**Environmental Review and Decision for Emergency Access Route along the Lava-Covered Section of Chain of Craters Kalapana Road**

U.S. Department of the Interior
National Park Service
Hawai‘i Volcanoes National Park
Hawai‘i County, Hawai‘i

## I. Nature and Scope of the Emergency

Hawai‘i Island is experiencing lava flows from Kīlauea Volcano’s Pu‘u ‘Ō‘ō vent. The most recent flow began on June 27 and is named for the date it started. In early September 2014, it shifted to a direction that it has not gone in the past 30 years. On September 11, it became evident that the flow is a threat to the community of Pahoa and could cut off all access to the Lower Puna community. The “June 27” flow is likely to cross Pahoa Village Road and Highway 130, given the lava’s current course (see attached map 1). Estimates of how long before it crosses the highway vary based on the differing daily rates of flow. Current estimates are approximately 4 days to reach Highway 130 (as of 10/27/14), but as the flow rate varies, this projection will vary.

The County of Hawai‘i has prepared two alternative routes, Railroad Avenue and Government Beach Road, for use as an emergency detour around the advancing lava flow. It is anticipated that both of these routes will be covered with lava as the flow heads downhill to the ocean. In addition, due to topographic constraints, Government Beach Road is not anticipated to be made passable to the number and types of vehicles that will need access, and its improvement is intended as a stop-gap measure in case Railroad Avenue is cut off prior to the completion of an emergency access route over the former Chain of Craters Kalapana Road alignment.

Previously, an emergency evacuation route consisting of an one-lane unpaved aggregate roadway was being planned by the National Park Service (NPS) in concert with the state, county, and FHWA along the 5.5 miles of lava-covered section of the Chain of Craters Kalapana Road in Hawai‘i Volcanoes National Park (HAVO), as other existing routes out of the Lower Puna District are anticipated to be covered by lava. The Chain of Craters Kalapana Road is located within the Puna-Ka‘ū Historic District, which is a property listed on the National Register of Historic Places. The impacts of the one-lane aggregate roadway were considered to be less than significant and approval of a decision memorandum allowing alternative arrangements under the Department of the Interior (DOI) National Environmental Policy Act (NEPA) regulations dealing with emergency responses (43 CFR 46.150) was received from the DOI Office of Environmental Policy and Compliance on September 23, 2014. Since that time, it has been determined that a one-lane route is not sufficient to control the immediate impacts of the emergency and that a two-lane route is essential because the day-to-day health and safety of more than 8,000 people depends on reliable, safe access into and out of the Lower Puna area communities. Many residents do not have the resources to relocate out of the Lower Puna area even if they wanted to, and many do not want to leave. Mass evacuation is unrealistic because there is simply no place to relocate and shelter more than 8,000 people in the County of Hawai‘i.

It is therefore necessary to maintain transportation, power, and communications into and out of the Lower Puna area so residents can remain in their homes. For the Lower Puna community to sustain itself, the people there will need fuel, supplies, and goods, as well as postal services, health care, and social service programs for the elderly and disadvantaged; therefore, two-lane road access is essential. The area does not have access to a viable harbor or airstrip, and helicopter access is frequently limited by weather conditions.

The park superintendent has met with state and county officials to discuss viable options and related federal requirements, such as compliance with NEPA, the Endangered Species Act, the National Historic Preservation Act, and the Clean Water Act. Hawai‘i Department of Transportation staff estimate gross construction costs for opening a two-way unpaved route using the original Chain of Craters Kalapana Road alignment between $12 to $15.5 million total cost for the 7.74 miles (of which 5.5 miles is within the park and considered under this request).

## II. Actions Necessary to Control the Immediate Impacts of the Emergency

### Purpose and Need for the Action

Due to information related to design, construction, and anticipated use that has been obtained since September 23, 2014, NPS has re-evaluated the previously approved emergency action, including the lay-out and dimensions of the Chain of Craters Kalapana Road. The purpose of the road has changed from short-term evacuation to longer-term recurring use and access. The current number of vehicles using Highway 130 in the Pahoa area is 7,000 vehicles a day which includes local Pahoa Town traffic (2012 HDOT Traffic Study). Less than that number is expected to use this new route, although it is not known what the actual number may be (Hawai‘i County estimates provided at this time are between 1,000 and 2,500 vehicles per day).

### Proposed Action

The proposed action is an emergency access route to be used over an extended period of time following the original Chain of Craters Kalapana Road alignment and width (combined road and shoulder was 22’ wide) with crushed aggregate surfacing for a total of 5.5 miles within the park. The design for this unpaved road will be consistent with the width of the adjoining park roadway and will accommodate essential two-way traffic along its entire length. Up to nine pull-outs would also be constructed to accommodate urgent uses (e.g. vehicle break-downs). This number matches the number of pullouts that existed on the original 1963 designed roadway segment that is now buried. The construction limits will generally be up to 12’ on either side of the road edge or pullout edge. In places where the road crosses an area where deeper fills will be needed, the width of disturbance would be greater, up to approximately 20’. If hot spots are encountered along the existing alignment, the road will need to be rerouted in those areas.

During construction, fueling of equipment will occur on site by fuel truck or by helicopter. Contractors will be required to follow standard spill prevention and containment procedures. Disturbed rock from creating the new roadway will be contained within the road corridor and

construction limits. All ground disturbance outside the roadbed will be rehabilitated after construction. For example, stockpile areas will be cleaned up so they do not have excess disturbed rock or crushed materials left behind.

See attached map 2 for location of the lava-covered section of Chain of Craters Kalapana Road.

The emergency access route would be used for access by emergency vehicles, transportation of commercial goods to sustain the community, and egress and ingress of residents in the communities in the Lower Puna region that are anticipated to be cut off by the closure of existing routes, Highway 130 and Railroad Avenue. This emergency access route is not designed to handle large volumes of traffic; therefore it would not be open to general public use, only 'local' traffic. Use of the emergency access route would be subject to the rules and regulations of the NPS. The road will only be used when the NPS has determined it is safe to use and that both existing routes, Highway 130 and Railroad Avenue, have been closed because they are covered by lava or otherwise deemed unsafe (e.g. volcanic fumes). The use of the emergency access route will only begin and will only last as long as there is no viable alternative route for the residents and service providers of the affected area to use to gain access to the rest of the Island of Hawai'i. Even though it is an emergency access route, we understand that as soon as this is the only route available, the road will be used for some amount of commuting and for necessary commercial traffic. The park does not have the capacity to determine the minimum amount of commercial traffic that is truly required to sustain the community during the emergency; therefore it is likely that most commercial traffic that attempts to use the road will be allowed. If there is a large presence of commercial traffic, the NPS will work with the state and county to determine what is essential and to limit the commercial traffic to only the extent that is necessary.

While visitors will still be allowed to use the portion of the existing road that is currently open to public use, the NPS will establish restrictions for the use of the emergency access route (e.g. gates, checkpoints, vehicle passes) so that only the 'local' traffic is allowed on the emergency access route. All vehicles must be street legal and licensed, and have insurance and registration to travel on park roadways (e.g. no all-terrain vehicles). Construction of the emergency access route will take a minimum of 60 days and all existing routes of access are expected to be covered within 30-60 days based on current calculations from US Geological Survey – Hawaiian Volcano Observatory. As it is likely that lava tubes and hot spots will be encountered during construction, the 60-day estimate for construction is optimistic.

A visitor contact station would need to be re-installed down by the coast (near the current end of road at the turnaround) to allow storage of gear and equipment for communications, search and rescue, accident response, etc. The visitor contact station was removed and the ranger station was moved to allow for the one-lane evacuation route that was previously approved. The current ranger station is now needed for both first aid/ranger services as well as a visitor contact station. The structure is too small to serve as a visitor contact station as well as a first aid station and storage/shelter for communications, accident response, and search and rescue equipment (it is 10' x 20'). In addition, a temporary kiosk or shade structure with equipment storage capability

may be required on the park boundary end of the road (Kalapana side) to provide respite from the elements for any staff that may need to monitor traffic or other resources where vehicles will be entering the park from the Lower Puna region. This structure could also double as a place to locate temporary/mobile communications equipment. See map 2 for locations.

There are no right-of-ways for the road within the park boundary. It is wholly owned by the United States/NPS. An agreement has been developed between the park and Hawai‘i County for the construction and construction management and was executed on 10/21/2014. Following construction, the NPS will be responsible for maintenance and operation of the road for the duration of the need for emergency access.

No designated or eligible wilderness areas will be affected by the proposed action.

**Plan Conformance**

The emergency action is consistent with previous land management plans within the park. In 1916, Hawaii National Park was established, and in the 1930s discussion revolved around the Territory's desire for a road that would connect the Kalapana Road to a loop circuit. The County of Hawai‘i could not secure funding for it, but the NPS could. Legislation authorizing a boundary expansion to include the Kalapana Extension lands (lands within Puna District and a portion of land within the Ka‘ū District; 52 Stat. 781, Chapter 530) was offered up in exchange for the federal government paying to build the Chain of Craters Kalapana Road. This legislation also provided fishing and other rights to Kalapana-area residents of Native Hawaiian descent. After many protracted years of complex land issues, the road was completed in 1965. Four years later it was destroyed by lava flows from Mauna Ulu and remained closed for 10 years (see attached map 1). In 1979, after much debate, the park realigned the closed section and reopened the entire road again to the public. Proponents for the road, guided by the 1975 Master Plan, argued that without it community members would have no escape route should an emergency arise. In 1979 and 1980 the road was again damaged by lava flows and was repaired. Six years later, lava flowed over the road just outside the park boundary that cut off the park from the community. Flows continued and entered the park in late 1987. In 1989, lava flows from Pu'u ‘Ō‘ō flowed into the Waha‘ula Heiau parking area, destroyed the visitor center, and inundated the heiau that was located 20 feet above the road surface. It also covered the park entrance station, the coastal visitor center, and the Chain of Craters Kalapana Road. This time, because of the ongoing nature of the eruption, park officials did not re-open the road. Over 28 years have passed since the road functioned as a loop road. Currently, 5.5 miles of the road inside HAVO and 2.24 miles outside HAVO are covered by lava flows. The road has not been in a condition to be used as a through route since 1987 and the park did not have any plans to re-open it as a road.

The historic Chain of Craters Kalapana Road has been blocked by lava for 37 years of its 49-year existence. For 12 years it functioned as a loop road, connecting the park to outside communities. The park's overall response has been to re-open, re-route, or close roadways throughout the park after significant and ongoing volcanic events.

Prior to the closure of the lower portion of the Chain of Craters Kalapana Road in 1987 this road was used as a park road for scenic driving and to provide access to park trails and amenities. The road had been designated as a scenic byway, but that designation was removed after it was no longer a through road. People were not using it for commuting; it was a slow-speed scenic route. Other changes since the road was covered by lava in 1987 include, the Lower Puna population was much smaller than it is today and many devastating invasive species, such as little fire ants (introduced in 1999) and coqui frogs (introduced in1988) were not on the island. All of these changes and introductions combined mean greater impacts to park resources will occur when the proposed aggregate roadway is constructed. Subsequent to the closure in 1987, the remaining portion of the road has become more important to providing access to volcanic, biological and cultural sites within the park. These lava flows are unique and the reason why the park was established.

To protect park resources, the proposed emergency route would follow the old lava-covered road alignment as much as practicable. By staying on the original alignment, the park will conform to the original intent of the road design which was to avoid significant archeological resources, provide connector access to ancient trail systems, and provide visitors and Native Hawaiians with vistas and views of the cultural landscape, which include significant and sacred traditional places.

The park is currently drafting a General Management Plan to replace the 1975 Master Plan.

## III. Potential Adverse Impacts of the Proposed Action:

**Potentially Significant Adverse Impacts**

- There is a potential for significant impacts due to invasive species introductions from passenger and/or commercial vehicles coming from the Lower Puna region. Mitigations, such as sanitizing equipment and mandatory inspections will be completed for construction equipment. These same mitigations are not feasible to implement for passenger and commercial vehicles once the road is open for use due to the logistical issues (sanitizing – e.g., where would it be done, lack of utilities in area), and due to the quantity of vehicles anticipated to use the road (inspecting – e.g., the time to inspect would create very long wait times, the logistics and staffing impacts of inspecting every vehicle). Invasive species pose a serious risk to park resources from introduction of species such as little fire ants, coqui frogs, fountain grass, and many other invasive plant species. Many of these species were not on the island, or were not as widespread, when the road was open prior to 1989. These species are found in large numbers in the Lower Puna area. Some of the species are a concern now with the vehicles entering the park through the park entrance (at the Kīlauea summit; see map 1), but due to the distance from Hilo and the difference in visitor vehicles vs. vehicles from people's homes, the risk is reduced and control is currently feasible (due to the low number of introductions, which is related to the type of traffic and amount of these invasive species in the area the vehicles originate from). There are potentially ecosystem altering invasive species that

are known to be abundant in Puna (little fire ants, coqui frogs, and fountain grass in particular), and these species will have a direct route into the park under the proposed action. The risk of inadvertent introductions is much greater with traffic from Puna and will require extensive monitoring and control. Washing stations are not feasible, and that is the only way to ensure the vehicles do not have invasive species on them. Little fire ants have not been found in the park to date. Coqui frog numbers are very small and are actively controlled. As mitigation, the park will monitor for invasive species introductions, and treatments will be initiated upon detection (see *Mitigation Commitments* section). The long-term feasibility of successful treatments will depend on the scale of infestations and time before detection. Even if mitigation is successful, it could take several years after use of the road ends to eliminate the invasive species. Some species, such as little fire ant, may escape early detection which would make eradication from the park difficult, if possible at all, which would have a significant impact on other park resources (plants, birds, insects), as well as park visitors.

- Significant impacts to endangered species would likely occur, particularly to nēnē (endangered). NPS biologists have determined that the proposed action 'may affect, is likely to adversely affect' nēnē and therefore formal consultation with the US Fish and Wildlife Service (USFWS) is required. Informal consultation was completed for the one-lane unpaved road. USFWS concurred with a 'may affect, not likely to adversely affect' nēnē for the use of the one-lane road for evacuation purposes only (short-term use). The USFWS stated that if the road was to be used for more than evacuation, or more than a one-lane unpaved road would be constructed, additional discussions would be necessary so that USFWS can assist in the assessment of potential impacts and develop appropriate avoidance and minimization measures. The NPS is consulting with USFWS under emergency consultation procedures and has agreed to implement mitigation measures while construction on the 22' wide emergency evacuation route begins (see *Consultation with Affected Agencies* section and Appendix A).

  There are several pairs of nēnē that have used the area near the current end of the pavement during recent breeding seasons. With mitigation, construction activities may affect, but are not likely to adversely affect nēnē (see *Mitigation Commitments* section and Appendix A). However, even with the minimization measures, long-term vehicular traffic is likely to disturb breeding / nesting / rearing along a 1 to 1.5 mile stretch from the current end of the road to the west. This will be a long-term impact for as long as the emergency access route is needed (as opposed to the previous short-term impact during evacuation only). There is a higher likelihood of vehicle strikes with the increased traffic both near the end of the current pavement, and further up Chain of Craters Kalapana Road where nēnē are known to cross or utilize habitat near the road. The increased number of road users could also contribute adverse impacts to nēnē because of a higher likelihood of dogs off leash, human-bird interactions, and people feeding nēnē.

- Significant impacts would likely occur to visitor experience and park operations due to increased traffic on already congested park roads in certain areas, which would change

the character of the visitor experience. Park roads are already congested due to the 2008 closure of a section of Crater Rim Drive related to the summit eruption and volcanic hazards. This has left one main route for visitors to travel in the park. A traffic count was conducted in May 2014. An average of 342 vehicles per day used existing Chain of Craters Kalapana Road. Crater Rim Drive just above Thurston Lava Tube recorded 560 vehicles per day. Highway 130 by Pahoa has been reported to be 7,000 vehicles per day. While less than 7,000 vehicles per day are anticipated to use this emergency access route, it is not known what the actual number may be (Hawai‘i County estimates are between 1,000 and 2,500 vehicles per day, which would still be a significant increase over current use of park roadways and would change the character of the visitor experience).

Factors that would contribute to the significant adverse impacts to the visitor experience and park operations include:

- Increased traffic/congestion at the park entrance will negatively impact the visitor experience. Currently, the traffic can back up to the state highway during peak visitation times (10:00 am – 2:00 pm). The increased traffic that would be coming into the park returning to Puna would negatively impact the visitors due to long wait times to get into the park, as well as create a serious safety issue on Highway 11. Due to limited excursion times, visitors from cruise ships may be denied the opportunity to visit the park due to long wait times at the entrance station at Highway 11. Cruise ship passengers make up a sizeable portion of the park and island visitation. The NPS does not expect to get assistance from the state or county for traffic management and therefore plans to seek funding to hire additional staff to manage the increased impact (see *Other Potential Mitigation Commitments* section).

- Other specific locations in the park that will be impacted the greatest include Thurston Lava Tube (already experiences pedestrian/vehicular interface during peak times of day) and the tight turns between Chain of Craters Kalapana Road – Crater Rim Drive intersection up to Kīlauea Iki (vehicular accidents and near misses already occur in this stretch).

- The large increase in vehicles using the roadway would likely have a significant adverse impact on visitors and commercial use authorization companies that bring visitors to the park, particularly the bike tour companies that utilize the roadway for much of their tour. They may not be able to conduct the bike tours at all with the increased traffic because we have no bicycle lanes along park roadways. There would also be impacts to all the road-based tours due to the increased volume of traffic.

- The portion of the existing Chain of Craters Kalapana Road that is currently open to the public is a scenic roadway and meant to be driven at a slow speed and enjoyed. The large increase in volume and type of traffic would negatively impact

the scenic driving experience, which would likely be a significant impact to park visitors and their park experience.

- There would be potentially significant adverse impacts to park operations due to increased staffing needs and other potential new infrastructure requirements, including communication upgrades (there is no radio or cell phone reception along the proposed route), additional law enforcement vehicles and equipment, a visitor contact station to replace the one was previously removed, contact station on the Kalapana side, an additional ambulance for emergency response, etc. This is due to the increased numbers of vehicles and people in the park.

**Other Adverse Impacts**

Natural Resources

- Impacts to natural resources due to potential for invasive species introductions during road construction. This can be mitigated by following best management practices that have been developed for park roads, but there remains a potential impact.
- Hawaiian petrels (endangered), as well as other night-flying seabirds, may be negatively impacted by the construction of the roadway if the construction occurs during the night. However, following Dark Sky Policies will mitigate these impacts. The park preference is no night work, but if all other access routes are cut-off prior to the completion of this aggregate roadway, then there may be a need to allow night work. The park will conduct additional consultations with USFWS under emergency consultation procedures if night work is needed and will not authorize night work until mitigations are approved by USFWS. The contractor will be required to follow the mitigations which will reduce the likelihood of impacts.
- Air quality and soundscapes would be negatively impacted from dust pollution and noise, both during construction and from the use of the aggregate roadway. There has not been a road in this area for almost 30 years, so there will be a change to the soundscapes.

Cultural Resources

- Impacts to cultural resources included in the Puna-Kaʻū Historic District will be minimized by staying on existing alignment as much as practicable. There are kīpuka along the flow, which are areas where the lava surrounds, but does not cover, the vegetation and potential archeological sites within them. If hot spots are encountered along the existing alignment, the road will need to be rerouted in those areas. Rerouting the road would be a change in the historic road alignment, and there is the potential for impacts to buried archeological sites including important religious features and burials. Even though the sites are buried by lava, their placement on the landscape is still significant to the native Hawaiian culture as these places were specifically chosen because of their location. Therefore, despite the changes brought by lava, the sacredness of the site in relation to its place on the island and within the traditional boundary

divisions has not changed. Any expansion of the road beyond the existing road alignment may have impacts on these special places.

- Impacts to ethnographic resources include beneficial impacts because that stretch of coastline would be easier to access by those Kalapana residents who have fishing rights (52 Stat. 781, Chapter 530). It would also include adverse impacts because people not authorized under the legislation could fish illegally, as occurred in the past before the road was covered by lava.
- The historic Chain of Craters Kalapana Road traverses through one of the largest nationally recognized historic districts, where flows from Puʻu ʻŌʻō have covered thousands of archeological features within the park boundary. The ahupuaʻa (a traditional land division usually extending from the uplands to the sea) and associated names of places remain important to many who have ties to this landscape. The road was never intended to support the volume of traffic now being considered. It was not designed as a regular thoroughfare; it was intended to enhance visitor experience.
- The impacts described above will be mitigated (see *Mitigation Commitments* section and Appendix A) to ensure the project will have no adverse impact on archeological sites, ethnographic resources, or cultural landscapes.

Visitor Experience

- The unique visitor experience at the current end of the Chain of Craters Kalapana Road will be lost. Currently visitors go to the location where the lava most recently covered the road to experience a recent lava flow. They take photographs at the 'Road Closed' sign that is partially buried by lava and walk on the pieces of road that are not covered. This is not an experience they can have elsewhere in the park. There will be impacts to park visitors in this area of the park (current end of pavement of Chain of Craters Road to the park boundary). Since the closure of the current 'end of the road' to visitor access on 10/23/14, park staff has received many complaints about the lack of access.
- There has not been a road in this area for almost 30 years. The solitude and the experience of nature's forces that visitors can currently experience in this area would be negatively impacted.
- There will be an increase in visitors wanting to go to the end of the road, as well as go on any road that is constructed over the lava flows (such as this emergency access route). This will increase the congestion at the 'end of the road' since it will be open only to residents and there will likely be user conflicts. The impacts would be different if the use of the road is not restricted (e.g. the amount of traffic could be even greater due to people wanting to see if they can get close to lava, etc.). The park intends to restrict traffic to only residents to the extent practicable, but it is currently not known if this can be sustained if the emergency extends for a long period of time due to limited staffing and budget.
- The increased use of the road will result in changes in visitor use patterns. There would likely be an increase in the use of all the park sites, including the backcountry, due to the ease of access that this road would create (to the Puna side). The biggest impacts would be at the highest visitor use sites now (such as Thurston Lava Tube), but all sites,

particularly those with bathrooms, are likely to be impacted.
- It is possible that some residents who have not visited the park prior to the proposed road may become park visitors and stewards in the long-term, which would be a beneficial impact if this occurs.

Socioeconomic Impacts

- If visitor use patterns change because the visitor experience is diminished (due to crowding and extended time to enter park which may be a deterrent to some that would otherwise visit), there may be a decrease in the economic benefit of the park to the local economy. In 2013, 1,583,209 park visitors spent $124,937,400 in communities near the park.

Park Facilities and Park Operations

The following effects will be experienced and the park does not currently have the budget or staff to address them for an extended period of time.

- The proposed aggregate roadway would require frequent maintenance to maintain the surface of the roadway. It is estimated that the aggregate roadway will need re-grading every 2-4 weeks depending on level of use. This would require partial to full road closure and dedicated staff and equipment for each re-grading.
- There would be an increased demand on existing park facilities such as restrooms, picnic areas, trash cans, overlooks, etc. There may also be a large increase in people 'using the bushes' with the associated health and safety concerns associated with such use. The park has data from another area in the park (Ka'ū Desert Trailhead) where there is a long stretch of roadway with few or no restroom facilities and a documented high number of people using the native landscape to relieve themselves.
- Roadside litter is likely to increase, which will require increased litter collection.
- Chain of Craters Kalapana Road is a historic scenic roadway and is not designed for high volumes of traffic. There will likely be increased numbers of accidents, which will be a safety issue, as well as impact to facilities (roads, guardrails, historic rock walls) and resources (resource damage from vehicles that leave the roadway).
- The increased traffic load on Chain of Craters Kalapana Road and Crater Rim Drive would shorten the life of the roads. There would be increased shoulder maintenance necessary on all roads that experience higher traffic loads.
- Increased law enforcement presence will be needed.
- A visitor contact station would need to be re-installed down by the coast near the current end of road at the turnaround to allow storage of gear and equipment for search and rescue, accident response, etc. The visitor contact station was removed and the ranger station was moved to allow for the one-lane evacuation route that was previously approved. The ranger station is now needed for both first aid/ranger services as well as a visitor contact station. The structure is too small for the additional uses required of it (it is 10' x 20'). In addition, a temporary kiosk or shade structure with equipment storage

capability may be required on the park boundary end of the road (Kalapana side) to provide respite from the elements for any staff that may need to monitor traffic or other resources where vehicles will be entering the park from the Lower Puna region. This structure could also double as a place to locate temporary / mobile communications equipment.

- Additional patrol vehicles, maintenance/custodial vehicles, and vehicles for the transport of interpretation and natural resources staff to the area due to the distance from park headquarters and the limited vehicles currently available in the park.
- A checkpoint or other method of controlling access / use of the road would be needed. The park intends to restrict traffic to only residents to the extent practicable, but it is currently not known if this can be sustained if the emergency extends for a long period of time due to limited staffing and budget. If the road is used for a long period of time, long-term restrictions may not be feasible.

Health and Safety

- Night work for construction has the potential to be a safety issue due to the rugged lava terrain.
- Congestion at the park entrance has the potential to be a safety issue on Highway 11. Currently during peak visitation times, the vehicles waiting to get through the entrance can back up to the state highway. With the increase of traffic, the traffic will be backed up onto the state highway and potentially into the travel lanes of the highway.
- Hairpin turns and steep grades on Chain of Craters Kalapana Road have the potential to be a safety issue due to increased traffic.
- Speeding cars may be a safety issue.
- At any given time there could be volcanic fumes and related impacts to people driving on the emergency access route, similar to other areas in the park.
- Chain of Craters Kalapana Road and Crater Rim Drive would now be getting an unknown amount of that traffic, so the number of vehicular accidents in the park could increase greatly. From the turnoff by the entrance station on Crater Rim Drive down to Devastation Parking area, there is a moderate rate of vehicular accidents due to centerline crossings, commercial buses, speeding, and weather conditions (60 accidents from 2009-2014 with 4 of those involving injuries). On Chain of Craters Kalapana Road, vehicular accidents occur (10 accidents from 2009-2014 with 2 of those involving injuries) and the accident causes include: failure of brakes, high speed, and going over center line. The pali gets dense fog and vog regularly and can contribute to accidents, as well as the narrow windy roads. More serious accidents currently occur on Highway 11 where we have commuting traffic (58 accidents from 2009-2014 with 17 of those involving injuries and 3 involving fatalities).

## IV. Components of the NEPA Process that Can be Followed and Provide Value to Decision-making

**Consultations with Affected Agencies:**

- Hawai‘i State Historic Preservation Division (SHPD) concurred (with mitigations; 9/29/2014; 1409TD10) with the one-lane unpaved road with restricted access. Additional discussions regarding the change in width and use were started on 10/10/2014 (Laura Schuster, Chief of Cultural Resources (HAVO) and Theresa Donham, Archeology Branch Chief (SHPD). Emergency consultation to comply with NHPA Section 106, per 36 CFR 800.12, was initiated on October 29, 2014. Letters were mailed to the SHPD, Advisory Council on Historic Preservation (ACHP), and Native Hawaiian organizations to notify them of the proposed action and allow for an opportunity to comment. Under the emergency procedures these entities have seven days to submit comments, and after that time period, Section 106 compliance will be complete. The NPS determined that the 22’ wide emergency access route will have no adverse effect on historic properties.
- The park consulted with the park’s Kupuna Consultation Group on 9/17/14 and 9/22/14. In addition, a blessing, including a number of the Kupuna Consultation Group members, was held for the start of construction on the approved emergency evacuation route on 10/14/2014. Members of the Kupuna Consultation Group were included in the emergency consultation described above. The NPS will continue to provide periodic updates to the Kupuna Consultation Group on the status of the project.
- The USFWS concurred with the NPS determination that the 18’ evacuation route with restricted access may affect, but is not likely to adversely affect the nēnē (with minimization measures; 9/30/2014; 2014-TA-0449); see Appendix A for list of minimization measures agreed upon. The proposed action, an increased width with long-term vehicular traffic (instead of short-term traffic) has resulted in a may affect, likely to adversely affect determination with respect to nēnē. The NPS is currently consulting with USFWS under emergency consultation procedures (50 CFR §402.05). Under the first step of the emergency procedures, the NPS consulted with USFWS informally (Kathleen Misajon, Wildlife Biologist (HAVO) and Michelle Bogardus, Deputy Assistant Field Supervisor (USFWS)) and has agreed to a number of minimization and avoidance measures to be implemented as part of the proposed action (see Appendix A). The minimization and avoidance measures were approved on 10/28/2014. Completion of this first step was required before work on a two-lane road could begin. Under the second step of the emergency procedures, the NPS will enter into formal consultation with USFWS as soon as practicable, while construction and use of the road begin. The formal consultation will result in a biological opinion. The NPS will implement any additional minimization, avoidance, or conservation measures that are required as part of the formal consultation process.
- Hawai‘i Department of Health (DOH) has determined that due to the emergency situation, the County and State of Hawai‘i and the NPS do not need to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for the construction of the emergency access route, provided that appropriate BMPs are in place. (email

communication between Todd Nishioka (Hawaii DOT) and Darryl Lum (Hawaii DOH) dated 10/16/2014)

**Public Involvement**

- To date there has been a lot of media exposure, including park-generated press releases and social media posts. The park has also conducted stakeholder meetings. The NPS has received eight comments/letters (5 emails from community members/public, 2 letters to the White House, and 1 email from the Sierra Club) and the social media post by the park on 9/22/14 generated 1,242 likes, 376 shares, and 52 comments.
- The park will make the Environmental Review available to and solicit comments from the public and affected stakeholders via the NPS's Planning, Environment and Public Comment (PEPC) website. Comments will be accepted while construction of the road is in progress, with a view toward NPS consideration of adjustments to the proposed action and enhancement of proposed mitigation measures while construction of the road is in progress. The NPS will respond to substantive comments (environmental issues) and will post responses to comments on PEPC.
- The park will also participate at the weekly public lava meetings being held in Pahoa to take comments from community members, to the extent practicable. These meetings can be used to subsequently provide status updates on the construction, reports on monitoring, and respond to substantive comments.
- Results of park monitoring of resources and road use will be posted on PEPC, the park's website, community meetings, or other means of communication periodically throughout the duration of the emergency.

**Alternatives Considered**

- The NPS previously considered and approved a one-lane emergency evacuation route within the historic Chain of Craters Kalapana Road corridor. The NPS has subsequently determined that a one-lane route is not sufficient to control the immediate impacts of the emergency and that two-lane route is essential.
- The NPS also considered the County's request to allow for a wider, 28 foot two-lane road within the historic Chain of Craters Kalapana Road corridor. However, the NPS determined that a wider road is not necessary to control the immediate impacts of the emergency. Furthermore, a 28 foot wide road would be wider than the rest of the Chain of Craters Kalapana Road through the park and would result in unnecessary adverse impacts to park resources and values. The 28-foot road would be outside of the historic alignment and much wider than the existing Chain of Craters Kalapana Road.
- In addition to the alternatives discussed above, the options of relying on helicopters or water based access were considered. However, because helicopter access is frequently limited by weather conditions and because the area does not have access to a viable harbor, these options would not be able to provide the necessary level of access and therefore would not meet the purpose and need for taking action.

- Other federal agencies are working with the state and county to develop other options for access outside the park that would eliminate the need for emergency access through the park and would therefore minimize impacts to park resources. The park is supportive of these efforts; however, development of those alternatives is outside the park's authority and their feasibility is not yet determined.

**Mitigation Commitments**

- The road must follow the alignment as much as practicable and stay within the current known corridor of disturbance (approximately 20-26 feet; see TIC file HAVO 41902) of the currently lava-covered Chain of Craters Kalapana Road, as practicable. There are kīpuka along the flow, which are areas where the lava surrounds, but does not cover the vegetation and potential archeological sites within them. The proposed action will preserve remnant archeological sites within kīpuka outside of the old road corridor, once again provide access to coastal resources for Kalapana residents on the approved fishing list, and it will maintain the integrity of the historic road as one of two entry and egress routes within the park. If it becomes necessary for construction outside the existing alignment, then a survey will be completed and data recovery, to the extent practicable, will be undertaken.
- The emergency access route will be constructed according to a Hawai‘i Department of Transportation design that has been approved by the NPS. Construction monitoring will be overseen by NPS and FHWA. There will be ongoing inspections for compliance and daily monitoring. Any deviations from the approved design due to conditions encountered in the field will require the approval of the NPS. Deviations along the existing alignment are not expected to be significant and distances from sacred sites and landscapes are far enough away to avoid impact. In addition, the sacred sites are now buried under lava, so as long as the road cut remains near the top of the new lava (as currently planned), the buried sites below will be protected. Should the road alignment need to be significantly outside the surveyed buffer area, additional consultation will be necessary.
- Up to nine pull-outs may also be constructed to accommodate urgent uses (e.g. vehicle break-downs). This number matches the number of pullouts that existed on the original 1963 designed roadway segment that is now buried. The pullouts will be within the current known corridor of disturbance.
- The emergency access route will remain unpaved to be more consistent with the cultural landscape.
- Park sanitation standard operating procedures (SOPs) will be followed during construction. The SOPs were developed to prevent introduction of highly invasive species into the park and are required for all actions in the park. All equipment and vehicles for the construction of the road must be sanitized prior to entering the park (following the SOPs). Fill, if needed, must be from an approved source and will be subject to additional inspections.
- Invasive plant (e.g. fountain grass, etc.) and animal (e.g. little fire ants, coqui frogs, etc.) treatment (based on results of monitoring) will occur post-construction and for a

considerable time after the road is no longer used to ensure any invasive species are detected early when they are still treatable, and treated until they are eliminated (it could be 2-5 years or more after the use of the road is stopped). The treatment will occur along the proposed road, as well as along the entire route traveled within the park (Chain of Craters Kalapana Road and Crater Rim Drive). Invasive plants are manually removed or spot treated with herbicide (e.g. glyphosate) with minimal to no impacts to other resources. Coqui frogs are treated by manual removal when feasible and by citric acid when in large numbers or areas difficult to access, with minimal to no impacts to other resources. If found, little fire ants will be treated with an approved chemical treatment with little impact to other resources.

- If night-lighting is necessary for construction or staging areas, Dark Sky Policies will be followed. The preference is no night work, but if all other access routes are cut-off prior to the completion of this aggregate roadway, then night work may be necessary.
- Standard Best Management Practices (BMPs) for pollution prevention will be adhered to during construction. This will ensure there is not pollutant discharge related to the project.
- No material will be taken from outside of the road corridor to avoid impacts to the ethnographic resources, as well as the viewshed.
- Any lava tubes predating the 1983-2014 flows that are encountered will be documented as part of the park's cave inventory program and an archeological survey and additional consultation will be completed if required (e.g. if archeological resources are observed in the lava tube).
- Regulatory signs will be installed on the park boundary and along the emergency access route (boundary sign, park rules, fishing rights and restrictions) within the current known corridor of disturbance (approximately 20-26 feet; see TIC file HAVO 41902) of the currently lava-covered Chain of Craters Kalapana Road.
- The mitigations and any necessary recovery actions determined through consultation with USFWS will be followed. Mitigations identified to date are in Appendix A.
- The mitigations determined through consultation with SHPD will be followed. Mitigations identified to date are in Appendix A.
- Residents will be issued a decal or some form of identification to ensure restricted use of the road. Details on how this would be implemented are being worked out, and will be similar to how the park currently issues decals to people who have post office boxes at Kilauea Military Camp within the park.
- During construction and prior to the need for emergency access, signs and barricades will be installed to deter public vehicular access. Any signs and barricades on the emergency access road will be within the current known corridor of disturbance (approximately 20-26 feet; see TIC file HAVO 41902) of the currently lava-covered Chain of Craters Kalapana Road.
- If there is a large presence of commercial traffic, the NPS will work with the state and county to determine what is essential and to limit the commercial traffic to only the extent that is necessary.

- When reliable, safe access into and out of the Lower Puna area communities becomes available, through vehicular access will no longer be allowed on the emergency access route.

**Other Potential Mitigation Measures**

- The park will seek funding for additional staff and is working on expedited hiring to have staff on board prior to the road being ready for use.
    - Additional staff is necessary for increased monitoring and treatment of invasive species, increased monitoring of nēnē and other related minimization measures, and to address the increased traffic at the park entrance (at Kīlauea summit).
    - Increased law enforcement and other staffing (maintenance, interpretation, etc.) will be necessary to protect visitors, park resources, and ethnographic resources and rights. This includes patrolling roads, responding to emergencies, traffic control/management, resource monitoring, enforcing legislated rights (Native Hawaiian access), maintaining restrooms and other facilities along the roadways, etc.
- Additional monitoring and data recovery may be required to avoid, minimize, or mitigate potential impacts to historic properties and will be determined as the proposed action proceeds.
- NPS will, to the extent practicable, support and work with state and local governments to actively pursue the construction and/or creation of other long-term viable alternative routes to the park road, including other roads and harbors, to provide access to the communities on the southeast side of Hawai‘i.

**Monitoring**

- Construction monitoring and oversight by NPS and/or FHWA staff will occur during the length of the road construction.
- Archeological monitoring will occur, as necessary, during construction depending on the road alignment. Any location that does not follow the previous alignment will be monitored.
- Nēnē monitoring will occur prior to and during construction in the vicinity where the older lava flows currently cross Chain of Craters Kalapana Road (where the pavement ends).
- Nēnē monitoring will occur post-construction due to the increased traffic. Additional monitoring or mitigations may be required by USFWS during consultation. USFWS may assist, as appropriate. The park will hire additional staff to conduct monitoring.
- Invasive plant (e.g. fountain grass, etc.) and animal (e.g. little fire ants, coqui frogs, etc.) monitoring will occur post-construction and for a considerable time after the road is no longer used to ensure any invasive species are detected early when they are still treatable. The monitoring will occur along the proposed road, as well as along the entire route traveled within the park (Chain of Craters Kalapana Road and Crater Rim Drive).

## V. Duration of the Emergency

The use of the emergency access route will only last as long as there is no viable alternative route for the residents of the affected area to use to gain access to the rest of the Island of Hawai'i. A viable alternative route is likely to be limited to a new or re-opened county or state road because there is not a harbor on the Puna side that can accommodate a ferry, which would likely be the only other alternative access for the Lower Puna area. The NPS will continuously monitor use of the road and condition of park resources to assess whether additional restrictions or changes to road use are necessary. There is not a known time-line for the emergency as lava flows are unpredictable and could last many years.

Any future use of the route after the emergency ends will require additional NEPA review. The long-term disposition of the emergency access route will be addressed in the Environmental Impact Statement (EIS) for the park's General Management Plan. A draft EIS is projected to be available for public review in early 2015.

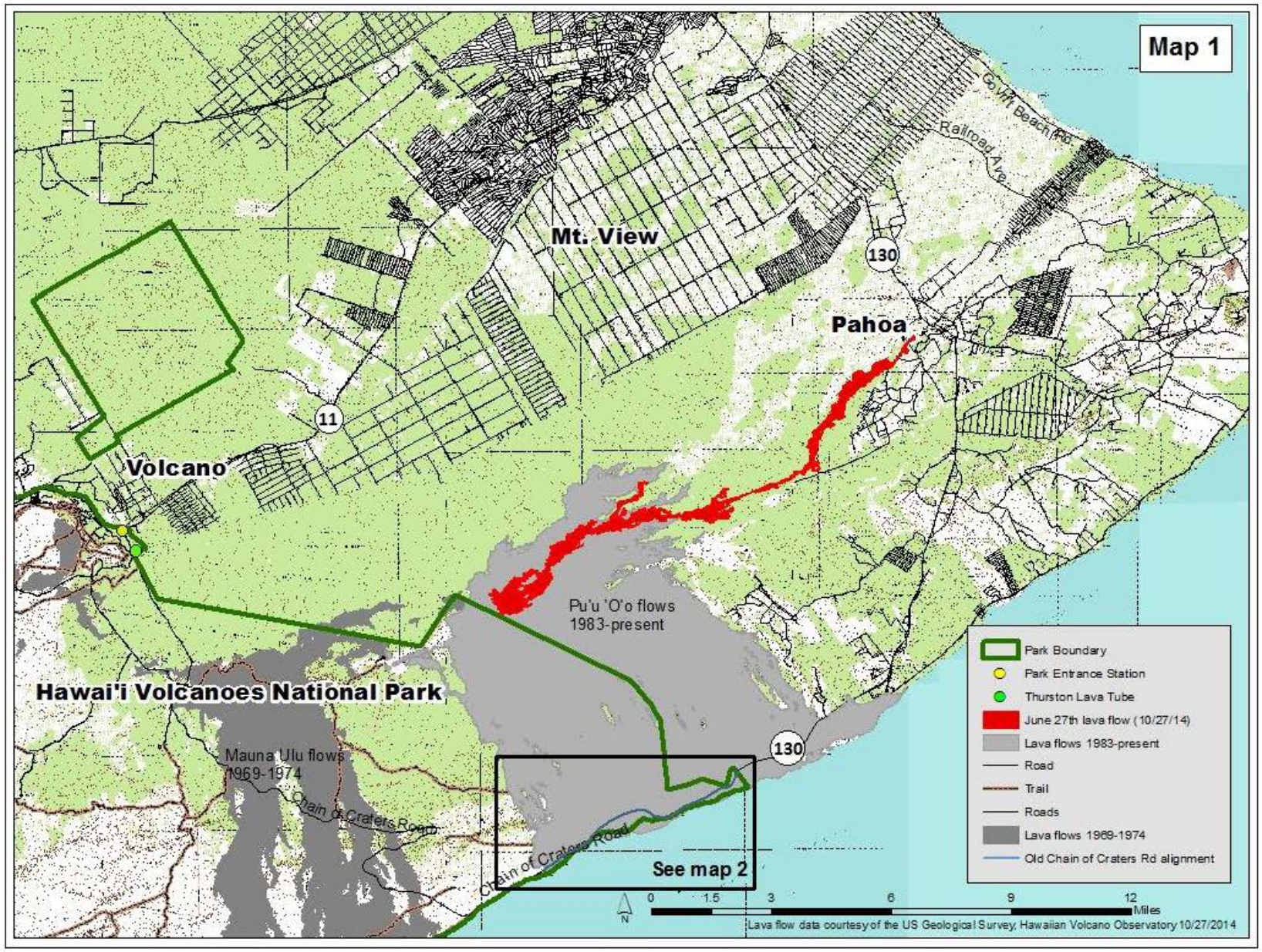
Once use of the emergency access route ends, the NPS will provide a report to the Council on Environmental Quality in order to close-out the alternative arrangements.

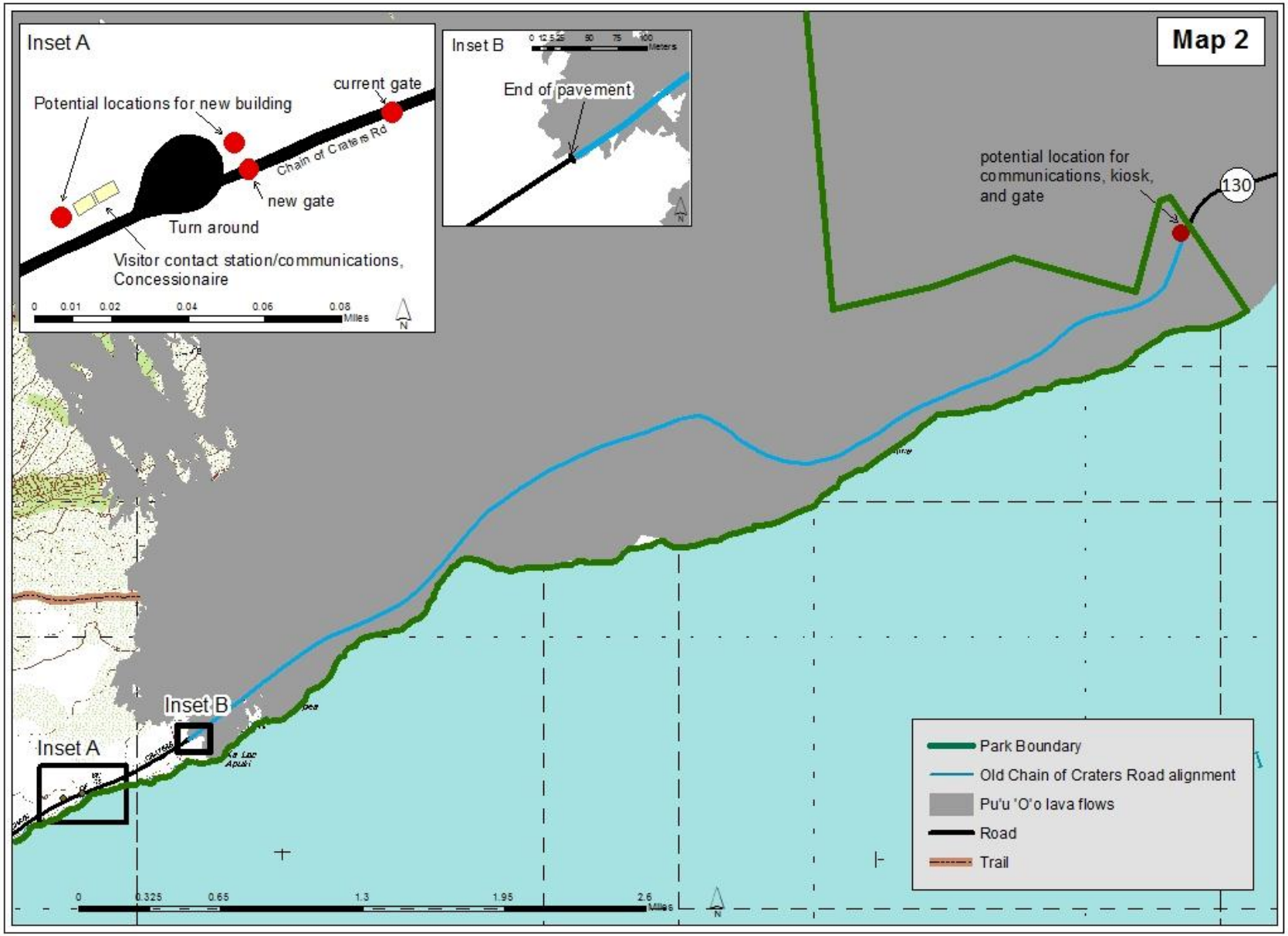
**Recommended by:**

Cindy Orlando — 10.30.14
Superintendent, Hawai'i Volcanoes National Park — Date

**Based on my review I have decided to proceed with the proposed action and mitigation commitments.**

Patricia L. Neubacher — 10/31/14
for Christine S. Lehnertz — Date
Pacific West Regional Director


Map 1
Mt. View
Pahoa
Volcano
Hawai'i Volcanoes National Park
Pu'u 'O'o flows
1983-present
Mauna Ulu flows
1969-1974
Chain of Craters Road
Chain of Craters Road
See map 2
Railroad Ave
Cowfi Beach Rd
130
11
130
Park Boundary
Park Entrance Station
Thurston Lava Tube
June 27th lava flow (10/27/14)
Lava flows 1983-present
Road
Trail
Roads
Lava flows 1969-1974
Old Chain of Craters Rd alignment
0
1.5
3
6
9
12
Miles
N
Lava flow data courtesy of the US Geological Survey, Hawaiian Volcano Observatory 10/27/2014


Map 2
Inset A
Potential locations for new building
current gate
Chain of Craters Rd
new gate
Turn around
Visitor contact station/communications, Concessionaire
0 0.01 0.02 0.04 0.06 0.08 Miles
Inset B
End of pavement
potential location for communications, kiosk, and gate
130
Inset B
Inset A
Park Boundary
Old Chain of Craters Road alignment
Pu'u 'O'o lava flows
Road
Trail
0 0.325 0.65 1.3 1.95 2.6 Miles

**Appendix A – Mitigations Resulting From Endangered Species Act Section 7 and National Historic Preservation Act Section 106 Consultations**

ESA Section 7 – Mitigations for 18' wide evacuation route that will still be followed for the proposed action

Minimization and avoidance measures for nēnē from 9/30/14 consultation (2014-TA-0449):

- Traffic calming devices will be installed to slow down traffic for the first mile of paved road beginning at the junction with the emergency route.
- Additional traffic calming devices and signage will be installed along the upper portion of Chain of Craters Road in the vicinity of nēnē habitat.
- Nēnē monitoring will occur prior to and during construction in the vicinity where older lava flows cross Chain of Craters Road.

Monitoring began on 10/20/14 and continued on 10/23/14 when equipment was moved to the park and then to the end of Chain of Craters Kalapana Road (construction restricted to that described in the decision memo approved 9/23/14). Monitoring continues every day the contractors are working.

ESA Section 7 – Additional mitigations for 22' wide emergency access route

Minimization and avoidance measures approved 10/28/2014 (via email) (in addition to those measures outlined in the 9/30/14 consultation):

- Post a monitor near the breeding area to ensure no impacts occur during the construction phase.
- Set speed limit at 20 mph adjacent to the coastal breeding habitat.
- Install traffic calming devices adjacent to the coastal breeding habitat.
- Begin to evaluate high risk areas further up Chain of Craters Road.
- Consider the following vehicle strike reduction measures and implement as applicable:
    - Reduce current speed limit in key areas
    - Add permanent nēnē crossing signs as needed
    - Install traffic calming devices if applicable
- Provide education/outreach on risks to nēnē (feeding, vehicle strikes) to residents of lower Puna and park visitors.
- Implement invasive species prevention measures (as described in the environmental review document).
- Other measures or conservation measures as determined during formal consultation.

NHPA Section 106 mitigations

Mitigation measures from 9/29/14 consultation (1409TD10):

- Visual impacts to the historic district will be minimized by placing the new road in the corridor of the former Chain of Craters Road. The scale of the roadway is such that minimal visual impacts are expected. There will be no additional access routes from this

road; however it will provide shoreline access for traditional activities such as fishing.

- No materials will be removed from the park area beyond the road corridor, in order to maintain the viewshed and ethnographic resources along the road.
- The proposed roadbed and shoulders, as well as a buffer of 10-20 m on either side of the proposed road bed, shoulders, and pullouts will be surveyed for archeological sites [the area of potential affect; APE]. This measure will ensure that any kīpuka with intact historic properties are identified and avoided if at all possible.
- Any historic lava tubes that are encountered will be documented as part of the park's cave inventory program.
- Construction monitoring and oversight by NPS staff will occur during the length of the project.
- Archeological monitoring of construction will occur at locations that do not follow the previous road alignment.

Archeological survey of road corridor was completed (report date 10/7/14). No cultural resources were found within the APE of the project.

Spot monitoring has been occurring during the construction of the previously approved 18' wide evacuation route and will continue for the length of the construction.

## Appendix B – Determination of Non-Impairment

## Emergency Access Route along the Lava-Covered Section of Chain of Craters Kalapana Road

### The Prohibition on Impairment of Park Resources and Values

National Park Service (NPS) Management Policies 2006, §1.4.4, explains the prohibition on impairment of park resources and values:

> While Congress has given the NPS management discretion to allow impacts within units of the national park system, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the 1916 Organic Act, establishes the primary responsibility of the NPS. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

*What is Impairment?*

An explanation of impairment is provided in NPS Management Policies 2006, §1.4.5, What Constitutes Impairment of Park Resources and Values, and §1.4.6, What Constitutes Park Resources and Values. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

§1.4.5 of NPS Management Policies 2006 states an impact to any park resource or value may, but does not necessarily, constitute impairment. An impact is more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

As per §1.4.6 of NPS Management Policies 2006, park resources and values at risk for being impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic

resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment could result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment could also result from sources or activities outside the park, but this would not be a violation of the 1916 Organic Act unless the NPS was in some way responsible for the action.

*How is an Impairment Determination Made?*

§1.4.7 of NPS Management Policies 2006 states, "In making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment. This means that the decision-maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act; consultations required under Section 106 of the National Historic Preservation Act; relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision."

**Non-Impairment Determination for the Selected Action**

This determination of no impairment has been rendered solely by the NPS decision maker and pertains only to the construction and use of the emergency access route for an extended period of time following the original Chain of Craters Kalapana Road alignment and width (selected action), as described in the Environmental Review and Decision document (ER/Decision).

The impairment determination does not include discussion of impacts to visitor experience, socioeconomics, public health and safety, environmental justice, land use, park operations, etc. This is because impairment findings relate back to park resources and values, and the above impact topics are not generally considered to be park resources or values according to the 1916 Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

Impacted resources within Hawai'i Volcanoes National Park (Park) assessed for impairment are as follows:

**Physical Resources**

Physical resources of concern within the park include air quality and soundscapes. Both the air quality and the soundscapes would be negatively impacted from dust pollution and noise, both during construction and from the use of the aggregate roadway. There has not been a road in this area for almost 30 years, so there will be a change to the natural soundscapes. However, that change will result in conditions similar to what existed when the road was open. Park visitors

will still be able to experience natural soundscapes, particularly in the backcountry. While there hasn't been a road in this area in a long time, the air quality in the park is already impacted by volcanic emissions, so the dust generated from the road will be a minimal contribution to the overall air quality of the park. The impacts to air quality and soundscapes will only last for the duration of the emergency.

**Biological Resources**

Biological resources that will be affected by the selected action include the endangered nēnē (Hawaiian goose) and the endangered Hawaiian petrel ('ua'u). Additionally, there is concern about the introduction of invasive species to the Park.

Nēnē (Hawaiian goose)

Nēnē could be affected by long-term vehicular traffic use, which is likely to disturb breeding/nesting/rearing along a 1 to 1.5 mile stretch from the current end of the road to the west. There is also a higher likelihood of vehicle strikes with the increased traffic both near the end of the current pavement, and further up Chain of Craters Kalapana Road where nēnē are known to cross or utilize habitat near the road. The increased number of road users could also contribute adverse impacts to nēnē because of a higher likelihood of dogs off leash, human-bird interactions, and people feeding nēnē. These impacts will be mitigated by implementing the following mitigation measures:

- Traffic calming devices will be installed to slow down traffic for the first mile of paved road beginning at the junction with the emergency route (adjacent to the coastal breeding habitat).
- Nēnē monitoring will occur prior to and during construction in the vicinity where older lava flows cross Chain of Craters Kalapana Road.
- Post a monitor near the breeding area to ensure no impacts occur during the construction phase.
- Set speed limit at 20 mph adjacent to the coastal breeding habitat.
- Begin to evaluate high risk areas further up Chain of Craters Kalapana Road.
- Consider the following vehicle strike reduction measures and implement as applicable:
    - Reduce current speed limit in key areas
    - Add permanent nēnē crossing signs as needed
    - Install traffic calming devices if applicable
- Provide education/outreach on risks to nēnē (feeding, vehicle strikes) to residents of lower Puna and park visitors.
- Enact invasive species prevention measures (see below section on *Invasive Species*).

In addition to these mitigation measures, the park will enter into formal consultation with USFWS as soon as practicable while construction and use of the road begins. The formal consultation will result in a biological opinion. The NPS will implement any additional minimization, avoidance, or conservation measures that are required as part of the formal consultation process.

Nēnē will remain in a similar abundance as exists today, and visitors will still continue to have opportunities to enjoy the species in the park.

Hawaiian petrels ('ua'u)

Hawaiian petrels may be negatively impacted by the construction of the roadway if construction occurs during the night. Night work will be strongly discouraged; however it may be necessary if all other access routes are cut-off prior to the completion of the aggregate roadway. If night work is necessary, Dark Sky Policies will followed in order to mitigate adverse impacts. Furthermore, the park will conduct additional consultations with USFWS under emergency consultation procedures if night work is needed and will not authorize night work until mitigations are approved by US Fish and Wildlife Service.

Invasive Species

Invasive species such as little fire ants, coqui frogs, and fountain grass could be introduced from passenger and/or commercial vehicles coming from the Lower Puna region. Some of the species are already a concern in other areas of the park. The risk of inadvertent introductions will increase under the selected action with traffic coming from Puna, and will require extensive monitoring and control. In order to ensure invasive species to not become established in the park, the park will monitor for invasive species introductions and treatments will be initiated upon detection. If invasive species, such as the little fire ant. escape early detection it could make eradication from the park difficult, if not impossible. Even if some invasive species become established in the park, visitors will still continue to enjoy the park resources and values that currently exist. Specific mitigation measures that will be implemented to control invasive species include:

- Park sanitation standard operating procedures (SOPs) will be followed during construction. The SOPs were developed to prevent introduction of highly invasive species into the park and are required for all actions in the park. All equipment and vehicles for the construction of the road must be sanitized prior to entering the park (following the SOPs). Fill, if needed, must be from an approved source and will be subject to additional inspections.
- Invasive plant and animal monitoring will occur post-construction and for a considerable time after the road is no longer used to ensure any invasive species are detected early when they are still treatable. The monitoring will occur along the proposed road, as well as along the entire route traveled within the park (Chain of Craters Kalapana Road and Crater Rim Drive).

Based upon consideration of the expected impacts to park resources and values, and with the implementation of the above mitigation measures, there will be no impairment to biological resources within Hawai'i Volcanoes National Park.

**Cultural Resources**

Cultural resources of concern within the park road corridor include the original Chain of Craters Kalapana Road alignment, the viewshed and cultural landscape features that include sacred sites/locales which may be considered traditional cultural properties, and buried archeological sites that may no longer be visible, but are preserved in the historic lava flows. All of these properties are within and contribute to the Puna Ka'ū Historic District which is on the National Register of Historic Places. The road alignment may also be eligible for listing as a separate property, but determination of eligibility has not been completed. In order to minimize impacts to

these resources, the NPS has committed to the following mitigation measures in the ER/Decision:

- Visual impacts to the historic district will be minimized by placing the new road in the corridor of the former Chain of Craters Kalapana Road. The scale of the roadway is such that minimal visual impacts are expected. There will be no additional access routes from this road; however it will provide shoreline access for traditional activities such as fishing.
- The aggregate road surface will not be paved to maintain consistency with the cultural landscape.
- No materials will be removed from the park are beyond the road corridor, in order to maintain the viewshed and ethnographic resources along the road.
- The proposed roadbed and shoulders, as well as a buffer of 10-20 m on either side of the proposed road bed, shoulders, and pullouts will be surveyed for archeological sites [the area of potential affect; APE]. This measure will ensure that any kīpuka with intact historic properties are identified and avoided if at all possible.
- Any historic lava tubes that are encountered will be documented as part of the park's cave inventory program.
- Construction monitoring and oversight by NPS staff will occur during the length of the project.
- Archeological monitoring of construction will occur at locations that do not follow the previous road alignment.

Even though there will be impacts to cultural resources, opportunities will remain for visitors to enjoy the resources described above. Based upon consideration of the expected impacts to park resources and values, and with the implementation of the above mitigation measures, there will be no impairment to cultural resources within Hawai'i Volcanoes National Park.

In addition to these mitigation measures, an Agreement between the County of Hawai'i and the NPS for undertaking the construction of an emergency access route was executed on October 21, 2014, to minimize or avoid potential impacts to cultural and natural resources along the lower Chain of Craters Kalapana Road.

In the best professional judgment of the NPS decision maker, based upon the information in the Environmental Review and other available information, no impairment will result to park resources or values as a result of implementation of the selected action.