify other past, ongoing, or reasonably foreseeable future actions at Lava Beds National Monument and the surrounding area. Other actions or projects that make up the cumulative impact scenario for this EA include the following:

- Programmed 2008 maintenance projects include re-roofing the existing maintenance shops, resurfacing the East and West Wildlife overlook trails, and replacing oil furnaces in the Administrative area with cleaner burning propane fueled furnaces. Each of these projects would constitute in-kind replacements or rehabilitations that under the National Environmental Policy Act and CEQ Regulations will qualify for Categorical Exclusions.
- Expected 2009 projects include applying a chip seal surface and restriping all 28-miles of existing paved roads and parking areas.

In addition to programmed projects the following planning efforts are underway. None of these efforts are expected to change the direction of management as related to the four proposed projects:

- The National Park Service is currently in the process of completing a Cultural Landscape Inventory on Civilian Conservation Corp infrastructure within the park. National Register Determinations of Eligibility as well as management recommendations for these structures and a potential CCC Cultural Landscape NR District will be products coming from this effort.
- Lava Beds National Monument initiated the development of a new GMP in 2006. A final GMP is expected to be completed in 2009.

- Lava Beds National Monument is initiating a Resource Stewardship Strategy, which will replace the current 1999 Resource Management Plan. A final plan is expected in 2009.

**Impairment Analysis**
NPS policy (NPS 2006: *Management Policies*, Section 1.4) also requires that potential effects be analyzed to determine whether or not proposed actions would impair the resources or values of the park. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve resources and values. NPS managers must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on the resources and values. However, the laws do give the NPS the management discretion to allow impacts on the resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS this management discretion, that discretion is limited by the statutory requirement that the NPS must leave the resources and values unimpaired unless a particular law directly and specifically provides otherwise.

Impairment might result from NPS activities in managing a park, visitor activities, or activities undertaken by contractors and others operating in the park. In this document, a determination on impairment is made at the conclusion of each natural and cultural resource impact topic in this section.

## Human Health and Safety

**Affected Environment**
Lava Beds National Monument has a comprehensive safety program dedicated to ensuring the safety of the public and monument employees. Numerous safety measures are followed to maintain the highest safety standards possible for monument visitors, employees, and residents, and landowners/residents living adjacent to the monument. At the Medicine Lake and Main Park Roads intersection approximately two to three non-injury traffic accidents occur each winter and in the remainder of the year a risk of higher speed, more severe accidents due to inadequate sight distance remains. Employees walking to and from, and working on the equipment and maintenance vehicles parked outside are exposed to risks of slipping on icy pavement. No accidents have been recorded at either of the borrow pit sites.

**Environmental Consequences**
Human health and safety impacts were qualitatively assessed through determination of activities, equipment and conditions that could result in injury, literature review of type and extent of injury caused by equipment and conditions, and in light of mitigation measures and best management practices. For the purposes of this analysis, levels of impact to human health and safety were defined using the following methodology and definitions:

| | |
|---|---|
| Negligible: | The impacts on human health and safety would not be detectable. |
| Minor: | The impact on human health and safety would be perceptible and measurable, but limited in scale. |
| Moderate: | The impact on human health and safety would be perceptible and measurable, with potential for injury. |
| Major: | The impact on human health and safety would be substantial with a significant potential for injury. |

Alternative 1
Under the No Action Alternative, risks to human health and safety would continue to be a concern. Factors most likely to effect public and employee safety include vehicle safety issues with the Medicine Lake Road and Main park road intersection, risks to employees working in and around vehicles parked outdoors in the winter, and visitor access to unstable borrow pit slopes. Under the no action alternative the accidents that have historically occurred at the intersection would continue and the risk of wintertime employee slipping on ice accidents in the parking area, as well as visitor accidents (albeit a very low risk) in the former borrow pits would continue. Although there has been a history of employee accidents involving slipping on icy pavement, the numbers that were associated with this equipment being parked outside could not be differentiated. Impacts of the No-Action Alternative to human health and safety would be minor adverse impacts and long-term in nature.

Alternative 2
Under the Proposed Alternative, risks to human health and safety would be reduced. The Medicine Lake Road would be realigned to improve sight distances and reduce the gradient of the Medicine Lake Road. These changes should reduce the numbers of wintertime non-injury accidents and reduce the risk of a more severe accident at other times of year.

The construction of the new equipment and vehicle garage would slightly reduce the risk of employee accidents in the existing parking area due to working and walking on icy surfaces in and around the vehicles during the winter.

The Crescent borrow pit would be restored under this alternative and thus eliminating the risks associated with the nearly vertical headwall. The Caldwell pit would be partially restored and re-graded, and the visitor access would be discouraged by removing the access road and the parking along the Main Park Road. Thus an attractive nuisance and

potential risk to visitors would be reduced. Alternative 2 would result in long-term, minor beneficial impacts to human health and safety.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased health and safety impacts.

## Cultural Resources

Federal land management agencies are required to consider the effects proposed actions may have on properties listed in, or eligible for inclusion in, the National Register of Historic Places (i.e., Historic Properties), and allow the Advisory Council on Historic Preservation and State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on the proposed actions and determinations of effect. Agencies are required to consult with Federal, state, local, and tribal governments/organizations, identify historic properties, assess adverse effects to historic properties, and negate, minimize, or mitigate adverse effects to historic properties while engaged in any Federal or federally assisted undertaking (36 CFR Part 800). Requirements for proper management of museum objects are defined in 36 CFR 79.

**Affected Environment**
Lava Beds National Monument contains a diverse and valued suite of cultural resources within its boundaries including archeological resources, ethnographic resources, historic-period structures, and cultural landscapes. On March 21, 1991, the Modoc Lava Beds Archeological District was entered in the National Register of Historic Places. The Archeological District includes all lands of the monument, except Petroglyph Point, which is already listed on the National Register of Historic Places as an archeological site. The District resources include historic sites from the Modoc War of 1872-l873 and archeological sites that reflect over 7000 years of occupation including the more recent occupation by the Modoc Indians.

Lava Beds also has 30 properties (buildings and structures) on the NPS List of Classified Structures (LCS). These properties are generally over 50-years old and as a result may be eligible to the National Register of Historic Places (NR). At Lava Beds all of the LCS properties date from the late 1930's and early 1940's and were constructed during the period in which Civilian Conservation Corps was active in the Monument. In the vicinity of the proposed garage, there are two LCS listed structures, Building Number B70 – a former garage and Building Number B72 - the former gas station. Both buildings are located across the parking area, and within approximately 30- to 80-feet of the proposed garage.

The Main Park Road and the intersection with the Medicine Lake Road having been reconstructed and paved in the mid-1960's is less than 50-years in age and thus not currently eligible for the LCS or the NR.

**Environmental Consequences**
Cultural resource impacts were qualitatively assessed through a determination of the potential for adverse effects to cultural resources relative to the three proposed project activities and mitigation measures to be employed during those activities. For the purposes of this analysis, levels of impact to cultural resources were defined using the following methodology:

Negligible: The impact on archeological resources and historic setting would be barely perceptible (No Effect under Section 106).
Minor: The impact on archeological resources and historic setting would be perceptible and measurable, but it is slight and localized (No Adverse Effect under Section 106).
Moderate: The impact on archeological resources and historic setting would be perceptible and measurable. The impact changes one or more character-defining features of a resource, but it does not diminish the integrity of the resource to the extent that the National Register integrity is in jeopardy (No Adverse Effect under Section 106).
Major: The impact on archeological resources and historic setting would be substantial and permanent. The impact changes one or more character-defining features of a resource, diminishing the integrity of the resource to the extent that the National Register integrity is in jeopardy (Adverse Effect under Section 106).

Alternative 1
There would be no new impacts to cultural resources under this alternative. The road intersection would not be realigned and the former borrow pits scars would remain. The vehicles parked outdoors and general visual clutter in the vicinity of the former gas station and garage would continue to degrade the setting of these LCS listed and potentially NR eligible structures. Impacts of the No-Action Alternative to cultural resources would be minor, adverse and long-term in nature.

Alternative 2
Under this alternative, the setting of the LCS listed and potentially NR eligible gas station and former garage would be altered by the construction of the new garage building. However the new structure would reduce the overall visual clutter of the site and have a negligible effect on the historic setting, as the setting has already changed significantly from their time of construction. The peak of the roof on the new building would be 24 feet tall above the present parking area. This structure would match the color, materials and roof pitch of the other buildings in the Administration area.

The realignment of the Medicine Lake Road will have no impacts on cultural resources. This area has been surveyed by archeologists in 1987 and 1992, and there are no cultural resources located in the area. If during road establishment materials are found, then work would be halted until an archeologist could evaluate the findings.

The restoration of the two borrow pits would occur in previously disturbed areas. All locations where work will be accomplished have either been previously disturbed or surveyed by archeologists.

In accordance with Section 106 of the National Historic Preservation Act, the National Park Service will coordinate with the California State Historic Preservation Office to review the NPS prepared Determination of Effect. Alternative 2 would result in long-term, minor beneficial impacts and No Adverse Effects to cultural resources.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased impacts to cultural resources.

**Impairment**
The Monument's cultural resources would not be impaired by actions proposed under either of the two alternatives.

## Vegetation

**Affected Environment**
The proposed projects will primarily be occurring in two plant communities, the juniper woodland sagebrush habitats and ponderosa pine forest. Juniper woodlands occur in the southeast portion of the monument and are characterized by western juniper, curl-leaf mountain mahogany, mountain big sagebrush, bitterbrush, and western needlegrass. The Pine Forest community is largely confined to the southern end of the monument at elevations above 5000 feet, although patches of forest can extend downhill as low as 4600 feet. Ponderosa and Jeffrey pines are the dominant tree species, with varying amounts of shrubs and grasses occupying the understory.

Cheatgrass *(Bromus tectorum)* is the most widespread invasive plant found at Lava Beds, and is present on more than 15,000 acres of the park. Cheatgrass is a nonnative, typically winter annual grass that has the ability to change an area's fire regime and associated ecosystem. It can assume a spring annual character when fall moisture is limiting and seeds germinate in spring. Cheatgrass reproduces only by seed. Year-to-year variation in environment results in considerable variation in population attributes such as recruitment, survivorship and fecundity. Often the critical factor opening niches for cheatgrass invasion is a heightened disturbance regime. Cheatgrass is more invasive in big sagebrush and pinyon-juniper belts than in cooler, more mesic sagebrush types.

**Environmental Consequences**
Vegetation impacts were qualitatively assessed using literature reviews and quantitatively assessed by acres impacted. There are no known endangered or threatened plant species within Lava Beds. There are also no known sensitive or rare plants within the identified

work areas. The intensity of effects to vegetation is discussed in the analysis below using the following methodology and definitions:

| | |
|---|---|
| Negligible: | Imperceptible effects on vegetation. |
| Minor: | Changes in plant community structure or composition are only slightly perceptible and localized. |
| Moderate: | An apparent change in plant community structure or composition that would result in a change of the use or function of the community by associated species on a small scale. |
| Major: | A substantial change in plant community structure or composition that represents a change in the ecological function, vegetation type, or species use on a landscape scale. |

Alternative 1
This alternative would have no new impacts on vegetation. The road intersection would remain as is, and the new garage would not be constructed. The slow plant succession and colonization of the former borrow pit sites would continue to eventually revegetate all but the near vertical headcut scars. The existing bare and disturbed areas would continue to be a site conducive to exotic weed species. NPS staff would be required to continue to monitor and periodically remove weeds from these sites. The continued erosion of the borrow pits would constitute a long-term, minor, adverse impact to vegetation.

Alternative 2
Under this alternative, the new maintenance storage facility would have no impact on vegetation. The building would be placed on previously disturbed pavement and gravel locations of the administrative area of the park.

The realignment of the Medicine Lake Road would cause 0.1 acres of permanent impact, 0.2 acres of temporary disturbance, and revegetation of 0.25 acres of former roadbed. The realignment of the Medicine Lake Road would include salvaging the surface soil and vegetative debris from the new alignment and reapplying that material over the former alignment (after regrading back to natural slopes and decompacting) as the primary seed source for revegetation. The salvage and reapplication of surface soils has proven to be a low cost and very effective revegetation technique on other site disturbance projects. This site disturbance will also have the potential to promote cheat grass developments. There would be a need to control weeds in the restoration area of the old road alignment and watch for weed encroachment along the shoulders of the new road segment. The heavy equipment as well as any soil or aggregate materials imported into the Monument and used in the road realignment would be cleaned and inspected to be weed free prior to entering the Monument.

The restoration of the borrow pits would have a large potential of promoting cheat grass and weed encroachment. The implementation plan for these borrow pits includes surface soil and vegetative debris salvage and reapplication as well as monitoring and control measures for removing any weeds that may occur after the initial grading treatment. All

machinery used in the restoration of these borrow pits would be cleaned of all accumulated soil and seeds and inspected before being delivered to the park. The restored native flora would blend with the surrounding vegetation over time, creating a dynamic native plant community. This would constitute a long-term, moderate, beneficial impact to vegetation.

The construction of the maintenance storage facility would have no impact on vegetation, due to the construction site being located on previously disturbed and paved ground. The realignment of the Medicine Lake road would restore 0.25 acres of land and impact 0.3 acres of land. This alternative would have negligible impacts on vegetation.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased vegetation impacts.

**Impairment**
The Monument's vegetation would not be impaired by actions proposed under the two alternatives.

## Wildlife

**Affected Environment**
Despite harsh, semi-arid conditions, native wildlife species have adapted to the environmental constraints present in the region. There are no permanent terrestrial water resources in Lava Beds National Monument. Some animals obtain water from caves, while others use Tule Lake which forms the north boundary of the monument.

There are no fish species present at Lava Beds due to the semi-arid conditions and absence of surface water bodies. Amphibians have specific habitat requirements that are severely reduced in the monument and therefore are found in very limited numbers. Informal inventories of animal species occurring in the monument have been ongoing since the area was designated a monument in 1925. Since the 1960's, monument staff and researchers have been conducting a full array of formal inventories to document the fauna found at the monument.

Of the 303 inventoried vertebrate species within the monument, the bald eagle (*Haliaeetus leucocephalus*) was the only listed federally threatened species. This species was removed from protected status in June, 2007. The state of California maintains a state species of concern for flora and fauna. Species of concern on the State list for Lava Beds includes six bat species and eight bird species. One federal Species of Concern (Greater Sage Grouse) is extirpated from Lava Beds, but needs to be assessed when it comes to compliance.

**Environmental Consequences**
Wildlife impacts were qualitatively assessed using presence/absence determinations, GIS overlays of treatment units and protected species and their habitats, and mitigation measures. The intensity of effects to wildlife, discussed in the analysis below, is based on the threshold methodology and definitions:

| | |
|---|---|
| Negligible: | Wildlife would not be affected or the effects would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population. |
| Minor: | Effects to wildlife would be detectable, although the effects would be localized, small, and of little consequence to the species' population. |
| Moderate: | Effects to wildlife would be readily detectable and localized, with consequences at the population level. |
| Major: | Effects to wildlife would be obvious and would have substantial consequences to the populations in the region. |

Alternative 1
Under the No-Action Alternative, the borrow pits would continue to have low rates of erosion. The disturbed areas, totaling 8 acres, would not be restored. The natural topography, vegetation, and wildlife habitat would continue to be disrupted. The road intersection and equipment parking areas would remain as is. These long-term, negligible impacts to wildlife would continue under the No-Action Alternative.

Alternative 2
The new garage building would be built in previously disturbed area. This building would contain four windows on the south wall. These windows would be mitigated in a manner to reduce wildlife collisions, such as using translucent glazing or other devices to mitigate bird collisions. The construction of a maintenance garage would be negligible in effect.

The realignment of the Medicine Lake Road would cause 0.1 acres of permanent impact, 0.2 acres of temporary disturbance, and revegetation of 0.25 acres of former roadbed. This realignment would occur in primarily sagebrush dominated habitat. The project would be scheduled for the late summer and or fall to occur after bird nesting season. Prior to work beginning, the site would be surveyed on foot to assure small mammals, reptiles, and birds have left the area to be disturbed. The realignment of the Medicine Lake road would be negligible in effect on wildlife populations of the park.

The earthmoving and grading portion of the borrow pits restoration project would occur over an approximately two week period and the main impacts would be from the noise of heavy equipment. Work would be limited to daylight hours on weekdays, with no night work allowed. No known endangered or threatened wildlife would be impacted by this work. Efforts would be made to complete the bulk of the restoration work requiring the use of heavy equipment prior to onset of nesting by birds and wildlife reproduction. Restoration of the borrow pits under Alternative 2 would reestablish the natural

topography and native vegetation of the site. Over time, ecological processes would be returned to near pre-disturbance conditions. Wildlife that use the area would benefit from the improved food and cover on the site and removal of vehicle access into the Caldwell borrow pit. These impacts to wildlife from Alternative 2 would be long-term, minor, and beneficial.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased wildlife impacts.

**Impairment**
The Monument's wildlife resources would not be impaired by actions proposed under the two alternatives.

## Cave Resources

**Affected Environment**
There are over 700 known caves and other lava tube features within the monument, with a combined length of over 28 miles of passageway. Lava Beds has the largest known concentration of lava tube caves in the lower 48 states. Caves in Lava Beds National Monument typically were formed during the eruption of basaltic lavas in the late Pleistocene (over 10,000 years ago), a process which has not happened historically in the area, thus they are non-renewable geologic resources. Lava Beds contains over 30 separate lava flows located in the monument that range in age from 2,000,000 years BP to 1,110 years BP. Many of these lava flows contained segments of lava tube systems that once carried flowing lava as far as 10 mi (16.7 km) from its source. Cave resources at Lava Beds typically contain abundant well-preserved lava features such as levees and gutters, lava cascades, linings, balconies, natural bridges, lava lakes, rafted blocks, blisters, and lava stalactites and stalagmites.

**Environmental Consequences**
Cave impacts were quantitatively assessed using GIS overlays of work locations and by conducting surveys. The intensity of effects to cave resources, discussed in the analysis below, is based on the following methodology and thresholds:

| | |
|---|---|
| Negligible: | The impacts to cave resources and the natural topography would not be detectable. |
| Minor: | The impacts to cave resources and the natural topography would be detectable but slight. |
| Moderate: | The impacts to cave resources and the natural topography would be readily apparent. |
| Major: | The impacts to cave resources and the natural topography would be substantial and widespread. |

Alternative 1
The road intersection, equipment parking area and former borrow pits would remain as they presently exist. Under this alternative impacts to cave resources would be negligible.

Alternative 2

The development of the new garage would have no impacts on cave resources as the site has been thoroughly surveyed for caves and none have been found.

The realignment of the Medicine Lake Road would occur in an area that has no known cave locations or lava flow features. A walking survey of the proposed area showed no cave openings or possible lava flow trenches.

The restoration of the two borrow pits would occur on cinder cones, which are formed by continuous eruptions of lava over a brief period of time. Cinder cones are not known for the formation of cave features. A walking survey of the proposed work areas and the access roads showed no cave openings or possible lava flow trenches. Impacts to cave resources from the construction of a maintenance storage facility, realignment of Medicine Lake road, and borrow pit restoration would be negligible.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased cave resource impacts.

**Impairment**
The Monument's geologic, topographic, and cave resources would not be impaired by actions proposed under the two alternatives.

## Visitor Use and Experience

**Affected Environment**
Lava Beds National Monument is open year-round. Approximately half of the visitation occurs during the summer months of June through August. Annual visitation between 1980 and 1995 consisted of a low of 92,000 in 1984 and a high in 1993 and 1994 of 180,000. Highest visitation periods are summer weekends, and the lowest occurs on cold, snowy weekdays during winter. Typical monthly visitation percentages for Lava Beds are a low of 2% in January and a high of 24% in July.

Visitors enter the monument primarily from the north, with 75 percent of the traffic accessing the Park over the two northern entrance roads. From the south, 13 % of the traffic enters or exits via the Southeast (Forest Route 10), while the remaining 14 % of traffic uses the Medicine Lake Road (Forest Route 49).

Visitor use areas and facilities include two self-guiding trails, a visitor center, a 42-site campground, a group camp area, two picnic areas, 24 wayside exhibits, and approximately 32 miles of paved and unpaved roads. The average visitor stay is approximately 5 hours.

Visitor exploration of caves is one of the most popular activities within Lava Beds National Monument. Approximately 15 front-country caves have been monitored for visitor use levels since 1990. In some of the most popular front-country caves, visitor-use levels on an annual basis exceed 16,000 visitors. In backcountry caves and caves located in wilderness areas where cave registers are used, visitation can be extremely low. Between 1995 and 2000, 18 backcountry caves contained registers to document use. The range of visitation in these caves fluctuated between a cave with 15 visitors over the five year period and a cave with 4,000 visitors during the same period.

Hiking on monument trails is another popular visitor experience at Lava Beds. The front-country of Lava Beds contains 20 short trails that total approximately 1 mile. These trails are found around the visitor center and at the entrances to many front-country caves. In the backcountry of Lava Beds there are 16 trails totaling 9.3 miles. In the wilderness of Lava Beds, there are 7 trails totaling 30.4 miles.

Monument wide, the bulk of overnight use occurs in June, July, and August. Day use winter activities are limited to occasional hikers.

**Environmental Consequences**

Recreation impacts were qualitatively assessed in light of the timing, intensity, and duration of project completion and restoration activities as they related to visitor use and experience. For the purposes of this analysis, levels of impact to recreation were defined using the following methodology:

| | |
|---|---|
| Negligible: | The impacts to recreation would be imperceptible to most visitors to Lava Beds. |
| Minor: | The impacts to recreation at Lava Beds would be highly localized or affect only a small portion of visitors on an annual basis. |
| Moderate: | The impacts to recreation would affect many visitors to Lava Beds, but the impacts would only affect recreation in one area of the Monument, leaving other recreational opportunities largely unaffected. |
| Major: | The impacts to recreation would affect most visitors to Lava Beds, resulting in substantial limits on recreational activities throughout much of the Monument. |

Alternative 1

Under this alternative visitor use and experience would not be changed. The existing risk of traffic accidents at the Medicine Lake Road intersection would remain as would the low risk of falls in on the steep slopes in the borrow pits. The degradation of visitor views on the Main Park Road caused by the clutter of equipment and storage containers

in the park administrative area would continue. Impacts to recreation under this alternative would be negligible.

Alternative 2
This alternative would improve visitor experience by reducing the current visual clutter seen by visitors when passing by the administrative area on the Main Park Road. The current view of maintenance vehicles and storage containers would be consolidated into a larger but less cluttered appearing single building. Construction of this facility would take approximately three months and would occur during daylight hours of weekdays. Noise would not exceed the existing maintenance operations in the administration area. In order to further screen the new building mass and bulk from views of the road, the project would include planting additional Juniper and Ponderosa Pine trees between the road and the new building. The construction of the new garage would have negligible impacts on visitor use and experiences.

The realignment of the Medicine Lake Road would occur after the busy summer months of the visitor year. This construction would take approximately two weeks and would occur on weekdays and require traffic delays of 20 minutes or less in order to limit impacts on visitor experience. Noise from heavy equipment would be temporary and confined to the immediate area. The establishment of this new alignment will improve the visitor experience by reducing the potential for traffic accidents in the area. The realignment of Medicine Lake intersection would have negligible impacts on visitor use and experiences.

The borrow pit restoration would have very little short-term impact on visitor experience. Work would be completed before the busy season and noise impacts would occur during a two-week, daylight hours and weekday period. The removal of the two borrow pits would improve the vista experience a large number of visitors come to Lava Beds to enjoy. There would be a moderate, long term beneficial impact from removing the pit scars on visitor use and experience. Overall Alternative two would constitute a moderate, beneficial and long term impact.

**Cumulative Effects**
The proposed actions of either Alternative One or Two, when analyzed with the planned maintenance projects and planning efforts listed under the Cumulative Effects discussion, would result in no new or increased visitor use and experience impacts.

## Consultation and Coordination

### Public Involvement

The new maintenance garage facility of the proposed action was included in the 1996 Lava Beds National Monument General Management Plan Environmental Impact Statement/Record of Decision. As a result, the garage facility was included in that plans public review periods and opportunities for public comments. No specific comments were recorded being submitted on the garage portion of the GMP. The current proposed intersection, garage, and borrow pit projects have been discussed as part of five Lava Beds General Management Plan public and federal agency meetings held in the Tulelake and Klamath Falls areas in January and February of 2008. No new comments or concerns have been raised regarding the proposed four projects in those meetings.

### Organizations, and Agencies Consulted

The following persons, organizations, and agencies were contacted for information and/or assisted in identifying important issues, developing alternatives, or analyzing impacts of this environmental assessment:

U.S. Fish and Wildlife Service, Klamath Falls Fish and Wildlife Office (KFFWO)
Mr. Paul Keiran, Water Resource Control Engineer, State of California, North Coast Regional Water Quality Control Board, Santa Rosa.

### List of Preparers

Dave Kruse, Superintendent, National Park Service, Lava Beds NM
Dave Hays, GIS, National Park Service, Lava Beds NM
Dave Larson, Chief of Resource Management, National Park Service, Lava Beds NM

### Persons, Organizations, and Agencies Who Will Receive This Environmental Assessment (EA)

This EA will be available for public review and comment for a 30-day period. A notice announcing its availability is being sent out to interested parties through the Monument's mailing list, including federal, state, and municipal agencies, and individuals. Hard copies of the EA are being provided to the Modoc National Forest, Tulelake National Wildlife Refuge, area libraries in Klamath Falls, Oregon and Alturas, California, and will be on display in the Monument Visitor Center. Hard copies of this EA are available upon request. This EA will be posted on the park's website at: http://www.nps.gov/labe, under the "Management Docs" link, during the entire comment period. The EA will also be available on the park planning and compliance website at: http://parkplanning.nps.gov/labe.