

**National Park Service  
U.S. Department of the Interior**



**Zion National Park  
Utah**

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## **ZION-MT. CARMEL HIGHWAY REHABILITATION FINDING OF NO SIGNIFICANT IMPACT**

The Zion-Mt. Carmel Highway is one of the most popular scenic destinations in Zion National Park (Zion or park). The highway provides year-round access to a variety of recreation opportunities including the Canyon Overlook Trail and Checkerboard Mesa. The scenic drive also supports travel connections to the Grand Canyon, Bryce Canyon, and Capital Reef National Parks. Rehabilitation of the highway is needed because of the deteriorating condition of the road since its original construction in 1930. The highway (Park Route 10) extends from the intersection with Zion Canyon Scenic Drive at Canyon Junction to the East Park Entrance and park boundary. The 9.5-mile project area excludes the 1.1-mile Zion-Mt. Carmel Tunnel (tunnel).

This finding of no significant impact (FONSI) and the environmental assessment (EA) constitutes the record of the environmental impact analysis and decision-making process for the Zion-Mt. Carmel Highway Rehabilitation Project. The National Park Service (NPS) will implement the Preferred Alternative, which includes the site-specific repairs needed to address the identified deficiencies along the highway and associated improvements. The Preferred Alternative includes measures for protection of park resources, safety improvements, a sustainable road for visitor travel, and provides long-term conditions necessary to sustain scenic, natural, and cultural resources. The Preferred Alternative was selected after a careful review of resource and visitor impacts and public comment.

This document records 1) a Finding of No Significant Impact as required by the National Environmental Policy Act of 1969 (NEPA) and 2) a determination of no impairment as required by the NPS Organic Act of 1916.

### **PREFERRED ALTERNATIVE**

Highway rehabilitation and improvements are scheduled to occur in two phases, with the first phase beginning in 2010 and the second phase in 2012, depending on available funding. The first phase includes rehabilitation of 3.5 miles of roadway from the west side of the tunnel to the Virgin River. The second phase includes rehabilitation of 6.0 miles of roadway from the east portal of the tunnel to the park's eastern boundary.

**West Side of the Tunnel—Switchbacks.** The poor condition of the pavement in the switchback section of the highway west of the tunnel will involve removal of a portion of the existing pavement surface to lower the grade prior to placement of an asphalt overlay. In some locations subgrade excavation, compaction, and replacement is needed to stabilize

areas impacted by infiltration of surface water. Storm drainage deficiencies include flow through the roadway subgrade, resulting in settling of the pavement. Surface drainage is also permeating between the asphalt pavement and guard walls, causing erosion damage to the walls. Correcting these issues will require a combination of surface and subsurface drainage improvements that include adding new cross-culverts, improving culvert inlets, paving and grading ditches, adding curb and gutter, regrading ditches, and adding underdrains. Culvert and drainage outlets will be improved by adding riprap or other protection measures to dissipate energy and reduce erosion. Ditch protection measures include asphalt paving or riprap to provide permanent erosion control.

Guard walls have rotated away from the edge of the road forming gaps between the edge of the pavement and walls, which allows surface water to infiltrate the subgrade and undercut the wall. In addition, guard walls have settled due to substandard subsoil conditions and lack of footings. Two improvement options will be implemented to repair existing damage and prevent future damage to guard walls. A majority of the guard walls will be addressed with general improvements including cross-slope adjustment, surface and subsurface drainage improvement, and guard wall removal/resetting. Compaction grouting and reinforced fill placement will be considered at selected locations. Guard walls at locations where failure is likely will be dismantled and reset to prevent future damage to pavement and walls. In areas where guard walls have experienced settling of existing fill from poor drainage or the lack of a footing, compaction grouting of subgrade soils will be used to mitigate the effects of settlement.

Improvements at pullouts include paving, slight enlargements to facilitate parking, the addition of large rock or other measures to prevent resource damage from vehicles parking on vegetation, striping to delineate the road from the pullout, reconfiguration of parking, and reclamation to eliminate existing pullouts that present safety or resource damage concerns. The parking pullout near the Zion Canyon Scenic Drive at the west end of the highway will be reconfigured slightly to address safety concerns with the current parking alignment.

**East Side of the Tunnel—East Entrance.** Several measures will be used to address safety concerns associated with curves on the East Entrance section of the highway because of a history of accidents at these locations. New stone-faced guard walls, visually compatible with existing walls, will be constructed at an unnamed curve located west of the short tunnel portal and at Petroglyph Canyon Curve. A widened section of pavement at County Line Curve will be removed to eliminate a pullout, or clearly delineated to define the parking location. Other measures include curve widening, curve warning signs and delineators, and possible corrections to the cross-slope of the roadway. Stone curbing, of a similar composition and quality to existing stone curbing, may be installed at several locations. Drainage improvements will be implemented at select locations as needed. A new asphalt overlay will extend throughout the highway.

Several pullouts require improvements to slightly enlarge, pave, or better delineate the pullout from the traffic lane, or the pullouts will be removed due to safety concerns. The Keyhole Canyon parking pullout is being considered for widening to accommodate additional vehicle parking. Enlarging this pullout may require minor additional excavation, fill, and pavement beyond the existing roadway bench, which will be determined during final design. A pullout at Spry Canyon also will be enlarged slightly and paved. Several options for the addition of a

comfort station and parking to the existing pullout near the East Entrance Station are being considered. One option includes additional pullout parking with a pedestrian crosswalk on the south side of the highway across from the comfort station. Expansion of the footprint of the existing pullout will be needed to construct the comfort station/parking, and the road bench will need to be widened if a parking pullout is located on the south side of the highway.

**Traffic Control.** Establishing traffic control measures in a confined area along a popular travel destination to implement needed road rehabilitation is challenging because of the narrow road, steep switchbacks, and limited site distance. The highway will remain open during rehabilitation work, subject to temporary traffic delays, night closures, and possible daytime traffic suspensions during work in the switchback section. Roadwork will require closure of at least one lane, and at times, both lanes will need to be closed temporarily. Traffic control requirements will be dictated by the type of repairs being conducted and will vary with each of the specific work elements from milling, pulverization, subgrade replacement, guard wall repairs, drainage improvements, paving, and other actions (Table 1). The park will implement a number of measures to provide timely and accurate information to park visitors during roadway rehabilitation to maintain a quality visitor experience.

**TABLE 1. TRAFFIC CONTROL OPTIONS FOR EACH PHASE OF CONSTRUCTION**

Traffic Control	West of Tunnel Switchbacks	East of Tunnel—East Entrance
Single-lane alternating one-way travel with traffic delays up to 1 hour between 7 A.M. and 7 P.M.	X	X
Daytime traffic suspension up to 3 hours, Monday to Thursday, between 7 A.M. and 7 P.M.	X	
Night road closure between 9 P.M. and 5 A.M.	X	X

## MITIGATING MEASURES

A number of mitigation measures and best management practices will be incorporated into the project design for the Preferred Alternative to reduce environmental impacts (Table 2).

**TABLE 2. MITIGATION MEASURES**

Resource Area	Mitigation
<b>General Considerations</b>	<p>Construction zones will be identified with construction fence, silt fence, or some similar material prior to any construction activity. The fencing will define the construction zone and confine activity to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications and workers will be instructed to avoid conducting activities beyond the construction zone. Disturbances will be limited to roadsides, culvert areas, and other areas inside the designated construction limits. No machinery or equipment will access areas outside the construction limits.</p> <p>Construction equipment staging will occur within the roadway for active work areas or at designated pullouts. Off-site equipment and vehicle parking will be limited to designated staging areas.</p> <p>Contractors will be required to properly maintain construction equipment (i.e., mufflers and brakes) to minimize noise. Construction vehicle engines will not be allowed to idle for extended periods of time.</p> <p>Material and equipment hauling will comply with all legal load restrictions. Load restrictions on park roads are identical to state load restrictions with such additional regulations as may be imposed by the Park Superintendent.</p> <p>Water sprinkling will be used as needed to reduce fugitive dust in work zones. Water will be</p>

Resource Area	Mitigation
	<p>obtained from the park water supply and trucks will be filled at the park filling station.</p> <p>All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project work limits upon project completion.</p>
<b>Vegetation</b>	<p>All disturbed ground will be reclaimed using appropriate best management practices (BMPs) that include planting native plants. Until the soil is stable and vegetation is established, erosion control measures will be implemented to minimize erosion and prevent sediment from reaching streams.</p> <p>Temporary barriers will be provided to protect existing trees, plants, and root zones. Trees or other plants will not be removed, injured, or destroyed without prior approval.</p> <p>To prevent the introduction of, and minimize the spread of, nonnative vegetation and noxious weeds, the following measures will be implemented during construction:</p> <ul style="list-style-type: none"> <li>• Soil disturbance will be minimized.</li> <li>• All construction equipment will be pressure washed and/or steam cleaned before entering the park to ensure that all equipment, machinery, rocks, gravel, and other materials are cleaned and weed free.</li> <li>• All haul trucks bringing fill materials from outside the park will be covered to prevent seed transport.</li> <li>• Vehicle and equipment parking will be limited to within construction limits or approved staging areas.</li> <li>• Staging areas outside the park will be surveyed for noxious weeds and treated appropriately prior to use.</li> <li>• All fill, rock, and additional topsoil will be obtained from stockpiles from previous projects or excess material from this project, if possible; and if not possible, then weed-free fill, rock, or additional topsoil will be obtained from sources outside the park. NPS personnel will certify that the source is weed free.</li> <li>• Monitoring and follow-up treatment of exotic vegetation will occur after project activities are completed.</li> </ul>
<b>Water Quality and Soils</b>	<p>Erosion control BMPs for drainage and sediment control, as identified and used by the Federal Highway Administration (FHWA) and NPS, will be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. These practices may include, but are not limited to, silt fencing, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities. The placement and specific measures used will be dictated to a large degree by the steep topography immediately adjacent to the roadway in some portions of the project area. Silt fencing fabric will be inspected daily during project work and weekly after project completion, until removed. Accumulated sediments will be removed when the fabric is estimated to be approximately 75% full. Silt removal will be accomplished in such a way as to avoid introduction into any flowing water bodies.</p> <p>Regular site inspections will be conducted to ensure that erosion control measures are properly installed and functioning effectively.</p> <p>The operation of ground-disturbing equipment will be temporarily suspended during large precipitation events to reduce the production of sediment that may be transported to streams.</p> <p>A storm water pollution prevention plan (SWPPP) will be developed by the contractor, approved by FHWA, and then submitted to the Utah Division of Water Quality prior to commencing any near-water activities.</p> <p>All equipment will be maintained in a clean and well-functioning state to avoid or minimize contamination from fluids and fuels. Prior to starting work each day, all machinery will be inspected for leaks (e.g., fuel, oil, and hydraulic fluid) and all necessary repairs will be made before the commencement of work.</p> <p>Prior to the start of construction, a hazardous spill plan will be required from the contractor stating what actions will be taken in the case of a spill and preventive measures to be implemented. Hazardous spill clean-up materials will be on-site at all times. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery (e.g., fuel, oil, and hydraulic fluid) used in project implementation.</p>

Resource Area	Mitigation
<b>Wildlife</b>	<p>No construction activities will occur from 5 A.M. to 7 A.M. and from 7 P.M. to 9 P.M. to minimize impacts to wildlife that are most active at dawn and dusk. These hours will be adjusted by the park biologist seasonally for varying day lengths. Other construction restrictions for special status species, described below, also will protect wildlife.</p> <p>Lights used for night construction activities will be shielded and directed downward to minimize the areas impacted by artificial light and to avoid light pollution.</p> <p>The construction contractor will be required to keep all garbage and food waste contained and removed daily from the work site to avoid attracting wildlife into the construction zone. Construction workers will be instructed to remove food scraps and not feed or approach wildlife.</p>
<b>Special Status Species</b>	<p><b>Mexican spotted owls and California condors:</b></p> <p>No night work or construction activity between 7 P.M. and 7 A.M. will be allowed within the Protected Activity Center (PAC) during the breeding season (March 1 to August 31 or until the owls have fledged as described below).</p> <p>Construction activities with noise levels similar to ongoing maintenance and traffic will be allowed in the PAC between 7 A.M. and 7 P.M. because the owls are likely acclimated to this background level of ambient noise and activity. This includes construction activities such as repair and installation of guard walls and culvert work.</p> <p>Other more intensive construction activities, such as pavement pulverizing, grading, and pavement overlay, will be restricted in the PAC within the March 1 to August 31 breeding season. However, park biologists will monitor the nesting progress of the owls and, if monitoring indicates that the young owls have fledged prior to August 31, more intensive construction activities will be allowed at that time.</p> <p>No blasting will be allowed within the PAC during the breeding season.</p> <p>No fueling of vehicles will be allowed within the PAC.</p> <p><b>Peregrine falcons:</b></p> <p>On the section of highway from the west tunnel portal to the Nevada Switchback, the loudest construction activities (milling and pulverizing) will be prohibited from March 1 to May 15 until peregrine nesting is confirmed. If the nesting area is determined active, milling, pulverizing, and pavement overlay from the west tunnel to the Nevada Switchback section of the highway will not occur until park biologists confirm that the young peregrines have fledged, which is typically by the end of July. Other construction activities similar in noise to existing traffic and maintenance work could occur at any time. If the peregrines are not present in the nesting area near the highway or if the loudest construction activities, such as milling and pulverizing, begin before March 1, then there will be no construction restrictions.</p> <p><b>Plants:</b></p> <p>Sensitive plant surveys will be conducted prior to disturbance of any suitable habitat. If sensitive species are found, the area will be avoided (if practicable), mitigation measures will be implemented to minimize impacts, or affected plants will be transplanted.</p>
<b>Visitor Experience, Public Health, Safety, and Park Operations</b>	<p>Visitors will be informed in advance of construction activities via a number of outlets including the park website, newspaper, radio, entrance stations, variable message signs, visitor centers, kiosks, shuttle drivers, and at other nearby national parks. In addition, information on construction will be publicized in news releases, local newspapers, media outlets, postings in local businesses, contacts with tour coach companies, visitor bureaus, chamber of commerce, and travel- and tourism-related businesses.</p> <p>Traffic delays during construction will be kept to a minimum. For construction on the east side of the tunnel, a maximum delay of 1 hour will occur, except for night work when the road will be closed from about 9 P.M. to 5 A.M., depending on the season. Traffic delays during construction west of the tunnel will be up to 3 hours from 7 A.M. to 7 P.M. Monday to Thursday with the same night closures as the East Entrance work. No construction will occur between 5 A.M. and 7 A.M. and between 7 P.M. and 9 P.M. to protect wildlife, but the highway will remain open, subject to sections of alternating one-way traffic during these periods.</p> <p>Visitors could be directed to parking areas when traffic delays are expected to last more than 20 minutes. Pilot cars could then lead traffic through the construction zone when the road reopens.</p>

Resource Area	Mitigation
	<p>Temporary road closures/openings will be scheduled on the hour and half-hour to help visitors plan their activities.</p> <p>Tunnel operations for oversized vehicles will be coordinated with construction traffic delays so that visitors will be subject to only one traffic delay when traveling the length of the highway.</p> <p>To facilitate visitor planning, the status of roadwork, traffic delays, or suspensions will be posted 2 weeks in advance and updated daily.</p> <p>As much as possible, park staff will be posted at construction traffic stops to answer visitor questions and provide information during traffic delays.</p> <p>The Zion Public Information Officer will coordinate with the contractor on the construction schedule and update visitors and information sources periodically on construction work to inform visitors of project status and access.</p> <p>Provisions for emergency vehicle access through construction zones will be developed.</p>
<b>Cultural Resources</b>	<p>Archeological resources in the vicinity of the project area will be identified and delineated for avoidance prior to project work.</p> <p>New sandstone curbing or guard walls will be designed to be visually compatible (e.g., similar in scale, massing and materials, texture, and orientation) with the existing curbing and guard walls.</p> <p>The park will continue to coordinate with the State Historic Preservation Office (SHPO) throughout the course of the project to protect and mitigate cultural resources affected by the proposed action.</p> <p>Should any archeological resources be uncovered during construction, work will be halted in the area and the park archeologist, SHPO, and appropriate Native American tribes will be contacted for further consultation.</p> <p>Park cultural resources staff will be available during construction to advise or take appropriate actions should any archeological resources be uncovered during construction. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.</p> <p>The NPS will ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors also will be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction.</p> <p>Equipment and material staging areas will avoid known archeological resources.</p>

## ALTERNATIVES CONSIDERED

A no action alternative was also evaluated in the EA. Under the No Action Alternative, the highway would not be rehabilitated. Zion staff would continue routine road maintenance, minor repairs, and snow removal as it has in the past. The road pavement and structural integrity would continue to deteriorate and drainage problems would persist. Guard walls impacted by drainage and inadequate substructure would continue to deteriorate. The No Action Alternative would not correct visitor safety issues associated with road conditions or pullouts. No highway funds would be expended for road reconstruction or improvements; however, road maintenance costs would likely increase to address deteriorating road conditions. Under the No Action Alternative, there would be no improvements to pullouts or a new comfort station.

The NPS determined that the Preferred Alternative to rehabilitate and improve the highway is the environmentally preferred alternative. The Preferred Alternative surpasses the No Action Alternative in realizing the full range of national environmental policy goals as stated in Section 101 of NEPA to:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all generations 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.

The Preferred Alternative will provide the widest range of beneficial uses without degradation, and will reduce risks to health and safety because it will provide sustainable vehicular access to the facilities and trailheads along the highway. Implementing the Preferred Alternative will best preserve the natural and cultural features along the road because it implements structural improvements while providing long-term protection of environmental and cultural resources (goals 1 and 4). Road improvements will allow for unimpeded access to recreational opportunities and regional access (goals 2, 3, and 5). The Preferred Alternative provides for the reuse of asphalt in place or milled asphalt could be used on other road projects outside of the project area (goal 6).

While the No Action Alternative would preserve existing conditions, it would not be considered the environmentally preferred alternative because not rehabilitating the highway, repairing damaged road and drainage problems, and implementing other improvements would not meet environmental goals in the same manner as the Preferred Alternative. The No Action Alternative is not the environmentally preferred alternative for

the following reasons: 1) not rehabilitating the highway would not meet the stewardship responsibility for protecting park resources (goal 1); 2) it would not improve road safety or protection of environmental and cultural resources (goals 2, 3, and 4); 3) damaged road sections would continue to deteriorate and result in increased maintenance costs (goal 3); and 4) there is a higher likelihood of road failure, which would result in road closure, making it more difficult for visitors and staff to access park facilities (goal 5). Thus, the No Action Alternative does not fully meet the provisions of NEPA Section 101 goals 1, 2, 3, 4, and 5.

Several other alternatives were considered but rejected from additional analysis in the EA. Resurfacing the highway was eliminated because it would not meet the project purpose and need for rehabilitating roadway deficiencies. Widening the highway to add a bike lane was excluded from further consideration because of the adverse impacts to natural, cultural, and scenic resources. Closing the highway to vehicle access was not considered a viable option because it would not meet the original intent of the highway for providing linkage to other national parks and the Zion General Management Plan objectives to maintain access. Incorporating retaining wall repairs in the switchback section of the highway with road rehabilitation is beyond the scope and budget of this project. However, drainage improvements included in the Preferred Alternative are expected to reduce erosion and stability issues associated with some of the retaining walls. Totally redesigning the road on the west side of the tunnel was beyond the scope and budget available for this project and would result in substantial short-term adverse effects on the environment and would have long-term adverse effects to the National Register of Historic Places (NRHP) designation of the highway.

## **WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT**

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

***Impacts that may be both beneficial and adverse. A significant effect may exist even if the agency believes that on balance the effect will be beneficial***

The Preferred Alternative will result in both beneficial and adverse impacts. In general, the project provides long-term beneficial effects to public health, safety, and park operations; visitor experience and recreation resources; socioeconomics; geology; and soils. Adverse impacts range from negligible to moderate and are generally short-term from construction-related disturbances and temporary inconvenience to visitors while roadwork is conducted. Project effects primarily occur within a local context of the highway, although short-term park-wide and regional inconvenience to visitor activities is possible during construction from traffic delays. Mitigation measures, as listed in Table 2 above, will minimize adverse effects. A summary of resource effects is found in Table 5 of the EA.

### ***Degree of effect on public health or safety***

Highway rehabilitation and improvements will have a substantial beneficial effect on public safety and health by addressing deteriorating road conditions, drainage problems, and additions and improvements to guard walls, curbing, pullouts, and signage. Improvements to road cross-slope, narrow switchback corners, roadway pavement, and drainage will improve safety and driving conditions. Milling and grading work to lower the pavement



surface near guard walls will improve the effectiveness of guard walls. The addition of guard walls at an unnamed curve and Petroglyph Canyon Curve will improve safety. Reconfiguration, abandonment, and minor expansions of pullouts will improve safety for motorists and pedestrians. Reducing the speed limit from 35 mph to 30 mph from Pine Creek Bridge to County Line Curve will reduce the risk of accidents and improve public safety. Park maintenance operations will be substantially improved by implementation of road repairs that reduce the need for continual repairs to deteriorating infrastructure. The service life of the highway, pullouts, guard walls, culverts, and other structural features will be extended by several decades.

A number of safety measures will be implemented during construction to protect visitors, park staff, and construction workers. Park staff will assist in coordinating traffic and construction activities. Construction work and traffic delays will cause a disruption in normal traffic patterns, parking, and visitor activities. The park will take special measures to notify visitors and the local community on the status of road conditions and potential traffic delays. The park may hire additional temporary staff to better coordinate and communicate with park visitors, contractors, local businesses, and other park staff. To avoid conflicts with routine park operations and shuttle bus operations on the Zion Canyon Scenic Drive, the park will coordinate with the construction contractor for lane or road closures, or other activities that would impact park operations or visitor access. Provisions will be made for emergency vehicle access throughout the construction period. Maintaining a safe environment for park staff, contractors, shuttle bus operators, and visitors during and after construction will be a primary objective.

***Degree to which effects on the quality of the human environment are likely to be highly controversial***

Zion conducted public scoping prior to preparation of the EA and the public was given an opportunity to comment on the completed EA. Based upon the input received during public scoping, there was no evidence that the effects would be highly controversial. At the conclusion of the 30-day public review and comment period, which ended on July 28, 2009, the park had received ten comments. Given the substance of these comments, there is no evidence that the effect to the quality of the human environment will be highly controversial.

***Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks***

Highway rehabilitation meets project objectives through implementation of structural highway improvements that correct damaged and deteriorating road conditions, address public safety, provide for visitor enjoyment, and protect park natural and cultural resources. The anticipated effects on the human environment, as analyzed in the EA, are not highly uncertain or unique, nor were any unknown risks identified.

***Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration***

Rehabilitation of the highway will not result in significant adverse effects to the natural environment, cultural resources, or visitor experience, and will not set a precedent for future actions that could have significant effects.

***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts***

The EA concluded that past, present, and future activities, when coupled with the rehabilitation of the highway will have local long-term minor adverse cumulative effects on vegetation, wildlife, threatened and endangered species, hydrology and water quality, historic structures, and the cultural landscape. Cumulative effects to geology; soils; visitor experience and recreation; public health, safety, and park operations; and socioeconomics will be long-term and beneficial. There will be a short-term minor adverse contribution to the soundscape during construction and no cumulative effect to archeological sites.

***Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources***

The highway is listed on the NRHP and includes numerous associated features including bridges, tunnels, masonry retaining walls, masonry culvert headwalls, masonry curbs, guard walls, drop inlets, culverts, and other small road-related features. Proposed rehabilitation work will require repairs of several historic structures as well as the introduction of new features such as guard walls and curbing. The repair or rebuilding of existing guard walls, installation of stone curbing, and culvert headwall repairs will be implemented in a manner to maintain the historic integrity of the design characteristics and craftsmanship and will be compatible with the original method of construction. Archeological resources will not be affected. There will be new impacts on the cultural landscape. Measures to correct roadway structural and drainage deficiencies will result in local long-term minor adverse impacts on landscape elements, but will also have a long-term beneficial effect on existing guard walls, retaining walls, and other historic features that receive protective or rehabilitation measures. Proposed improvements will maintain the aesthetic quality, scenic view points, travel pattern, and natural features along the highway and will not deter from the potential of the highway to be nominated and included on the NRHP as a cultural landscape.

After applying Advisory Council on Historic Preservation criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of the Preferred Alternative will have no adverse effect on highway historic structures, archeological sites, or the cultural landscape. The State Historic Preservation Office (SHPO) in a letter dated August 18, 2009 attached to this FONSI, concurred that the Preferred Alternative would have no adverse effect on historic properties.

***Degree to which the action may adversely affect an endangered or threatened species or its critical habitat***

The additional noise and disturbance during construction may result in impacts on several special status animal species. The Preferred Alternative may affect, but is unlikely to adversely affect, Mexican spotted owl and California condor. There will be no impact to Mexican spotted owl critical habitat. Mitigation measures will be implemented to restrict the timing of the loudest construction activities near Mexican spotted owl habitat until after young owls have fledged. These measures will also reduce potential impacts to California condors, which are only occasional visitors to the area. There are no threatened or endangered plant species in the project area.

The U.S. Fish and Wildlife Service (FWS) concurred with the not likely to adversely affect determination for the California condor, Mexican spotted owl, and critical habitat. FWS concurrence with the determination is found in its letter of July 8, 2009 attached to this FONSI. In consultation with the FWS, a correction was made to the discussion on Mexican spotted owl in the EA as indicated in the attached Errata Sheet.

***Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas***

As described in the EA, no adverse effects to cultural resources or prime farmland were identified for the Preferred Alternative. Less than 0.1 acres of wetlands in a roadside ditch will be affected by drainage work. The Preferred Alternative will have short-term minor effects on water quality in Clear Creek and Pine Creek, two tributaries to the Virgin River designated as wild and scenic rivers. The Preferred Alternative will have long-term benefits to water quality from drainage improvements. Impacts to water quality would not affect the wild and scenic river status of Clear Creek or Pine Creek. No ecologically critical areas will be adversely affected. As described previously, there will be no impact to Mexican spotted owl critical habitat.

***Whether the action threatens a violation of federal, state, or local environmental protection law***

This action violates no federal, state, or local environmental protection laws.

**APPROPRIATE USE, UNACCEPTABLE IMPACTS, AND IMPAIRMENT**

Sections 1.5 and 8.12 of NPS *Management Policies* underscore the fact that not all uses are allowable or appropriate in units of the National Park System. The proposed use was screened to determine consistency with applicable laws, executive orders, regulations, and policies; consistency with existing plans for public use and resource management; actual and potential effects to park resources; total costs to the Park Service; and whether the public interest will be served.

The Zion-Mt. Carmel Highway, in its present configuration, has been in continuous use since it was constructed. The existing Zion-Mt. Carmel Highway is consistent with the park's General Management Plan (NPS 2001) to maintain travel and access between the park's South and East entrances. The NPS finds that providing automobile access along the highway, and to trailheads and other points of interest along the road is an acceptable use at Zion. Because mitigation measures are expected to be successful in ensuring that no major adverse impacts will occur to park resources, implementation of the Preferred Alternative will not result in any unacceptable impacts.

In analyzing impairments in the NEPA analysis for this project, the NPS takes into account the fact that if an impairment were likely to occur, such impacts would be considered to be major or significant under Council on Environmental Quality (CEQ) regulations. This is because the context and intensity of the impact would be sufficient to render what would normally be a minor or moderate impact to be major or significant. Taking this into consideration, NPS guidance documents note that "Not all major or significant impacts under a NEPA analysis are impairments." However, all impairments to NPS resources and

values would constitute a major or significant impact under NEPA. If an impact results in impairment, the action should be modified to lessen the impact level. If the impairment cannot be avoided by modifying the proposed action, that action cannot be selected for implementation.

In addition to reviewing the definition of “significantly” under the NEPA regulations, the NPS has determined that implementation of the Preferred Alternative will not constitute an impairment to the integrity of Zion National Park’s resources or values as described by NPS *Management Policies* (NPS 2006 § 1.4). This conclusion is based on the NPS’s analysis of the environmental impacts of the proposed action as described in the EA, the public comments received, relevant scientific studies, and the professional judgment of the decision-maker guided by the direction in 2006 NPS *Management Policies*. The EA identified less than major adverse impacts on geology; soils; vegetation; wildlife; special status species; hydrology and water quality; historic structures; archeological sites; cultural landscapes; visitor experience and recreational resources; soundscapes; public health, safety, and park operations; and socioeconomics. This conclusion is further based on the Superintendent’s professional judgment, as guided and informed by the Zion National Park General Management Plan. Although the project has some negative impacts, in all cases, these adverse impacts are the result of actions taken to preserve and restore other park resources and values. Overall, the project results in benefits to park resources and values, opportunities for their enjoyment, and does not result in their impairment.

## **PUBLIC INVOLVEMENT**

The EA was made available for public review and comment during a 30-day period ending July 28, 2009. The park received ten comments during the public review period of the EA—three from individuals, four from agencies, and three from Native American tribes. Comments were generally supportive of the proposed action.

Each comment was considered and reviewed by park staff. The commenters did not provide any additional, new, or substantive information that will change the determination of effects in the EA. Comments resulted in no changes to the text of the EA, although a correction was made in the discussion on Mexican spotted owl per consultation with the FWS as indicated in the attached Errata Sheet. The FONSI and Errata Sheet will be sent to all commentors.



## CONCLUSION

As described above, the Preferred Alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The Preferred Alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended:

  
Superintendent

8/31/9  
Date

Approved:

  
Regional Director, Intermountain Region

9/3/05  
Date



## **ERRATA SHEET**

### **ZION-MT. CARMEL HIGHWAY REHABILITATION ENVIRONMENTAL ASSESSMENT ZION NATIONAL PARK**

This errata sheet documents changes to the text of the Zion-Mt. Carmel Highway Rehabilitation Environmental Assessment (EA) as the result of consultation with the U.S. Fish and Wildlife Service during the comment review process.

#### **Environmental Assessment Text Changes:**

**Page 58; replace the first full paragraph under the numbered items with the following:**

With the implementation of the proposed mitigation measures, the Preferred Alternative would have a local short-term negligible impact to Mexican spotted owl (MSO) due to construction noise and activity. This conclusion is partially based on the results of monitoring MSO after similar work was performed in this area in 2006 (refer to the East Tunnel Portal EA/FONSI - 2006). This project occurred during the late fall and winter of 2006-2007.

The park monitors Mexican spotted owl nesting and breeding activity every year. Monitoring in 2006 and again in 2007, showed that a pair of owls continued to occupy the area before and after the work. For these reasons we believe any effect from the proposed activity would be insignificant and that the Preferred Alternative may affect, but is not likely to adversely affect the Mexican spotted owl individuals or the population as a whole.