



National Park Service
U.S. Department of the Interior
Zion National Park
Springdale, Utah

Finding of No Significant Impact

Zion Canyon South Entrance Redesign

Recommended:

Jeff Bradybaugh
Superintendent, Zion National Park

Date

Approved:

Kate Hammond
Regional Director, Interior Regions 6, 7, and 8

Date

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Introduction

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with the redesign of the South Entrance at Zion National Park (park or ZION). The purpose of the proposed Zion Canyon South Entrance Redesign (project) is to improve road circulation and safety for vehicular, bicycle, and pedestrian traffic on roads and trails in the Project Area; create pedestrian and bicycle connections and intuitive wayfinding; and modernize ZION facilities and utility infrastructure to support current and future visitation levels. Additionally, the purpose of the project is to bring the Project Area into compliance with the Architectural Barriers Act (ABA) and Americans with Disabilities Act (ADA) while reducing user group conflicts, improving visitor safety, and protecting natural and cultural resources. The project is needed because visitation levels have outgrown the existing road facilities and alignments, creating dangerous and confusing traffic situations with potentially harmful interactions between vehicles and more vulnerable road users such as bicyclists and pedestrians.

The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the EA and appendices and the associated decision file. The EA is available at: <https://parkplanning.nps.gov/ZIONSEntryRedesign>. To the extent necessary, relevant sections of the EA are incorporated by reference below.

Background

The Zion Canyon South Entrance is in the southern portion ZION and includes the South Entrance Fee Station, Zion Canyon Visitor Center, Watchman Campground Road, Watchman Campground Bridge, large vehicle parking, shuttle facility, and employee parking, and provides access to the Zion-Mt. Carmel Highway, South Campground, Watchman Campground, and the southern portion of the park. About 70 percent of visitors to ZION enter through the Zion Canyon South Entrance. Much of this traffic crosses the Watchman Campground Bridge, a two-lane bridge across the North Fork of the Virgin River, to access the Visitor Center, parking, and other park amenities on the south side of the river.

Increases in visitation levels and changes in visitor use patterns over time, combined with the limitations of a road and bridge designed in the 1950s for much less intensive use, have made the Zion Canyon South Entrance a congested area. Visitors to the Zion Canyon South Entrance area use multiple forms of travel, which results in safety challenges. At the time the Watchman Campground Bridge was completed in 1965, the park had considerably less visitation, did not operate a public transportation system, and the bridge was designed with no sidewalks or bike lanes. The Zion Canyon Visitor Center was constructed in 2000, at a time when visitation and traffic congestion were much lower than current levels. The recent South Entrance Fee Station configuration increased the number of traffic lanes, which allows more vehicles to enter the park at a faster rate. Current conditions in the Project Area result in a variety of user group

conflicts. Often, traffic congestion due to the current design temporarily delays shuttles from accessing or departing the Visitor Center shuttle stop, located just beyond the Watchman Campground Bridge. Pedestrians and cyclists may be delayed in crossing the road by vehicles that do not yield at crosswalks, and vehicles in turn may be delayed due to high traffic in crosswalks.

The Zion Canyon Transportation System began operating propane-powered shuttle buses in 2000 to reduce congestion on Zion Canyon Scenic Drive. Many of the propane shuttles are aged and require frequent maintenance. Ultimately, because of a scarcity of repair parts (the shuttles built for this unique transportation system are no longer manufactured), each out-of-commission shuttle bus can no longer be repaired and must be replaced. In 2023, ZION began taking delivery of an electric-powered shuttle bus fleet. The replacement buses include state-of-the-industry accessibility features but also have a larger size and turning radius and cannot easily navigate the existing shuttle facility, nor can the existing facility accommodate parking for the larger buses once the transition to an electric fleet is complete.

Selected Action and Rationale for the Decision

The National Park Service has decided to implement Alternative B in the EA as the selected action. The selected action summarized in this FONSI is the same as the preferred alternative described on pages 6 through 11 of the EA. The selected alternative best meets the purpose and need for action without causing significant impacts to park resources. The selected action will include realigning the road to the Zion Canyon Visitor Center accessed from the South Entrance Fee Station, paving the ZION Shuttle Maintenance Facility, expanding employee parking and large vehicle parking, improving circulation of and installing intuitive wayfinding for pedestrian and bicycle trails, and improving accessibility throughout the Zion Canyon South Entrance Area. In addition to implementing the mitigations identified in the EA (see also Appendix A of the FONSI), ZION will develop a Communications Plan to notify the public of any road closures in advance of construction. Notifications will be communicated on ZION's website, through social media, and through press releases to inform the media so that visitors are aware of the work and can make appropriate plans.

Selected Action

Road Improvements

Road improvements will be implemented at the Zion Canyon South Entrance Area to improve safety, reduce multimodal conflicts, improve wayfinding, and reduce traffic congestion. Road improvements include the following proposed elements:

- Construct a new roundabout north of the existing South Entrance Fee Station (with an associated new road alignment).
- Construct a short-term pullout and bypass lanes to facilitate traffic flow at the roundabout just past the South Entrance Fee Station.

- Realign the Watchman Campground Road running southeast from the entrance roundabout and restore the old roadbed to natural conditions with native vegetation.
- Construct a new road configuration east of the new vehicular bridge (described below).
- Construct a second new roundabout to facilitate traffic flow to the large vehicle parking lot, Visitor Center parking lot, shuttle bus parking lot, and Watchman Campground.
- Add new traffic signage at the new roundabouts.
- Construct a road connection to the shuttle bus parking lot.
- Reconfigure and enlarge the large vehicle parking lot from about 1 acre to about 1.73 acres.
- Create road and trail connections to the shuttle stop area as needed.
- Grade all areas adjacent to the Zion Canyon South Entrance Area to connect to existing grades.
- Install culverts as needed.
- Demolish and revegetate sections of the existing road that are no longer needed.
- Install bioswales for natural filtration of contaminants from all new and expanded parking areas.
- Construct trail connections to the adjacent campground as needed.
- Replace and modernize utility infrastructure where appropriate.
- Add signage, fencing, and dark-sky compliant path lighting to better define pedestrian routes.

Watchman Campground Bridge Replacement

The Watchman Campground Bridge across the North Fork of the Virgin River will be removed and replaced. Bridge replacement includes the following proposed elements:

- Remove the existing Watchman Campground Bridge and restore the river channel in the same location to natural freer-flowing conditions.
- Construct a new four-lane vehicular bridge with a longer span upstream of the existing Watchman Campground Bridge.
- Construct a pedestrian trail underpass at the new bridge to connect to the Pa'rus Trail, which runs north-south along the east side of the North Fork of the Virgin River.

Shuttle Facility

The shuttle facility improvements include the following proposed elements:

- Pave the recently expanded shuttle bus parking lot.
- Realign the entrance of the administrative access road to access the bus charging parking area and ZION Shuttle Maintenance Facility.
- Expand existing employee parking to include concessioner, partner, and NPS employee parking in a single location separate from visitor parking. The employee parking lot will be expanded from about 0.22 acre (34 spaces) to about 1.30 acres (87 spaces).
- Remove existing Zion Canyon Visitor Center employee parking. A portion of this area will be part of the new entrance road, and a portion will be revegetated.

- Add an accessible route from employee parking to the Zion Canyon Visitor Center.

Other Alternatives Considered

In addition to the selected alternative, the EA analyzed one other alternative and its impacts on the environment: Alternative A, the No Action Alternative.

Alternative A: No Action Alternative

Under the No Action Alternative, the existing two-lane road and two-lane vehicular bridge (Watchman Campground Bridge) would continue to provide the primary entrance and egress to the Zion Canyon Visitor Center and other facilities on the east side of the North Fork of the Virgin River, and issues with safety concerns for visitors and multimodal conflicts would continue. The current configuration of turn lanes and pedestrian crossings would remain unchanged. The recently expanded shuttle bus lot would not be paved and the large vehicle parking lot and employee parking lot would not be expanded or reconfigured. Routine maintenance of roads and parking areas under current management would continue. The No Action Alternative was not selected because it does not meet the purpose and need for the project.

Rationale for Decision

The NPS has selected Alternative B from the EA for implementation because it best meets the purpose and need for the action without causing significant impacts on park resources. In contrast to Alternative A, the No Action Alternative, the selected alternative will improve road circulation and safety, better define pedestrian and bicycle routes and create intuitive wayfinding, modernize ZION facilities to support current and future visitation levels, and bring the Zion Canyon South Entrance Area into compliance with current accessibility requirements. The selected alternative will be implemented to avoid or reduce effects on park resources and values as described in the EA and mitigation measures (Appendix A).

The U.S. Fish and Wildlife Service concurred with the park's determination that the selected alternative *may affect, and is likely to adversely affect*, Mexican spotted owl and its critical habitat. Impacts will not be significant and will not lead to jeopardy of the future survival of the species, as described below under *Degree of Effects of the Action*. Conservation measures, including timing restrictions on tree removal, will be implemented to reduce impacts on Mexican spotted owl and its habitat during the breeding season, as described in Appendix A.

To ensure appropriate treatment of historic properties, the NPS and the Utah State Historic Preservation Office (SHPO) developed a Programmatic Agreement to resolve adverse effects on the South Campground, as described below under *Degree of Effects of the Action*. The park resolved the adverse effect on the Watchman Campground Bridge by amending the existing Programmatic Agreement for the South Campground (Appendix C). Mitigation measures (Appendix A) will reduce the severity of the impacts on the Zion Canyon Cultural Landscape

Historic District. The Zion Canyon Cultural Landscape Historic District will remain intact and will still be eligible for listing in the National Register of Historic Places.

Although the project will involve work within floodplains, the NPS has prepared a Floodplain Statement of Findings that determined that implementing the selected action would restore the flood capacity and conveyance of North Fork of the Virgin River that will result in a net reduction of risk to human health and safety, property and floodplain values. Risks to life, property, and natural resources from flooding can be mitigated. Bioswales designed to collect runoff from developed surfaces will be installed to reduce impacts to water quality. Necessary adverse floodplain impacts will be reduced to the greatest extent practicable while meeting the design requirements and operational needs of the Project Area. With the proposed mitigations applied, the selected action will have limited adverse impacts on floodplains and their associated values due to increased impervious surface in the valley bottom. The Floodplain Statement of Findings is attached to this FONSI as Appendix D.

Although the selected action will involve work in and adjacent to the North Fork of the Virgin River, which is a designated Wild and Scenic River, the project will improve the free-flowing condition of the river by replacing the existing bridge. Although the river's Outstandingly Remarkable Values (ORVs) will be temporarily affected during construction, there will be no long-term adverse effects on ORVs and the long-term effects on the recreation ORV will be beneficial from improving traffic flow, trail connections, and shuttle bus circulation. ZION prepared a Wild and Scenic Rivers Act Section 7 Determination in compliance with the Wild and Scenic River Act, which determined that the long-term impacts of the selected action would be beneficial. The Wild and Scenic Rivers Mitigation Measures attached in Appendix G of the EA, further refines best practices and mitigation strategies. The Wild and Scenic Rivers Act Section 7 Determination is attached to this FONSI as Appendix E.

Mitigation Measures

The NPS strongly emphasizes avoiding, minimizing, and mitigating potentially adverse environmental impacts. Therefore, the NPS will require mitigation measures and best management practices to protect environmental and cultural resources potentially affected by the project. The selected alternative incorporates the mitigation measures and best management practices listed in Appendix A of this document.

The authority for mitigation for the proposed project comes from laws and policies, including the following:

- Clean Water Act (33 U.S.C. §1251 et seq.)
- Council on Environmental Quality NEPA Regulations (40 CFR 1500)
- Endangered Species Act, as amended (16 USC § 1531 et seq.)
- Executive Order 11988 Floodplain Management
- Migratory Bird Treaty Act of 1918 (16 USC § 703-712)
- National Environmental Policy Act (42 U.S.C. 4321 et seq.)

- National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.)
- NPS Director's Order #46: Wild and Scenic Rivers
- NPS Director's Order #77-2: Floodplain Management
- NPS Management Policies 2006 (chapters 4, 5, and 9)
- NPS Organic Act of 1916 (16 USC § 1)
- Wild and Scenic Rivers Act (16 USC 1271-1287)

Potentially Affected Environment

A description of all potential environmental effects associated with the selected action and other alternatives included in the EA is incorporated by reference here (40 CFR 1501.6[b]). Consistent with Council on Environmental Quality regulations (40 CFR 1501.3[b]), the NPS evaluates the significance of the selected action by assessing the potentially affected environment and the degree of effect of the action, including effects on public health and safety, and effects that would violate federal, state, Tribal, or local laws protecting the environment.

The selected alternative has the potential to impact several resources, which were retained for further analysis and discussed in detail in Chapter 3 of the EA. These resources are vegetation, Mexican spotted owl, cultural resources, visitor use and experience, and water resources. Impacts on other resources were so small and insignificant that they were not carried forward for analysis.

Under the selected alternative (Alternative B or the Proposed Action in the EA), the Project Area is defined as Zion Canyon South Entrance is in the southern portion of the park and includes the South Entrance Fee Station, Zion Canyon Visitor Center, Watchman Campground Road, Watchman Campground Bridge, large vehicle parking, shuttle facility, and employee parking, and provides access to the Zion-Mt. Carmel Highway, South Campground, and Watchman Campground.

Vegetation

The Project Area includes a complex mix of developed areas, disturbed grasslands, and native vegetation communities. Vegetation communities in the Project Area include rabbitbrush (*Chrysothamnus viscidiflorus* and *Ericameria nauseosa*) shrubland complex, Fremont cottonwood (*Populus fremontii*) woodland, Fremont cottonwood – velvet ash (*Fraxinus velutina*) woodland, big sagebrush (*Artemisia tridentata*) shrubland complex, and cheatgrass (*Bromus tectorum*) annual disturbed grassland (Cogan et al. 2004). The Fremont cottonwood woodland complex is common in the Virgin River floodplain and along other prominent drainages. The Fremont cottonwood – velvet ash woodland community is found in riparian areas and in the floodplain of the North Fork of the Virgin River. The understory in the Fremont cottonwood – velvet ash woodland community mostly consists of the nonnative species cheatgrass and great brome (*Bromus diandrus*). The big sagebrush shrubland complex is widespread in ZION and in the Project Area. The cheatgrass annual disturbed grassland community is found throughout the Project Area in previously disturbed areas. Additional plant

communities covering smaller areas in the Project Area include blackbrush (*Coleogyne ramosissima*) shrubland complex, littleleaf mountain mahogany (*Cercocarpus intricatus*), slickrock sparse vegetation, and perennial disturbed grassland complex, which comprises mostly nonnative grasses such as smooth brome (*Bromus inermis*). Detailed descriptions of plant communities in ZION are summarized in Cogan et al. (2004).

Invasive and Nonnative Vegetation

Numerous invasive and nonnative plant species are present in the Project Area. The Project Area has higher densities of nonnative vegetation than other areas of ZION due to the presence of roads, trails, and other human-caused disturbance. The most prevalent nonnative species is cheatgrass, which dominates large areas in previously disturbed grasslands and is also present in the understory of shrub communities and riparian areas. Russian thistle (*Salsola tragus*) is also extremely prevalent across the entirety of the Project Area. Other prevalent nonnative plant species in the Project Area include little bur clover (*Medicago minima*), Russian olive (*Eleaegnus angustifolia*), and bulbous bluegrass (*Poa bulbosa*; Washuta and Perkins 2019). Mediterranean grass (*Schismus* sp.), which is a new species for ZION, was discovered in the Project Area in March 2022 and is confined to a small area near the employee parking and large vehicle parking lots.

Mexican Spotted Owl

Mexican spotted owls (MSO) are listed as threatened under the Endangered Species Act (ESA). MSO nest in steep-sided canyons with old-growth mixed-conifer forests, nesting on cliff ledges or caves along canyon walls in deep, shady/cool canyons. MSO have been observed in ZION since 1928 (Wauer 1997). ZION is designated as critical habitat for this species. A territory is an area occupied by an individual owl and defended against other individuals of the same species. As defined by the 2012 Mexican Spotted Owl Recovery Plan, MSO protected activity centers (PACs) are “a minimum area of 600 acres surrounding the ‘activity center,’ which includes the nest site, a roost grove commonly used during the breeding season in the absence of a verified nest site, or the best roosting/nesting habitat if both nesting and roosting information are lacking” (USFWS 2012). As of 2021, 40 suspected or known MSO territories were wholly or mostly in ZION, and 31 PACs have been delineated (Stroud-Settles and Reimer 2021). Within each PAC are core areas that are established as 100 acres surrounding known nest or roost sites (USFWS 2004). The three closest PACs to the Zion Canyon South Entrance area are Oak Creek, Pine Creek, and Lady Mountain. The edge of the Oak Creek PAC is about 0.8 mile from the Zion Canyon South Entrance area, and the core of this PAC is about 2.0 miles from the Zion Canyon South Entrance area. The edge of the Pine Creek PAC and its core area are about 1.8 miles and 1.9 miles from the Zion Canyon South Entrance area, respectively. The edge of the Lady Mountain PAC and its core area are about 2.1 miles and 2.8 miles from the Zion Canyon South Entrance area.

Cultural Resources

Although lower Zion Canyon had been the home of Indigenous peoples for thousands of years, the first non-Indigenous people to settle lower Zion Canyon were members of the Church of Jesus Christ of Latter-Day Saints (LDS) in 1859. The transformation of lower Zion Canyon began immediately with the development of agriculture and associated infrastructure such as roads, rock walls, and ditches to convey water to fields, including some of the ditches that now extend through the Project Area. The Crawfords and Schiefers were LDS families who settled lower Zion Canyon around what is now the Zion Canyon South Entrance area (Engleman et al. 2022). Their property was acquired by the park to eventually develop the Zion Canyon South Entrance area. Following LDS settlement, the Zion Canyon South Entrance area went through three phases of development under the NPS: Early Development, New Deal Era, and Mission 66, which spans a period from 1909 when the national monument was established through 1966 when the Mission 66 program ended. Little development occurred during the Early Development period (1909- 1933), but it was during this period that the Zion-Mt. Carmel Highway was completed in 1933, providing the first formal vehicular access to the entire Zion Canyon. Formal development of the Zion Canyon South Entrance began with the New Deal Era and the Civilian Conservation Corps (CCC). South Campground was constructed by the CCC from 1933 to 1936. With the start of World War II, development projects ended and even after the war, development was slow to resume. However, development began in earnest under the Mission 66 program, which began in 1956 and was intended to last 10 years until 1966 upon the 50th anniversary of the NPS. Mission 66 was intended to modernize NPS infrastructure to accommodate increasing numbers of visitors. The Schiefer Homestead was acquired in 1960 to develop the Zion Canyon South Entrance, including Watchman Campground and employee housing. It was during the Mission 66 program that the current roads and bridges, including the Watchman Campground Bridge and Watchman Residences Bridge, were constructed. The northern portion of Watchman Campground was removed to accommodate the new Zion Canyon Visitor Center constructed from 1998 to 2000 (Engleman et al. 2022; GWWO Architects 2022).

Visitor Use and Experience

The Project Area is in the Frontcountry High Development Zone, as described in the park's General Management Plan (NPS 2001). The Frontcountry High Development Zone is intended to provide visitors with highly structured opportunities to learn about the park by means of motorized primary roads. This zone is intended to be a pocket of civilization surrounded by the park's natural beauty (NPS 2001). ZION has been a sought-after destination for many decades, with visitation steadily increasing in recent years. Visitors come to enjoy a wide variety of experiences and features offered by ZION. The sounds of civilization (mechanical and other human-created sounds) are generally confined to the Frontcountry Zone, which includes the Project Area (NPS 2010). Increases in visitation levels and changes in visitor use patterns over time, combined with the limitations of a road and bridge designed for much less intensive use,

have made the Zion Canyon South Entrance and Visitor Center a confusing and potentially hazardous area.

Current conditions in the project area result in a variety of user group conflicts due to the configuration of the transportation system which involves pedestrians, cyclists, exiting passenger vehicles, ZION shuttle buses, large vehicles such as RVs, and road-based tour buses. These user groups all converge while attempting to cross the narrow two lane Watchman Campground Bridge.

Water Resources

Floodplains

The North Fork of the Virgin River floodplain is adjacent to the river and serves critical functions such as reducing flood risks downstream by absorbing and storing excess water during flood events, improving water quality by filtering contaminants during flood events, providing habitat for riparian plants and animals, and recharging groundwater aquifers. The floodplain natural values in the Project Area have been altered by human activities and modified through past construction actions.

The Project Area is partially within the base elevation for 100-year flooding (Wood 2022). Portions of the Project Area are also within the 500-year floodplain. The floodplain natural values in the Project Area have been altered by human activities, such as construction of the Watchman Campground Bridge and installation of impervious surfaces for roads, parking areas, and trails. Infrastructure in the floodplain has necessitated that the park prevent channel migration through the construction of channelizing revetments and levees made of rock riprap, wire rock-filled gabions, and concrete. Modifications of the floodplain have resulted from construction of drainage swales and irrigation ditches.

The existing Watchman Campground Road, Watchman Campground Bridge abutments, large vehicle parking lot, shuttle bus parking lot, and employee parking lot are within or partially within the regulatory floodplain defined as 2 feet above the base 100-year flood elevation. Portions of the Zion-Mt. Carmel Highway, which provides access into and out of the Zion Canyon South Entrance, are in the regulatory floodplain. Visitors to the Project Area frequently travel in and through flood hazard areas. Modeling shows that Watchman Residences Bridge, the other vehicular bridge located upstream of the proposed bridge, would not convey regulatory flood flows. Three pedestrian bridges along the Pa'rus Trail are designed to convey the regulatory flood flow and could convey pedestrians across the river during a flood event. The Project Area is on land adjacent to the North Fork of the Virgin River and Sammy's Canyon. No existing or newly constructed buildings would be within the regulatory floodplain in the Project Area after the project is complete.

Wetlands

Wetland resources in the Project Area comprise the North Fork of the Virgin River. The water source for the river is primarily surface flow from surrounding uplands and tributaries. No vegetated wetlands are in the Project Area. Wetland boundaries are shown in Wetland and Jurisdictional Waters Report (ERO 2022), which also describes the wetlands in detail. The North Fork of the Virgin River is a perennial riverine wetland. The river is an unvegetated wetland, as defined by NPS policy (NPS 2016), with a bed consisting of unconsolidated cobblegravel and sand, containing perennial flows. Vegetated wetlands upstream and downstream from the Project Area occur as narrow fringes along the North Fork of the Virgin River. These palustrine wetlands include both emergent and scrub-shrub wetlands. The wetland communities in Zion Canyon provide numerous wetland functions and values, including hydrologic functions, biotic functions, and cultural values. The wetlands and intermittent spring flows provide multiple hydrologic functions in the Project Area. The wetland and riparian areas also serve to disperse larger flow events and dissipate energy as flows move through the dense vegetation. The wetland communities provide habitat to a variety of wildlife species. While not uncommon in Zion Canyon, wetland and riparian areas are two of the rarest and most biologically diverse habitat types in ZION. The wetlands and riparian areas in the Project Area provide habitat to multiple wildlife species and are reliable water sources for larger mammals. Many plant and animal species have physiological or life-history traits that force them to reside in or directly adjacent to permanent water sources.

Wild and Scenic Rivers

The Virgin River and its tributaries, including the North Fork of the Virgin River in the Project Area, are Congressionally designated as Wild and Scenic Rivers under the Wild and Scenic Rivers Act (WSRA). The designated Wild and Scenic River corridor extends 0.25 mile from the river on either side. The WSRA prohibits federal agencies from assisting in the construction of any water resources project (such as dams, diversions, channelization, or riprapping) that would have direct and adverse effects on a designated river. The WSRA also includes a standard that governs projects below, above, or on a stream tributary to the river. Designated wild and scenic rivers are further classified as wild, scenic, or recreational, as defined in the WSRA. The section of the North Fork of the Virgin River in the Project Area is classified as recreational. The WSRA also requires the protection of Outstanding Remarkable Values (ORVs) in a designated Wild and Scenic River for the benefit of present and future generations. The North Fork of the Virgin River provides cultural, geologic, recreational, scenic, wildlife, and fish ORV attributes, as described in the Virgin River Comprehensive Management Plan/Environmental Assessment (NPS and BLM 2013, p. 20).

The Degree of Effects of the Action

As described in the EA and below, the selected action has the potential for adverse impacts on vegetation, Mexican spotted owl, cultural resources, visitor use and experience, and water resources. No potential for significant adverse impacts was identified as described below.

The following topics have been considered in evaluating the degree of the effects (40 CFR 1501.3(b)(2)) for the selected action.

Vegetation

Construction will result in impacts on about 11.8 acres of vegetation. When restoration of temporary impacts and obliteration and restoration of removed roads are accounted for, the net permanent loss of vegetation will be about 2.5 acres. An estimated 120 trees will be removed for the road alignment in the project area. The estimate is based on a 20-foot buffer around proposed roads and represents a worst-case scenario. Many of the trees that will be removed or trimmed are dead, dying, or near the end of their natural lifespan, and some will present a safety hazard if not removed or treated. Wherever possible, and as long as they do not pose a safety hazard, dead trees will remain to provide wildlife habitat. Temporarily disturbed areas will be revegetated with native species, including the replanting of native tree species, following construction as described in Appendix A of this FONSI. Overall, the project's impact on vegetation will not be significant because less than 0.01 percent of the entire park's vegetation will be permanently affected, and temporary impacts will be restored. Invasive and nonnative plant species will be controlled, which will reduce impacts and benefit native vegetation after construction is complete.

Mexican Spotted Owl

Mexican spotted owls (MSO) are listed as threatened under the Endangered Species Act (ESA). Implementing the selected alternative will result in increases in noise disturbance during the 24-month construction period, but the project area already experiences high levels of human use and human-caused noise. Noise levels will not rise to a level that will cause adverse effects on nesting owls or have population level effects. A small amount of MSO critical habitat (about 2.5 acres) will be permanently removed and may alter MSO use of the area. During construction, disturbance of foraging and roosting habitat, reduction in prey availability, and removal of mature trees in potential foraging and roosting habitat will occur. The potential for adverse impacts will be reduced by implementing the conservation measures described in Appendices B and E of the EA. These include limits on the timing of construction, timing of tree removal, timing of clearing and grubbing, and revegetation efforts after construction. The entirety of ZION is MSO critical habitat; therefore, the loss of 2.5 acres of critical habitat is not significant because it would be less than 0.01 percent of the available critical habitat at ZION. Known nesting habitat, including protected activity centers (PACs), will not be affected. The NPS prepared a biological assessment (BA; Appendix E of the EA) for the project, which was submitted to the U.S. Fish and Wildlife Service as part of formal consultation under the ESA. The BA found the selected alternative *may affect, and is likely to adversely affect*, MSO and its critical habitat. Impacts will be reduced, but not eliminated, by implementing conservation measures described in Appendix A, including limits on timing of construction and tree removal in MSO habitat.

Cultural Resources

Implementing the selected alternative will result in an adverse effect on a historic structure with removal of the Watchman Campground Bridge constructed during the Mission 66 period. The selected alternative will remove the Watchman Campground Bridge and construct a new bridge upstream. Watchman Campground Road will be shifted to the north to accommodate the relocation of the Watchman Campground Bridge. The proposed roundabout at the intersection of the Zion-Mt. Carmel Highway and the Watchman Campground Road will affect the Zion-Mt. Carmel Highway, which is eligible for listing in the National Register of Historic Places under Criterion C for embodying distinctive road design under Mission 66. However, this section of the highway has been realigned since construction during the Mission 66 program and does not contribute to the eligibility of the larger resource. Therefore, there will be no adverse effect on the Zion-Mt. Carmel Highway.

To ensure appropriate treatment of historic properties, the NPS and SHPO developed a Programmatic Agreement to resolve adverse effects on the South Campground. The park resolved the adverse effect on the Watchman Campground Bridge by amending the existing Programmatic Agreement for the South Campground (Appendix C). Mitigation measures to resolve the anticipated adverse effects on the Watchman Campground Bridge will include baseline documentation of the historic bridge through a Utah archaeological site form. The severity of the effect will also be diminished by the preservation of an identical Mission 66 era bridge (the Watchman Residences Bridge) in lower Zion Canyon. Mitigation measures (Appendix A) will reduce the severity of the impacts on the Zion Canyon Cultural Landscape Historic District. The Zion Canyon Cultural Landscape Historic District will remain intact and will still be eligible for listing in the National Register of Historic Places; therefore, the adverse effects will be less than significant.

Visitor Use and Experience

The selected alternative will improve visitor use and experience after construction is complete by reducing visitor confusion and frustration when travelling through the Zion Canyon South Entrance Area. The proposed road improvements will improve traffic flow, reduce congestion, and reduce user group conflicts by improving separation between vehicles and pedestrians and providing a dedicated route for shuttle buses to access the Visitor Center shuttle stop. Defining new multiuse accessible trail connections will provide alternative routes for visitors who would otherwise walk or bike along the road. The new pedestrian and vehicular bridge, with passage for bicyclists and pedestrians below the bridge, will improve the visitor experience by improving traffic flow and will reduce conflicts among user groups by physically separating bicycles and pedestrians from vehicular traffic. Adding signage, fencing, and dark-sky compliant path lighting will better define pedestrian routes and reduce visitor confusion.

Paving the shuttle bus parking lot will benefit the visitor experience by supporting the park's transition to new electric shuttle buses with state-of-the-industry accessibility features. Expanding the large vehicle parking lot will improve the visitor experience by providing

additional space for large vehicles and improving the lot layout to make it easier for large vehicles to maneuver.

Implementing the selected alternative will result in temporary disruptions to traffic flow, temporary reductions in parking in the large vehicle parking area, and temporary increased noise from construction equipment. Noise levels will temporarily and noticeably increase during the 24-month construction period because of equipment, vehicular traffic, and construction crews. After construction is complete, noise levels in the Zion Canyon South Entrance Area will return to existing ambient levels. The Project Area is already heavily influenced by anthropogenic activity and noise, and construction is not expected to result in large increases in noise or human activity compared with current conditions. Mitigation measures will reduce impacts from noise during construction by requiring appropriate vehicle mufflers and limiting hours of operation of motorized equipment, as described in Appendix A, and will be consistent with the park's Soundscape Management Plan, as described in Appendix C of the EA.

To mitigate the effects on visitors during construction, ZION will develop a Communications Plan to notify the public of any road closures in advance of construction. Notifications will be communicated on ZION's website, through social media, and through press releases to inform the media so that visitors are aware of the work and can make appropriate plans. Variable message signs along the route to the park will also be used to keep the public informed of construction-related closures and delays. ZION will provide updates to local community residents and community members by continuing to participate in meetings, such as the Zion Canyon Visitors Bureau, in cooperation with partners such as Greater Zion and the Zion Forever Project, and sending other direct communications.

Overall, the project's impacts on visitor use and experience during construction will not be significant because adverse impacts will cease after the 24-month construction period, the park will notify visitors in advance of any road closures, and additional mitigation measures described in Appendix A will be implemented to reduce impacts on visitors. Long-term effects of the project on visitor use and experience will be beneficial.

Water Resources

Floodplains

The floodplain will be negatively impacted during construction due to the presence of staging areas, construction equipment, and materials in the floodplain and possible erosion from bare soils prior to revegetation. However, construction activities will be monitored, and erosion and sediment control best management will be implemented to minimize erosion and sediment movement. These impacts will be temporary, lasting during the 24-month construction period. Disturbed areas would be revegetated with native species following construction, as described in Appendix A. After removal of the Watchman Campground Bridge, restoration of the river channel, and construction of a new bridge with a longer span, the post-

project floodplain along the North Fork of the Virgin River will be less constricted because the new bridge will have a longer span and elevated low chord height (lowest portion of the superstructure), compared with the Watchman Campground Bridge. Although the overall impervious surface in the Zion Canyon South Entrance Area will increase after project completion, the amount of impervious surface in the modeled floodplain will decrease from 3.1 acres to 0.9 acre after construction, after accounting for removal of the existing bridge. Decreases in impervious surface in the floodplain will benefit floodplain functions and values by increasing flood storage capacity and increasing the ability of the floodplain to recharge and infiltrate stormwater. After the project is complete, impacts on floodplains will be beneficial from replacing the existing undersized bridge and by improving egress from flood-prone areas, which will reduce flood-related risks to human health and safety. NPS has prepared a Floodplain Statement of Findings that determined that implementing the selected action would restore the flood capacity and conveyance of North Fork of the Virgin River that will result in a net reduction of risk to human health, safety, and property and improve floodplain values (Appendix D).

Wetlands

Impacts on unvegetated wetlands will occur from instream work to remove the Watchman Campground Bridge and from restoration work in the channel under the removed bridge. In-channel work will affect up to 300 linear feet of the bed and bank of the North Fork of the Virgin River. Wetlands will be filled by placing fill dirt and riprap to protect the trail under the bridge. This will result in permanent loss of up to 0.25 acre of streambed. Heavy equipment will be used, including excavation within the river channel, to remove the Watchman Campground Bridge and abutments and to regrade and shape the channel to produce a more natural configuration after removal of the bridge. Impacts on wetlands will not be significant because temporary impacts on wetlands will be less than 300 linear feet of streambed and less than 0.25 acre of wetlands, and wetlands will be restored following construction. The new vehicle and pedestrian bridge across the river will span the ordinary high-water mark (OHWM), and the new bridge abutments will be outside the OHWM. The selected action will ultimately provide benefits to wetlands by restoring the section of channel beneath the existing bridge and replacing the existing bridge with a new bridge with a longer span and elevated low chord height. These changes will provide an improvement to wetland functions by restoring the riverbed and banks to more natural conditions and facilitating less restrictive river flow.

Wild and Scenic Rivers

While there will be temporary impacts on Wild and Scenic Rivers associated with demolition of the existing bridge, construction, and restoration. These impacts will be temporary, lasting during the 24-month construction period. The recreation ORV will be temporarily impacted from disruptions to traffic flow, such as temporary traffic control. The presence of heavy equipment and work crews will negatively affect the scenic and wildlife ORVs during construction. Ground disturbance from construction and staging activities in the Virgin River drainage will expose soils to erosion, which could result in temporary increased sedimentation

and turbidity in the North Fork of the Virgin River. Potential impacts on fish ORVs may include sedimentation during construction. However, best management practices would be used to minimize runoff and sediment discharges into the river. These impacts during construction will not be significant because mitigation measures described in Appendix A will be implemented to reduce impacts. The selected action will ultimately benefit Wild and Scenic Rivers by improving the free-flowing condition of the river by replacing the bridge with a new bridge designed to convey regulatory flood flows and limit infrastructure below the OHWM. The selected action will also benefit the recreation ORV by improving traffic flow, trail connections, and shuttle bus circulation, which all improve recreational access to the river. ZION prepared a Wild and Scenic Rivers Act Section 7 Determination in compliance with the Wild and Scenic River Act, which determined that the long-term impacts of the selected action would be beneficial (Appendix E).

Degree to Which the Proposed Action Affects Public Health and Safety

Under the selected action, there will be no significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impacts, unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the NPS selected alternative will not violate any federal, state, or local environmental protection law.

Effects That Would Violate Federal, State, Tribal, or Local Law Protecting the Environment

The selected action does not threaten or violate applicable federal, state, or local environmental laws or requirements imposed for the protection of the environment. The selected alternative will not violate any provision or requirement identified under legislation addressing Zion National Park, the Organic Act, or any other subsequent legislation.

Public Involvement and Agency Consultation

Civic Engagement

Civic engagement gives the public an opportunity to provide early input on NPS actions. Before commencing the NEPA process, NPS sent letters to stakeholders, and submitted a press release and a public notice as part of civic engagement from May 16, 2022 through June 17, 2022. During this time, the NPS also hosted a virtual public meeting on May 25, 2022. The public notices were distributed through the following sources:

- A press release posted on the park website and social media accounts (Facebook, Instagram, and Twitter).

- A news release sent electronically (via email) to various stakeholders, agencies, and media groups.

The park received 49 correspondences during civic engagement through the NPS Planning, Environmental, and Public Comment (PEPC) website. The comments were reviewed, analyzed, and considered during the development of the EA.

Environmental Assessment Public Comment Period

The draft EA was made available for public review and comment during a 30-day period from March 12 through April 10, 2024. During the review period, 62 correspondences were submitted to the NPS through the PEPC website, including one correspondence from a state agency, one from a local government, and three from organizations. NPS responses to the comments received are included in Appendix F. All comments received are incorporated into the project record. Public notices of the comment period were distributed through the same sources as civic engagement, listed above.

Utah State Historic Preservation Office and Tribal Consultation

As required by Section 106 of the National Historic Preservation Act, the park consulted with the State Historic Preservation Office (SHPO) and affiliated tribes to address the effects of the project on historic properties, including the cultural landscape. The Section 106 consultation process was conducted separately from, but concurrently with, the NEPA process. The NPS determined that the selected alternative will result in an adverse effect on a historic structure with removal of the Watchman Campground Bridge and requested concurrence from the SHPO on that determination (April 18, 2024). The SHPO concurred with this determination in a letter dated April 19, 2024. The NPS developed a Programmatic Agreement with the SHPO to resolve adverse effects on the South Campground. The park resolved the adverse effect on the Watchman Campground Bridge by amending the existing Programmatic Agreement for the South Campground project (Appendix C).

Initial consultation letters were sent to 37 tribes in September 2021 seeking comment on early planning stages for the project. Additional consultation letters were sent prior to the public virtual meeting and civic engagement period in April 2022 along with copies of the Cultural Inventory Report. Consultation letters were sent addressing the South Entrance Redesign Project EA on April 18, 2024. A complete list of affiliated tribes included in tribal consultation can be found on page 42 of the EA.

U.S. Fish and Wildlife Service

The park prepared a Biological Assessment (BA) for the selected alternative, which was submitted to the U.S. Fish and Wildlife Service (USFWS) on April 11, 2023, as part of formal consultation under the Endangered Species Act. The BA concluded that the selected alternative *may affect and is likely to adversely affect* Mexican spotted owl and *may affect and is likely to*

adversely affect, Mexican spotted owl critical habitat. The BA also concluded that the selected alternative *may affect, but is not likely to adversely affect*, the California condor, southwestern willow flycatcher, western yellow-billed cuckoo, and Mojave Desert tortoise. The selected alternative is not likely to jeopardize the continued existence of the monarch butterfly. The USFWS concurred with the findings of the BA in a Biological Opinion dated August 8, 2023 (EA Appendix E).

U.S. Army Corps of Engineers

Because the proposal will involve work below the ordinary high-water mark (OHWM) of the North Fork of the Virgin River, which is a jurisdictional water of the United States, ZION will obtain Section 404 of the Clean Water Act authorization from the U.S. Army Corps of Engineers (USACE). ZION will obtain a Stream Alteration Permit (SAP) from the State of Utah to fulfill requirements to gain State Engineer approval to alter natural waterbodies, and meeting requirements under Programmatic General Permit 10 will also fulfill USACE Section 404 permitting requirements.

Other Stakeholders

Park staff met with key stakeholders early in the planning process to discuss impacts and concerns. In addition to these informal conversations, park staff held virtual stakeholder meetings throughout the planning process. For each engagement period, a news release was distributed to various stakeholders, government agencies, and media groups. The NPS coordinated and consulted with the following stakeholders during the planning process:

- Bureau of Land Management (BLM)
- U.S. Forest Service (USFS)
- Utah Department of Environmental Quality
- Utah Department of Natural Resources
- Utah Division of Water Rights
- Utah Division of Wildlife Resources
- Utah Office of Outdoor Recreation
- Utah Office of Tourism
- Utah State Parks
- Utah School and Institutional Trust Lands Administration
- Utah Public Lands Policy Coordinating Office
- Utah Tourism Industry Association
- Utah Tech University
- Southern Utah University
- Utah Five County Association of Governments
- Washington County Water Conservation District
- Utah Counties: Garfield, Iron, Kane, and Washington

- Utah Cities and Towns: Beaver, Brian Head, Cedar City, Enoch, Hurricane, Kanab, Kanarraville, La Verkin, New Harmony, Orderville, Panguitch, Parowan, Rockville, St. George, Springdale, Virgin, Washington
- Zion Canyon Visitors Bureau
- Zion Canyon Village
- Zion Forever Project

Finding of No Significant Impact

Based on the information in the EA, the NPS has determined that the selected action does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement will not be required.

This finding is based on consideration of Council on Environmental Quality criteria for significance (40 CFR 1501.3[b]) regarding the potentially affected environment and degrees of effects of the impacts described in the EA.

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- Wood Environment and Infrastructure Solutions, Inc. (Wood). 2022. Floodplain Mapping for Zion National Park South Entrance Area.

Appendix A: Selected Alternative Mitigation

The following mitigation measures will minimize the degree and/or extent of adverse impacts and will be implemented during implementation of the proposal.

Air Quality

- A Fugitive Dust Control Plan may be required. The Contractor shall coordinate with the Contracting Officer (CO). Additional information can be found here at <https://deq.utah.gov/air-quality/fugitive-dust-control-requirements-for-non-attainment-areas-stationary-source-compliance>.
- Dust containment, in accordance with NPS, state, and local regulations, shall be achieved. This shall include, but is not limited to, physical barrier containment and/or water sprinkling dust controls.
- All haul loads will be secured and/or covered within NPS boundaries and in accordance with state regulations.
- Equipment and/or vehicles will not be allowed to idle longer than three minutes when not in use.

Archeology, Historic Preservation, and Cultural Resources

- Infrastructure and site design will be as compatible as practical with the historic architectural characteristics and incorporate similar architectural features, materials, surface finishes, and color.
- Construction staging areas will be restricted to ensure no fill or materials disturb known precontact/historical resources. Site selection will be coordinated with the ZION cultural program manager prior to construction.
- If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity (600 feet) of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy is developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
- In the event of the discovery of human remains, all work on the proposal must stop, and the ZION archeologist must be contacted immediately. As required by law, the coroner will be notified first. All provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- All workers will be informed of the criminal penalties for illegally collecting artifacts or intentionally damaging any archeological or historical property. Workers will also be informed of the correct procedures should previously unknown resources be uncovered during construction activities. Data recovery excavations will be carried out under NPS

guidance to mitigate adverse effects, as outlined in the section on environmental consequences.

- Museum Collections and Archives: All official and nonofficial records created from this project (textual, electronic, audiovisual, and visual) shall be accessioned and cataloged in ZION's archives collection. Coordinate with the ZION curator to close out the project and submit project deliverables to the archives.

Human Health and Safety

- In developed areas, the presence of underground utilities must be determined and flagged prior to excavation using heavy machinery, handheld tools, or equipment.
- Before any remodel, renovation, demolition, or abatement activity, the proper hazard material testing shall be conducted. For asbestos, an assessment and inspection written report, by a state- certified inspector, will need to be conducted to determine the presence, location, and quantity of asbestos-containing material in and adjacent to the work area at all buildings managed by the NPS. Where there is a possibility of disturbing lead, the presence of existing lead must be determined prior to the undertaking. The report findings shall be submitted to ZION safety manager.
- The project leader shall engage ZION accessibility coordinator in the project design and receive approval before finalizing the project.
- Contractors shall submit a site-specific safety plan to the NPS CO. The site-specific safety plan will be shared with ZION safety manager. Within two weeks, ZION safety manager will accept or reject the plan (with feedback). The site-specific safety plan shall demonstrate compliance with Occupational Safety and Health Administration, other applicable laws, and include an emergency response plan.
- Traffic management shall be planned prior to project implementation to address the location of warning signs, type of signs, placement of flaggers, placement of cones/fencing, barricades, duration of anticipated delays, use of pilot cars, etc. This plan shall address vehicular and pedestrian traffic in the construction zone.
- Contractors and/or NPS staff to include volunteers, interns, etc. shall follow all park safety and health policies and programs. A hierarchy of hazard control shall be implemented. Personal protective equipment is required. Hard hats, safety vests, eye protection, and other personal protective gear, as needed, shall always be worn in the construction zone.
- Any safety violations shall be corrected immediately. If the violation is not corrected immediately, the project shall be postponed until such corrections are made.
- Dust containment, in accordance with NPS, state, and local regulations, shall be achieved. This shall include, but is not limited to, physical barrier containment and/or water sprinkling dust controls.
- The construction zone shall be clearly marked. Fencing or other types of NPS-approved temporary barriers shall be installed. Closures and temporary safety fencing will be required to keep visitors out of construction and staging areas. Spill containment kits and fire extinguishers shall always be available on-site at all times.
- Copies of Safety Data Sheets shall always be available on-site.

- Store hazardous materials in accordance with manufacturer's and Occupational Safety and Health Administration Subpart D requirements. Maintain Safety Data Sheets for each chemical readily available on-site.
 1. Immediately report spills of hazardous materials to the park.
 2. Maintain a spill emergency response kit.
 3. Train employees how to respond to a spill and use an emergency response kit.
 4. Spill containment kits and fire extinguishers shall be available on-site at all times.

Night Sky and Soundscape

- Actions must comply with the Zion National Park Lighting Management Plan (NPS 2021b).
- The hours of outdoor construction will be limited to hours between sunrise and sunset; no artificial lighting will be allowed.
- The hours of operation of motorized equipment will vary by season to protect dawn, dusk, and nighttime quiet (8:00 a.m. to 5:00 p.m. during Standard Time and 8:00 a.m. to 6:00 p.m. during Daylight Savings Time). If the Contractor requests in writing to the CO to work outside these hours, the CO must obtain Park Superintendent approval prior to construction activities.
- All motor vehicles and equipment will have mufflers conforming to original manufacturer specification. Mufflers must be in good working order and in constant operation to prevent excessive or unusual noise.

Paleontological Resources

- All workers will be informed of the potential to encounter paleontological resources in the Project Area, which may be in the form of body fossils, tracks, and burrows, and to remain vigilant for these resources during construction. If paleontological resources are encountered, work will stop, and findings will be reported to the ZION physical scientist.

Soils, Geology, and Hydrology

- The Project Area is in the 100-year or 500-year floodplain or in an area susceptible to geologic hazards. Precipitation may increase the risk of geologic hazards. In the event of flooding or other geologic hazards, NPS staff and contractors will be prepared to move personnel and equipment out of the hazard area immediately.
- Actions occurring in a floodplain, wetland, or area greater than 1 acre shall include erosion-control measures during project planning. This erosion plan shall be reviewed by ZION and approved by the appropriate federal, state, and local review authorities as required. More information on the occurrence of floodplains is located at <https://msc.fema.gov/portal/home>.
- To minimize the amount of ground disturbance, staging and stockpiling areas shall be in previously disturbed sites, away from visitor use areas to the greatest extent possible. All

staging and stockpiling areas shall be returned to preconstruction conditions following construction.

- Obtain all fill, rock, or other earth materials from the Project Area or nearby areas whenever possible. Soil and fill material must be weed free and from a source approved by the NPS. Visible fill, rock, or other earth materials will be of a compatible color to the surrounding landscape.
- Recontouring of disturbed soils to complement the surrounding landscape is required following the completion of construction.
- Heavy Equipment Use: (1) Use of heavy equipment where soils are wet or extensive compaction could occur shall be avoided; (2) The visible limit of disturbance shall be clearly marked using stakes, flagging, or fencing, and all demarcations must be removed and disposed of properly upon the completion of construction; and (3) Surface soils that have been compacted shall be scarified to slow runoff and promote revegetation.
- All equipment working in a waterway such as a river or tributary shall be inspected and cleared of aquatic invasive species prior to entry on the work site. In-water work may NOT occur annually from April 1 to July 31 to protect sensitive fish species. Supplemental guidance is in the *Utah Aquatic Invasive Species Management Plan* and the *Guide to Preventing Aquatic Invasive Species Transport* by Wildland Fire Operations (<https://www.nwcg.gov/sites/default/files/publications/pms444.pdf>). (refer to Appendix C of the EA for species identification).
- Wildlife-friendly erosion-control products and methods shall be used. These may include, but are not limited to, silt fencing, filter fabric, excelsior or fumigated straw filter logs, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas. To prevent import of nonnative plants, straw bales or nonfumigated products shall not be permitted. Silt protection structures must be inspected and cleaned out regularly.
- All erosion- and sediment-control devices shall be adequately maintained to assure continued performance of their intended function. Those that have sustained damage or have reached their capability shall be replaced or have maintenance performed.
- All irrigation and utility lines will be installed according to applicable laws and regulations, especially regarding the proper depth of the lines in the soil column. The project manager shall oversee or inspect this work in time to allow for corrections prior to burial of the lines. Damage to existing lines during construction will be reported or repaired the same day.
- Trash and construction waste, including rubble, concrete, asphalt, broken irrigation pipe, etc., will not be left on-site or buried but will be removed and disposed of in an approved manner.
- All construction equipment must be inspected daily for hydraulic and fuel leaks, and repaired as necessary. When not in use, idle equipment, petrochemicals, and toxic/hazardous materials shall be locked and may not be stored in the 100-year floodplain or near any drainage ways, ditches, or streams; discharge of petroleum products, cement washings, or other construction materials into the river is not permitted.
- Appropriate oil spill kits shall be maintained on-site and readily accessible at all times during construction, and each operator shall be trained in their use.
- All fueling operations, lubricating, hydraulic topping off, fuel tank purging, and equipment maintenance/repairs shall be performed at an upland site outside of the 100-

year floodplain. These activities shall take place on an approved pad with spill control/collection devices in place. The use of canola oil or other biodegradable fuels and fluids is recommended when working in sensitive riverine environments.

- To reduce the risk of pollutants entering waterways, fuel storage and hazardous waste storage must be at least 3 feet above the regulatory floodplain elevation.

Vegetation

- The project manager will contact the ZION vegetation program manager at least two weeks in advance to notify of pending actions and the potential for vegetation salvage. If irrigation systems will be shut down during construction, the vegetation program manager or nursery manager will be notified at least one week prior. If existing irrigation systems are damaged and cannot be repaired the same day, the vegetation program manager will be notified within 24 hours to minimize loss of vegetation.
- All vehicles, equipment, and tools shall be cleaned completely prior to entering the work zone to prevent the spreading of noninvasive plant seeds. Daily inspections will occur to identify and prevent any fluids from leaking.
- To avoid introduction of nonnative, invasive plant species into ZION, only certified weed-free materials will be used during construction.
- Construction activities shall be restricted during saturated soil conditions or severe weather conditions to avoid damage to soils and vegetation.
- Vehicle and equipment operations will be limited to paved areas whenever possible. All vehicles will use the same entry, egress, and turnaround areas. Travel corridors will be delineated prior to construction.
- Wherever possible, vehicles and equipment will not be driven within the drip lines of trees and shrubs to minimize soil compaction in the main root zones.
- The number of vehicles and frequency of equipment accessing the Project Area will be restricted to the minimum amount required to successfully complete operations.
- Wherever possible, construction activities, including irrigation and utility line installation, will be planned to avoid damaging tree roots. Supplemental guidance may be found at https://www.dnr.state.mn.us/treecare/maintenance/construction_damage.html.
- Recontouring and soil decompaction of disturbed areas will take place immediately following construction such that the Project Area is readied for revegetation efforts. Weed control will be implemented to minimize the introduction of noxious weeds.
- All disturbed ground shall be reclaimed using appropriate BMPs, which may include planting or seeding with native vegetation or, in the case of small treatment areas, allowing native vegetation to reclaim the area naturally. The ZION project leader shall consult with the vegetation branch to determine the best methods for restoration.
- Revegetation, when implemented, shall use salvaged plants, seeds, or propagules from native species (genetic stocks originating in the Project Area) to the maximum extent feasible. Any revegetation plantings will strive to reconstruct the natural spacing, abundance, and diversity of native plant species.
- Spring seeding shall occur in March. Fall seeding shall occur between late October and mid-November. Fall seeding is preferred.

Visitor Use and Experience

- ZION will develop a Communications Plan to notify the public of any road closures in advance of construction. Notifications will be communicated on ZION's website, through social media, and through press releases to inform the media so that visitors are aware of the work and can make appropriate plans.
- Variable message signs along the route to the park will also be used to keep the public informed of construction-related closures and delays as needed.
- ZION would provide updates to local community residents and community members by continuing to participate in meetings such as the Zion Canyon Visitors Bureau and sending other direct communications.

Wildlife

- The ZION project manager will contact the ZION wildlife program manager at least two weeks in advance to schedule monitoring activities.
- Care shall be taken not to disturb any wildlife species (reptiles, migratory birds, raptors, or bats) found nesting, hibernating, estivating, or otherwise living in, or immediately nearby, worksites.
- For any actions involving trenching or digging holes, provisions (generally in the form of ramps with a slope less than 45°) will be made every 20 to 50 feet to allow for the escape of animals that may fall into these recesses, or they will be covered in such a way as to prevent animals (vertebrates) from falling in them.
- All gate posts, ground pipes, and bollards will be permanently capped to prevent wildlife entrapment.
- If erosion-control material is used (wattles/fiber rolls, blankets/matting/netting), the materials must be made of 100 percent biodegradable and natural materials (e.g., jute) with large-diameter netting to prevent entrapment of wildlife. Wildlife-friendly erosion-control products and methods shall be used.
- Resource management personnel shall be notified/consulted when any wildlife must be disturbed or handled. They will be available to assist with moving/relocating snakes or any other wildlife, when necessary, or to make recommendations for relocating any disturbed animals.
- If a condor enters the Project Area on the ground, construction will cease until it leaves on its own or until techniques are employed by permitted personnel that result in the condor leaving the area.
- Compliance with food storage and waste disposal will always be maintained. The Project Area will be cleaned up and appropriately secured at the end of each work period daily to reduce the attraction of wildlife.
- ZION staff will continue to contribute to the recovery of federally listed wildlife species by:
 - Monitoring MSO PACs at a minimum once every three years for occupancy and productivity to help track and gauge potential impacts from visitor use.
 - Providing visitors with opportunities to learn about the California condor, the Condor Recovery Program, and how to minimize impacts on condors.

- Providing visitors with opportunities to learn about the Mojave Desert tortoise, the Desert Tortoise Recovery Program, and how to minimize impacts on the desert tortoise.
- Components of the proposed action within 0.5 mile of a MSO core area will be planned outside of the MSO breeding season, which is March through August, and will occur only during daylight hours, when MSO are not foraging.
- If MSO are identified in the Project Area during construction, work will stop and the Project Area will be resurveyed daily until the MSO are confirmed to have left the area.
- Migratory bird nests shall not be damaged and shall be protected by timing the project outside of the annual nesting period, which is March 1 to September 15. If timing as such is not possible, visual inspections of vegetation marked for removal is required. The ZION wildlife program manager shall be contacted to schedule inspections as needed.
- Clearing and grubbing activities will occur only during November through February to avoid the migratory bird season (March 1–September 15) and the monarch butterfly active season (April through October).
- Tree removal will occur only in October and November to protect nesting migratory birds and roosting bats. If this is not possible, visual inspections of vegetation marked for removal is required each day prior to tree removal. Contact the ZION Wildlife Program Manager two weeks prior to removal to schedule inspections as needed.
- Larger dead/dying trees that are not a hazard to humans or property will be preserved either fully or partially intact (i.e., left standing dead or topped/trimmed and left standing) to provide habitat for wildlife. Where possible, larger logs/woody debris (trunks with greater than 24 inches diameter at breast height) will be left on the ground on-site to provide habitat for rodents, reptiles, and insects.
- If a tortoise is in the Project Area, construction work will immediately cease, and the park Wildlife Biologist will be contacted immediately to move the individual from the site.
- From April through October, construction personnel will be briefed to check underneath vehicles for tortoises before driving.
- Native seed mixes (approved by the NPS) used during revegetation efforts will include flowering plants and milkweed at the biologists' discretion.
- No instream work would be completed during the fish spawning season (April 1 to July 31). Prior to construction activities, the NPS would coordinate with the Utah Department of Natural Resources to provide clearance of fish throughout the Project Area.

Wild and Scenic Rivers

The required measures for bridge construction, removal, or replacement listed in *Reference Manual 46: Wild and Scenic Rivers* (NPS 2021a) Section 3.3.9 and Appendix I will be implemented to reduce impacts. The required mitigation measures are attached as Appendix G to the EA.

Appendix B: Non-Impairment Determination

Appendix B: Determination of Non-Impairment

Zion Canyon South Entrance Redesign, Selected Alternative

Introduction

The National Park Service (NPS) Organic Act of 1916 directs the NPS to “conserve the scenery, natural, and historic objects, and wildlife in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wildlife in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (54 USC 100101). *NPS Management Policies 2006*, section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. 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.

An action constitutes impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values” (NPS 2006, Section 1.4.5). To determine impairment, the NPS must evaluate the particular resources and values that will be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact on any park resource or value may constitute an 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, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park’s general management plan or other relevant NPS planning documents as being of significance (NPS 2006, Section 1.4.5).

Before approving a proposed action that could lead to an impairment of park resources and values, a NPS decision-maker must consider the impacts of the proposed action and determine,

in writing, that the activity will not lead to an impairment of park resources and values (NPS 2006, 1.4.7).

Fundamental resources and values for Zion National Park (ZION or park) are identified in the park's Foundation Document (NPS 2013), the enabling legislation for the park (summarized in Appendix A of the Foundation Document), the park's General Management Plan (NPS 2001), and the Long-Range Interpretive Plan (NPS 2014).

As described in the Foundation Document, the purpose of the park is:

- to preserve the dramatic geology including Zion Canyon and a labyrinth of deep and brilliantly colored Navajo sandstone canyons formed by extraordinary processes of erosion at the margin of the Colorado Plateau;
- to safeguard the park's wilderness character and its wild and scenic river values;
- to protect evidence of human history; and
- to provide for scientific research and the enjoyment and enlightenment of the public.

The fundamental resources and values for ZION come from the park's geologic showcase, water shapes and landscapes, convergence of ecoregions, natural resource quality and function, wilderness character, wild and scenic rivers, remnants of humanity's past, opportunities for connection to the resources, preserving and studying the ZION natural and cultural history as well as an engineered way of life (NPS 2013).

The resources carried forward for detailed analysis in the Environmental Assessment (EA) and for which a non-impairment determination has been made are considered necessary to fulfill specific purposes identified in the establishing legislation of the park, are identified for management in relevant NPS planning documents, or are key to the natural or cultural integrity of the park. Accordingly, a non-impairment determination is made for each of these resources, with the exception of Visitor Use and Experience (see below).

Non-Impairment Determination for the Selected Alternative

Based on the identification and evaluation of impacts in the Zion Canyon South Entrance Redesign Environmental Assessment (2024 EA), the following park resources and values were evaluated for impairment: vegetation, Mexican spotted owl, cultural resources, and water resources. Any impacts on other resources that would be subject to a non-impairment determination (see NPS 2006, section 1.4.6) are so minor that they were not carried forward for analysis in the EA (see Appendix C of the EA) and would not result in impairment.

Section 1.4.6 of *NPS Management Policies 2006* identifies several park resources and values that are subject to evaluation in a non-impairment determination. Consistent with the September 2011 NPS Guidance for Non-Impairment Determinations and the NPS NEPA Process (NPS 2011), non-impairment determinations do not include a discussion of impacts on visitor experience, socioeconomics, public health and safety, environmental justice, land use, park

operations, etc. as these do not constitute park resources and values identified through the NPS Organic Act or General Authorities Act that are subject to the non-impairment standard.

Vegetation

As described in the 2024 EA, the selected alternative will result in the net permanent loss of about 2.5 acres of vegetation. The total impacted area of vegetation will be about 11.8 acres. Temporarily impacted areas will be restored with native species as described in the 2024 EA in Appendix B, Mitigation Measures. An estimated 120 trees will be removed for the road alignment in the project area. The estimate is based on a 20-foot buffer around proposed roads and represents a worst-case scenario. Many of the trees that will be removed or trimmed are dead, dying, or near the end of their natural lifespan, and some will present a safety hazard if not removed or treated. Wherever possible, and as long as they do not pose a safety hazard, dead trees will remain to provide wildlife habitat. Tree removal and treatment will occur in October and November to avoid impacts on nesting migratory birds and roosting bats as described in the 2024 EA in Appendix B. Ground disturbance also has the potential to spread invasive and nonnative plant species. Manual or chemical treatments will be used to control invasive species as necessary in the entirety of the project area. Additional mitigation measures will be implemented as described in the 2024 EA in Appendix B to prevent the spread of invasive plant species as the result of vegetation and soil disturbance and to avoid or minimize impacts on existing vegetation near the project area.

The selected alternative's impacts on vegetation will not result in impairment of park resources or values because the permanent impacts will be limited to about 2.5 acres of vegetation, which is less than 0.01 percent of the vegetation in the park, leaving the vast majority of park vegetation intact for the enjoyment of future generations.

Mexican Spotted Owl

As described in the 2024 EA and the Biological Assessment (NPS 2023) prepared to support consultation under the Endangered Species Act, the selected alternative may affect, and is likely to adversely affect, Mexican spotted owls. Implementing the selected alternative will result in increases in noise disturbance during the 24-month construction period, disturbance of foraging and roosting habitat in the Zion Canyon South Entrance Area during construction, reduction in prey availability during construction and for several years afterward, and removal of mature trees in potential foraging and roosting habitat. Although a few foraging owls could be affected, the Zion Canyon South Entrance Area already experiences high levels of human use and human-caused noise, and noise levels will not rise to a level that will cause adverse effects on nesting owls. The potential for adverse impacts will be further reduced by implementing the conservation measures described in the 2024 EA in Appendices B and E. These include limits on the timing of construction, timing of tree removal, timing of clearing and grubbing, and revegetation efforts after construction.

Effects on Mexican spotted owl critical habitat will result from temporary impacts on about 11.8 acres of vegetation. A small amount of designated critical habitat (about 2.5 acres) will be permanently removed, including removal of 120 trees, and may alter Mexican spotted owl use of the area. The entirety of ZION is designated Mexican spotted owl critical habitat; therefore, the loss of 2.5 acres of critical habitat will be less than 0.01 percent of the available critical habitat at ZION. Known Mexican spotted owl nesting habitat, including protected activity centers (PACs), will not be affected.

The selected alternative will not result in an impairment of Mexican spotted owls because the project area already experiences high levels of human use and human-caused noise; known nesting areas are distant from the project area and noise will attenuate with increasing distance from construction; the net loss of foraging and roosting habitat will be about 2.5 acres, which is less than 0.01 percent of the available habitat at ZION; and conservation measures (Appendix B in the 2024 EA), including timing restrictions on tree removal, will be implemented to reduce impacts on Mexican spotted owls and their habitat during the breeding season. As a result, Mexican spotted owls and their habitat will continue to be available for the enjoyment of future generations.

Cultural Resources

As described in the 2024 EA, implementing the selected alternative will result in an adverse effect on a historic structure with removal of the Watchman Campground Bridge constructed during the Mission 66 period. The selected alternative will remove the Watchman Campground Bridge and construct a new bridge upstream. Watchman Campground Road will be shifted to the north to accommodate the new bridge. The proposed roundabout at the intersection of the Zion-Mt. Carmel Highway and the Watchman Campground Road will affect the Zion-Mt. Carmel Highway, which is eligible for listing in the National Register of Historic Places under Criterion C for embodying distinctive road design under Mission 66. However, this section of the highway has been realigned since construction during the Mission 66 program and does not contribute to the eligibility of the larger resource. Therefore, there will be no adverse effect on the Zion-Mt. Carmel Highway.

To ensure appropriate treatment of historic properties, the NPS and the Utah State Historic Preservation Office developed a Programmatic Agreement (Appendix C of the Finding of No Significant Impact for the Zion Canyon South Entrance Redesign) to resolve effects on the South Campground (a previous undertaking). The park resolved the adverse effects on the Watchman Campground Bridge by amending the existing Programmatic Agreement for the South Campground. Mitigation measures to resolve the anticipated adverse effects on the Watchman Campground Bridge will include baseline documentation of the historic bridge through a Utah archaeological site form. The effect will also be mitigated by the preservation of an identical Mission 66 era bridge (the Watchman Residences Bridge) in lower Zion Canyon. Mitigation measures (Appendix B in the 2024 EA) will reduce the severity of the impacts on the Zion Canyon Cultural Landscape Historic District.

The measures identified in the Programmatic Agreement will help ensure that the integrity of the historic district is not adversely affected to the extent that it will diminish the eligibility of the individual structures or the historic district for listing in the National Register of Historic Places. Despite the loss of the Watchman Campground Bridge, the project will not result in impairment of park resources and values that comprise the Zion Canyon Cultural Landscape Historic District as they will continue to be available for the enjoyment of future generations.

Water Resources

After removal of the Watchman Campground Bridge, restoration of the river channel, and construction of a new bridge with a longer span, the post-project floodplain along the North Fork of the Virgin River will be less constricted because the new bridge will have a longer span and elevated low chord height (lowest portion of the superstructure), compared with the existing Watchman Campground Bridge. Although the proposed concrete tread trail that passes under the new bridge will be in the regulatory floodplain, the infrastructure associated with the trail will be designed to limit the hydraulic effects on the river during flood events. Although the overall impervious surface in the Zion Canyon South Entrance Area will increase after implementation of the selected alternative, the amount of impervious surface in the modeled floodplain will decrease from 3.1 acres to 0.9 acre after construction, after accounting for removal of the existing bridge. Decreases in impervious surface in the floodplain will benefit floodplain functions and values by increasing flood storage capacity and increasing the ability of the floodplain to recharge and infiltrate stormwater. After the project is complete, impacts on floodplains will be beneficial from replacing the existing undersized bridge and by improving egress from flood-prone areas, which will reduce flood-related risks to human health and safety. The selected alternative will not result in an impairment of floodplains because the new bridge will have a longer span and will be less restrictive of flood flows, and because impervious area in the floodplain will decrease following construction. The project will not result in impairment of floodplains so that safe access to the North Fork of the Virgin River will continue to be available for the enjoyment of future generations.

As described in the 2024 EA, the selected alternative will affect up to 300 linear feet of the bed and bank of the North Fork of the Virgin River. The new vehicle and pedestrian bridge across the river will span the ordinary high water mark (OHWM), and the new bridge abutments will be outside the OHWM. All temporary impacts will be restored following construction. The selected alternative will provide benefits to wetlands by restoring the section of channel beneath the existing bridge and replacing the existing bridge with a new bridge with a longer span and elevated low chord height. These changes will provide a small improvement to wetland functions by restoring the riverbed and banks to more natural conditions and facilitating less restrictive river flow. The selected alternative will not result in an impairment of wetlands because temporary impacts on wetlands will be less than 300 linear feet of streambed and less than 0.25 acre of wetlands, wetlands will be restored following construction, and wetland resources will continue to be available for the enjoyment of future generations.

The selected alternative will involve work in and adjacent to the North Fork of the Virgin River, which is a designated Wild and Scenic River. The existing bridge abutments fall within the OHWM of the river and do not convey regulatory flood flows. The project will improve the free-flowing condition of the river by replacing the existing bridge with one that is designed to better convey flood flows. Implementation of the selected alternative will affect the river's Outstanding Remarkable Values (ORVs) during construction. During construction, the recreation ORV will be temporarily affected by disruptions to traffic flow, the scenic and wildlife ORVs will be temporarily affected by the presence of heavy equipment and work crews, and the fish ORV will be temporarily affected by increased sedimentation. Beneficial effects on the recreation ORV will result from facilitating access for river-related recreation by improving vehicular access and traffic flow. Although these ORVs will be temporarily affected during construction, the long-term effects on Wild and Scenic Rivers will be beneficial from restoration of natural river flows as described above. While there will be temporary impacts on Wild and Scenic Rivers associated with demolition of the existing bridge, restoration, and construction, the selected alternative will not result in impairment of Wild and Scenic Rivers because there will be no long-term or permanent adverse impacts on the free-flowing condition, ORVs, or water quality of the North Fork of the Virgin River; and these resources and values will continue to be available for the enjoyment of future generations.

Summary

The NPS has determined that implementation of the selected alternative will not constitute an impairment of the resources or values of the park. This conclusion is based on the park's purpose, significance, fundamental resources and values, and a thorough analysis of the environmental impacts described in the EA and appendices, comments provided by the public and others, relevant scientific studies and resource reports, and the professional judgment of the decision maker guided by the direction in *NPS Management Policies 2006*. The selected alternative will not result in major adverse impacts on a resource or value, the conservation of which is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's General Management Plan or other relevant NPS planning documents.

References

- National Park Service (NPS). 2001. Zion National Park General Management Plan. https://www.nps.gov/zion/learn/management/upload/zion_gmp.pdf
- National Park Service (NPS). 2006. Management Policies 2006. https://www.nps.gov/subjects/policy/upload/MP_2006.pdf
- National Park Service (NPS). 2011. Guidance for Non-Impairment Determinations and the NPS NEPA Process. https://www.nps.gov/subjects/nepa/upload/Supplemental-Guidance_Non-Impairment-Determination-2011_accessible.pdf

National Park Service (NPS). 2013. Foundation Document. Zion National Park, Utah.
https://www.nps.gov/zion/learn/management/upload/ZION_Foundation_Document_SP-2.pdf

National Park Service (NPS). 2014. Zion National Park Long-Range Interpretive Plan.
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National Park Service (NPS). 2023. Biological Assessment for Zion Canyon South Entrance Redesign.

Appendix C: Programmatic Agreement

**PROGRAMMATIC AGREEMENT
BETWEEN THE
NATIONAL PARK SERVICE
AND THE
UTAH STATE HISTORIC PRESERVATION OFFICER
FOR THE
SOUTH ENTRANCE AREA REDESIGN AND SOUTH CAMPGROUND RECONSTRUCTION
AT
ZION NATIONAL PARK**

WHEREAS, the National Park Service (NPS) plans to address visitation capacity and deferred maintenance at Zion National Park (ZION) through the redesign of the south entrance area and the reconstruction of the south campground, as noted and briefly described in Appendix A (the undertaking and its project components), and has consulted with the Utah State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act, as amended (54 USC § 306108), and its implementing regulations found in 36 CFR Part 800(56 USC 306108); and

WHEREAS, the proposed undertaking includes the demolition of three Mission 66 era comfort stations, which will adversely affect the South Campground Historic District, which the NPS determined eligible for listing in the National Register of Historic Places (National Register); and

WHEREAS, implementation of other project components of the undertaking may affect landscapes, buildings, structures, and sites either listed in or that are eligible to be listed in the National Register, but that the full range of effects to all historic properties cannot be fully identified and evaluated prior to the approval of the undertaking because the planning, design and implementation of the various project components of the undertaking will occur on multiple time tables in order to accommodate various funding and scheduling obligations; and

WHEREAS, ZION in consultation with the SHPO has defined the area of potential effects ("APE") as depicted in Appendix B, a 515 acre area that encompasses the potential for direct and indirect effects associated with all project components of the undertaking; and

WHEREAS, the NPS sought and considered the views of the public on the undertaking during a public comment period from May 16 through June 17, 2022 and the NPS will continue to seek and consider the views of the public regarding the undertaking; and

WHEREAS, the NPS sought identification of properties of religious and cultural significance and considered the views of Native American tribes (Tribes) traditionally associated with the lands of ZION through initial letters sent on September 27, 2021 and April 26, 2022. Three tribes responded with requests for more information once cultural surveys are complete. The NPS will continue to consult with the tribes by presenting the findings of the cultural resource inventories and potential effects of the undertaking on historic properties; and the NPS will continue to seek and consider the views of the tribes regarding the undertaking through additional consultation; and

WHEREAS, the NPS sought and considered the views of ethnographic consulting parties, associations, stakeholders and local governments during the comment period from May 16 through June 17, 2022 and the NPS will continue to seek and consider the views of these consulting parties regarding the undertaking; and

WHEREAS, the NPS and SHPO agreed to enter into this programmatic agreement because the effects to historic properties cannot be fully determined prior to approval of the undertaking; and to establish a process to assess and resolve adverse effects in accordance with 36 CFR §800.14(b)(1)(ii); and

WHEREAS, in accordance with 36 CFR §800.6(a)(1)(i)(c) the NPS notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect determination with specified documentation and the ACHP declined to participate in the negotiations to develop the programmatic agreement;

NOW, THEREFORE, the NPS and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations to take into account the effects of the undertaking on historic properties.

STIPULATIONS

I. APPLICABILITY AND SCOPE

This programmatic agreement applies to the planning, design and construction associated with the various project components of the undertaking identified in Appendix A.

II. PROFESSIONAL QUALIFICATIONS AND STANDARDS

The NPS will ensure that the following measures are followed:

1) All work performed in accordance with this programmatic agreement that has the potential to have an effect, directly or indirectly, on historic properties will be conducted or supervised by qualified individuals and/or teams that meet the *Secretary of the Interior's Historic Preservation Professional Qualification Standards*, 62 Fed. Reg. 33,707 (June 20, 1997), for history, architectural history, architecture, historic architecture and conservation, landscape architecture and/or archeology, as appropriate. Work pursuant to this agreement will be reviewed by the ZION Archeologist/Section 106 Coordinator and informed by review of a cultural resource management (CRM) team that includes the relevant subject matter specialists, as described in the 2008 *Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act*. The CRM Team will also meet the requirements stipulated in NPS Director Order 28: Cultural Resource Management Guideline, Appendix E: Qualification Standards and Selective or Quality Ranking Factors for Cultural Resource Specialists ([NPS Office of Policy: NPS-28, Cultural Resource Management \(Contents\)](#)).

2) Any testing, inventory or documentation of potential or known historic properties pursuant to implementation of the programmatic agreement will conform to the provisions of the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR. 44716-44740) and applicable standards and guidelines for historic preservation established by the SHPO.

III. IDENTIFICATION, EVALUATION AND DOCUMENTATION OF HISTORIC PROPERTIES TO DATE

The NPS is in consultation with the SHPO to identify, evaluate and document historic properties in the APE to determine the extent of historic properties present and whether such properties are eligible for inclusion in the National Register. A cultural landscape report was completed for the ZION Canyon and submitted to the SHPO for review in March 2022. A Class III cultural resource inventory of the APE was conducted during May-June, 2022. The inventory report and Utah Archaeology Site Forms and/or Historic Site Short Forms, including one for the South Campground Historic District, were submitted to the SHPO for review in December 2022. The NPS will notify the SHPO of how SHPO comments were taken into account and how the documents were revised in response.

IV. FUTURE ARCHEOLOGICAL SURVEYS, HISTORIC SITE FORMS, AND ARCHEOLOGICAL MONITORING

If through continued consultations the NPS and SHPO identify the need for additional archeological surveys, such surveys will be conducted consistent with the following measures:

1) *Survey Requirements*. The NPS will ensure that the survey strategy and methodology conform to the SHPO's Cultural Resource Compliance Guidance (2022) and the Secretary of the Interior's (SOI) Standards for Archaeology and Historic Preservation. As appropriate, Utah Archaeology Site Forms and/or Historic Site Short Forms will be completed for each newly recorded historic property. Previously recorded historic properties will be updated to new site forms. Known historic properties that are not relocated or have been destroyed will require an updated site form reflecting the property's changed status. In addition, site updates will be conducted if any additional thresholds for update documentation are met per the SHPO's Cultural Resource Compliance Guidance.

2) *Survey Timing*. The NPS will schedule survey activities to reflect the sequential nature of construction activities associated with the various components of the undertaking, to ensure that survey activities and consultation on the identification and evaluation of historic properties, the assessment of potential effects to historic properties, and resolution of any adverse effects to historic properties are completed well in advance of any construction related disturbance activities.

3) *Review of Draft Survey Deliverables.* The NPS will provide the draft survey report, including all site forms and associated or supplemental documentation, to the SHPO for a thirty (30) day review and comment period prior to the implementation of any activities within the corresponding project component area within the APE. The NPS will ensure that all comments received are taken fully into account and the commenting party is notified of how the NPS responded to its comments.

4) *Distribution of Final Survey Deliverables.* The final survey report, site forms, and associated or supplemental documentation will be forwarded to the SHPO with a request for concurrence with eligibility determinations for new sites. Additionally, the NPS will ensure that this documentation is available to all consulting parties and the public except for sensitive archeological information, which may be kept private in accordance with section 304 of the National Historic Preservation Act and Section 9 of the Archeological Resources Protection Act.

5) *Archeological Monitoring.* Where ground disturbance is planned, archaeological monitoring may be appropriate if an archeological survey indicates the potential for subsurface cultural deposits or artifacts. The recommendation for archeological monitoring may be made by the ZION Archeologist/Section 106 Coordinator or the SHPO.

V. REHABILITATION OF THE SOUTH CAMPGROUND

The planning and design process for the rehabilitation of the South Campground is complete, and after applying the criteria of adverse effect at 36 CFR §800.5 the NPS determined that demolition of three Mission 66 era comfort stations will adversely affect the South Campground Historic District, which is eligible to listed in the National Register. The NPS will take the following measures.

- 1) Notify the public of the adverse effect.
- 2) Provide the SHPO and other consulting parties the undertaking description, the adverse effect determination, and summary of the alternatives examined to avoid, minimize or mitigate adverse effects.
- 3) Consult with the SHPO and consulting parties to develop measures to minimize or mitigate the adverse effects.
- 4) Document the agreed upon mitigative measures and circulate to the SHPO and all consulting parties.
- 5) Complete all mitigative measures within five (5) years of the completion of construction.

VI. IMPLEMENTATION OF OTHER PROJECT COMPONENTS OF THE UNDERTAKING

Project Components Eligible for Streamlined Review

1) The NPS will use the streamlined activity process outlined in Stipulation III of the 2008 *Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act* for all qualifying Undertakings.

2) At the end of each calendar year the NPS will describe in a clearly identified separate section of its annual report to the SHPO the use of any streamlined activities for components of this undertaking identified in Appendix A (see Stipulation X. Annual Reporting).

Project Components Not Eligible for Streamlined Review

1) Review of Design Development Documents

The development of design documents (schematic design, design development, and draft construction documents and specifications) for the project components of the undertaking present overlapping schedules to meet multiple funding and scheduling timelines. To ensure that there is adequate opportunity for input from the SHPO, the NPS will adhere to the following measures.

a) The NPS will submit to the SHPO a design and construction schedule and any revisions to the schedule as they become available.

b) The NPS will submit to the SHPO draft schematic and design development documents, along with a narrative and other illustrative documentation as necessary that describe how project requirements and goals are reflected in proposed changes to buildings, structures and landscapes and identify the resultant

potential effects to historic properties, for review and comment. The NPS will ensure that each review is conducted in a manner in which:

- i. The SHPO is provided thirty (30) calendar days from the date of receipt to conduct the review and submit comments unless otherwise negotiated;
- ii. Comments received are taken fully into account and the SHPO is notified of how the NPS responded to the comments; and
- iii. Meaningful input and opportunity for resolving disagreements is encouraged.

c) If the SHPO fails to respond within the thirty (30) calendar day time period, the NPS will assume the SHPO has no comments.

2) Resolution of Adverse Effects

If, after applying the criteria of adverse effect found at 36 CFR §800.5, the NPS and SHPO determine that the action will result in adverse effects to historic properties, the NPS and SHPO will consult to avoid, minimize, or mitigate such effects. The NPS will

a) Examine alternatives to avoid or minimize adverse effects.

b) If other alternatives would not meet the objectives and the effect remains adverse, the NPS will

- i. Notify the public of the adverse effect.
- ii. Provide the SHPO the undertaking description, the adverse effect determination, and a summary of the alternatives examined to avoid or minimize adverse effects.
- iii. Consult with the SHPO regarding preferred measures or mitigations to minimize or mitigate the adverse effects.
- iv. Document the agreed upon mitigative measures and notify the SHPO.
- v. Complete all mitigative measures within five (5) years of the completion of the project component's construction.

VII. POST-REVIEW DISCOVERY OF ARCHEOLOGICAL RESOURCES OR UNANTICIPATED ADVERSE EFFECTS TO HISTORIC PROPERTIES

If historic properties are discovered during or unanticipated effects to historic properties to historic properties occur during construction, the NPS will abide by the following procedures.

Post Review Discovery of Archeological Resources

(1) The contractor will immediately stop all work activity within a fifty (50) yard radius buffer zone, notify the NPS of the discovery, and implement interim measures to protect the discovery from further disturbance. Construction may continue outside the buffer zone.

2) Within forty-eight (48) hours of receipt of the notification of the discovery, the ZION Archeologist/Section 106 Coordinator will:

- a) inspect the work site to determine the extent of the discovery and ensure that work activities have halted within the fifty (50) yard radius buffer zone;
- b) clearly mark the area of the discovery;
- c) implement additional measures, as appropriate, to protect the discovery from further disturbance;
- d) notify the SHPO of the discovery; and
- e) recommend revisions to the construction buffer zone depending upon the nature of the resource discovered.

3) The NPS will have seven (7) business days following the discovery to determine its National Register eligibility. The NPS may assume the discovery to be eligible for the National Register for the purposes of Section 106 pursuant to 36 CFR §800.13(c).

4) If the discovery is National Register eligible, the NPS will consult with the SHPO regarding appropriate measures for treatment pursuant to 36 CFR §800.6(a). Concurrence on the part of the SHPO is required for all adverse effect resolution measures. These measures may include:

- a) visits to the site by the SHPO;
- b) formal archeological evaluation of the site;

- c) exploration of potential alternatives to avoid the site;
- d) preparation of a mitigation plan by the NPS in consultation and concurrence with the SHPO; and
- e) implementation of a mitigation plan.

5) If the discovery is subject to the Native American Graves and Protection and Repatriation Act (NAGPRA), the NPS will follow the Zion NAGPRA plan of action.

Unanticipated Adverse Effects to Historic Properties

(1) The contractor will immediately cease all work for that portion of the Undertaking resulting in the unanticipated adverse effects.

(2) Within forty-eight (48) hours following cessation of work, the ZION Archeologist/Section 106 Coordinator will:

- a) inspect the extent of the unanticipated adverse effects;
- b) implement additional measures, as appropriate, to avoid further adverse effects to the historic property;
- c) notify the SHPO of the unanticipated adverse effects;
- d) develop a treatment plan/mitigation that seeks to avoid or minimize further adverse impacts to the historic property;
- e) provide the treatment/mitigation plan to the SHPO for review within three (3) business days of the adverse effect notification.

(3) The SHPO will have five (5) business days upon receipt of the treatment/mitigation plan to respond with comments. If no response is received, the NPS will assume concurrence with the treatment/mitigation plan and may proceed.

VII. MODIFICATIONS TO THE UNDERTAKING

Due to circumstances including but not limited to the availability of funding and differing or unexpected site conditions, projects may be added or subtracted from the Undertaking in Appendix A.

1) Additions: if projects are added to the undertaking, the NPS will notify the SHPO in writing and then move forward with the review of the project in accordance with the programmatic agreement stipulations.

2) Subtractions: Prior to the expiration of the programmatic agreement the NPS will provide the SHPO with an account of what projects have or have not been completed. At that time the NPS and SHPO will consult about any outstanding projects and determine whether to amend the programmatic agreement to address the outstanding projects, in accordance with Stipulation XII.

IX. DURATION

This PA will expire ten (10) years from the date of its execution. Prior to such time, the NPS and SHPO may consult to reconsider the terms of the PA and amend it in accordance with Stipulation XII below.

X. ANNUAL REPORTING

At the conclusion of each calendar year and until the PA expires, all project components of the Undertaking identified in Appendix A are completed, or the PA is terminated, the NPS will include in its annual report to the SHPO a separate section summarizing all Section 106 activities undertaken pursuant to the terms of the PA.

XI. DISPUTE RESOLUTION

Should the SHPO object at any time to any actions proposed or the manner in which the terms of the PA are implemented, the NPS and the SHPO will consult to resolve the objection. If the NPS determines that the objection cannot be resolved, the NPS will:

1) Forward all documentation relevant to the dispute, including the NPS's proposed resolution, to the ACHP. The ACHP shall provide the NPS with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the NPS will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and provide the ACHP and the SHPO with a copy of this written response. The NPS will then proceed according to its final decision.

2) If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar day time period, the NPS may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the NPS will prepare a written response that takes into account any timely comments regarding the dispute from the SHPO and provide the SHPO and the ACHP with a copy of such written response.

3) The NPS's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XII. AMENDMENTS

The PA may be amended when such an amendment is agreed to in writing by the NPS and SHPO. The amendment will be effective on the date a copy signed by NPS and SHPO is filed with the ACHP.

XIII. TERMINATION

If either the NPS or SHPO determine that the terms of the PA cannot be carried out, that party will immediately consult with the other signatory to attempt to develop an amendment per Stipulation XII, above. If within thirty (30) days (or another time period agreed to by the two signatories) an amendment cannot be reached, the PA may be terminated upon written notification of one signatory to the other. Once the PA is terminated, the NPS and SHPO will consult on a case-by-case basis regarding the individual project components of the Undertaking in Appendix A in accordance with 36 CFR Part 800.

XIV. ANTI-DEFICIENCY ACT

The NPS's obligations under this PA are subject to the availability of appropriated funds, and the stipulations of this PA are subject to the provisions of the Anti-Deficiency Act (31 USC Section 341). The NPS will make reasonable and good faith efforts to secure the necessary funds to implement this PA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs the NPS's ability to implement the stipulations of this PA, the NPS will consult in accordance with the amendment and termination procedures found in Stipulations XII and XIII of this agreement.

Execution of this PA by the NPS and the signatories and implementation of its terms evidence that the NPS has taken into account the effects of this undertaking on historic properties and has afforded the ACHP an opportunity to comment on the Undertaking and its effect on historic properties.

SIGNATORIES

National Park Service

CASSITY BROMLEY

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Date: _____

Jeffrey S. Bradybaugh

Superintendent, Zion National Park

Utah State Historic Preservation Officer

Christopher W. Merritt

Digitally signed by Christopher

W. Merritt

Date: 2023.02.23 11:09:54 -0700'

Date: _____

Chris Merritt

Utah State Historic Preservation Officer

APPENDIX A

The Undertaking

Components

Reconstruct South Campground

Reconstruction of the South Campground will alter the circulation pattern and the layout of individual campsites. A new roundabout will be established at the entrance to the campground loops; new campground circulation will be established on either side of the roundabout in about the same location as the current campground, keeping the current 127 campsites, but formally establishing the campsites with vehicle parking, tent pad, picnic table, and fire grate. The new circulation pattern will improve vehicle accessibility.

The Oak Creek Canal laterals that extend through the campground will be rehabilitated to improve their historical function, some of which may be covered and used for multifunctional pedestrian paths to improve accessibility with comfort stations and the Pa'rus Trail.

A new dump station and fee station will be built, and a new wilderness permit office and fee station constructed with additional parking. New day-use sites will be created around the existing parking lot west of the amphitheater and a small orchard established that will partially mimic historical conditions. An optional campground loop extending to the northeast of the existing campground is part of the conceptual design under consideration by the Park.

As part of the South Campground reconstruction, three Mission 66 comfort stations will be demolished and replaced with new comfort stations; one remaining Mission 66 comfort station and the Civilian Conservation Corps comfort station built in the 1930s will be rehabilitated.

Redesign South Entrance Area

The NPS is considering transportation and pedestrian improvements to the Entrance Station and the administration complex of lower Zion Canyon. Design is still conceptual but could include the following elements:

Three new pedestrian entrance options are currently being considered. Under all three options, the pedestrian entrance improvements would include the following proposed elements:

- Relocate and/or redevelop the pedestrian bridge and fee booths
- Develop a new visitor plaza and pedestrian routes to maintain connections with Zion Canyon Village; and
- Construct a new oversized vehicle visitor drop-off area.

All three options would relocate the pedestrian bridge and entrance further north and provide a more direct connection to the Zion Canyon Visitor Center. Options 1 and 2 would construct the Transit Center outside the park adjacent to Zion Canyon Village. Option 3 would construct a transit center inside the park boundary.

Road improvements at the South Entrance Area would include the following proposed elements:

- Construct new roundabout at the visitor center complex intersection.
- Install new short-term vehicle pullout.
- Realign primary roadway to facilitate vehicle access to the visitor center complex.
- Build a new spur road to dedicate a route for ZION shuttles to access the Visitor Center shuttle stop.
- Construct new passenger vehicle bridge with pedestrian walkways and underpass.
- Improve access road to shuttle bus maintenance facility to separate multimodal conflicts.
- Reconfigure oversized vehicle parking.
- Construct new roundabout at the intersection of the visitor center, oversized parking lot, and Watchman Campground access road.
- Redesign intersection to Watchman employee housing.

- Add signage, split rail fencing, and pathway lighting.
- Repair abutments to Watchman Bridge over Oak Creek.
- Repair abutments to Zion Mt. Carmel Highway Bridge over Oak Creek.

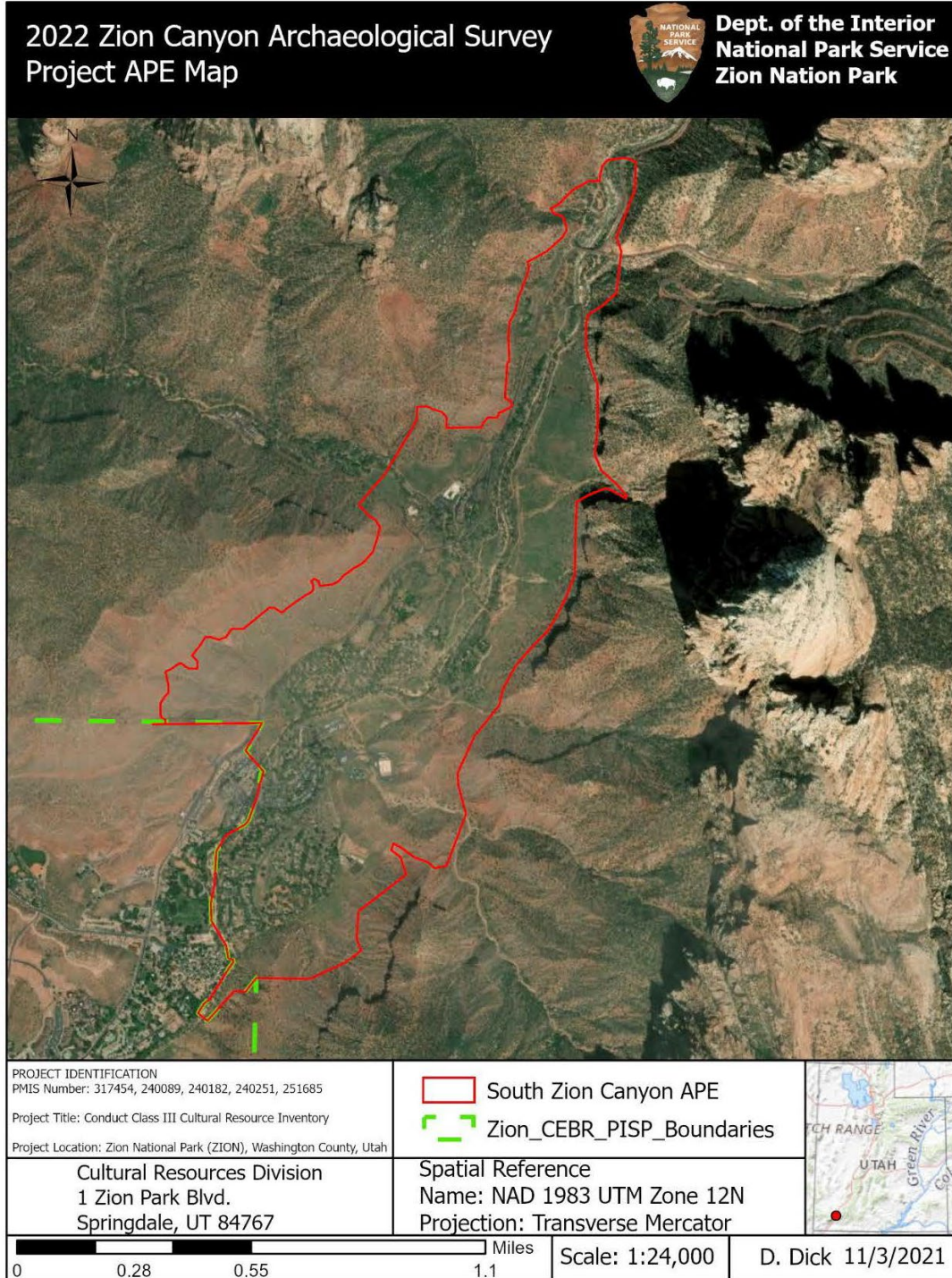
The shuttle facility improvements would include the following proposed elements:

- Increase capacity of shuttle bus parking.
- Reroute utilities.
- Install electric shuttle bus charging stations.
- Expand existing employee parking.
- Remove and revegetate existing visitor center employee parking.
- Add an accessible route from staff parking to the visitor center.

Pedestrian routes would be improved to facilitate wayfinding and accessibility as well as reduce user group conflict by separating traffic types. Pedestrian route improvements would include the following proposed elements:

- Install a pedestrian underpass at new vehicle bridges where possible.
- Construct a new pedestrian route adjacent to the road from the South Campground to the Human History Museum.
- Realign and repave sections of the Pa'rus Trail near the South Campground.
- Improve trail connections to and from the visitor center complex, Nature Center, Pa'rus Trail, and Human History Museum.
- Construct new pedestrian bridges over the Virgin River and Oak Creek.
- Option: Expand trail system to Canyon Junction.

APPENDIX B **Area of Potential Effect (APE)**



The APE is the entirety of the lower Zion Canyon from the South Entrance to just north of the Canyon Junction Bridge, encompassing 515 acres. The APE is located on the Springdale East 7.5-minute U.S. Geological Survey (USGS) quadrangle. The legal locations are in Township 41 South, Range 10 West, Sections 15, 21, 22, and 28 in the Salt Lake Principal Meridian. The APE includes all areas that may be directly affected by construction activities, as well as any areas subject to indirect effects associated with temporary disturbance due to construction activities, staging and stockpiling, access roads, etc.

APPENDIX C
Correspondence Addressing Measures Developed Under
Stipulations V and VI to Mitigate Adverse Effects

[protected for sensitive information]



Spencer J. Cox
Governor

Deidre M. Henderson
Lieutenant Governor

Donna Law
Interim Executive Director



Christopher Merritt
State Historic Preservation Officer
Utah State Historic Preservation Office

April 19, 2024

Jeff Bradybaugh
Superintendent
Zion National Park
1 Zion Park Blvd
Springdale, Utah

RE: Appendix C Part II to 2023 Programmatic Agreement – South Entry Redesign Project

For future correspondence, please reference Case No. 24-0997

Dear Supt. Bradybaugh,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced project on April 12, 2024. Based on the information provided to our office, we concur with your determinations of eligibility and with a finding of Adverse Effect for the proposed undertaking (to the Watchman Campground Bridge), and agree with the proposed mitigation measures.

This information is provided to assist with Section 106 responsibilities as per §36CFR800 and the 2023 PA between Zion NP and the Utah SHPO. If you have questions, please contact me at (801) 245-7239 or by email at clhansen@utah.gov.

Sincerely,

Christopher Hansen
Preservation Planner/Utah SHPO

Appendix D: Floodplain Statement of Findings

**Zion Canyon South Entrance Redesign,
Zion National Park
Statement of Findings for NPS Director's Order 77-2,
"Floodplain Management," PMIS 240182**

National Park Service
U.S. Department of the
Interior



Recommended:

Jeff Bradybaugh, Superintendent, Zion National Park

Date

Certification of Technical Adequacy and Servicewide Consistency:

Ed Harvey, Chief, Water Resources Division

Date

Approved:

Kate Hammond, Regional Director, Interior Regions 6, 7, and 8

Date

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ZION CANYON SOUTH ENTRANCE REDESIGN (PEPC 104914) ZION NATIONAL PARK

FLOODPLAIN STATEMENT OF FINDINGS

INTRODUCTION

Executive Order (EO) 11988, “Floodplain Management,” and EO 13690, “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input,” require the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in floodplains. The objective of EO 11988 is to avoid, to the extent possible, the long-term and short-term adverse impacts associated with occupancy, modification, or destruction of floodplains and to avoid indirect support of development and new construction in such areas wherever there is a practicable alternative. EO 13690 was issued to establish a Flood Risk Management Standard for federally funded projects to improve the nation’s resilience to floods and to ensure new federal infrastructure will last as long as intended. The NPS administers floodplain policy through Director’s Order 77-2: *Floodplain Management* (DO 77-2) and Procedural Manual 77-2 *Floodplain Management* (PM 77-2).

It is NPS policy to preserve floodplain functions and values and minimize potentially hazardous conditions associated with flooding, including threats to human health/life, risk to capital (NPS) investment, and impacts on natural and beneficial floodplain values. If a proposed action is found to be in an applicable regulatory floodplain with associated impacts and relocating the action to a non-floodplain site is considered not to be a practicable alternative, then a formal floodplain “Statement of Findings” must be prepared. The “Statement of Findings” must (a) quantify flood conditions and associated hazards as a basis for management decision making, (b) describe the rationale for selection of a floodplain site, (c) disclose the resources and amount of risk associated with the chosen site, and (d) explain flood mitigation plans. The “Statement of Findings” will be available for public review and comment through the National Environmental Policy Act Environmental Assessment.

This Floodplain Statement of Findings:

- Quantifies the flood hazard associated with the proposed action.
- Presents the rationale for the development of proposed facilities within the regulatory floodplain of the North Fork of the Virgin River in ZION.
- Documents the anticipated negative impacts of these improvements on human health/life, capital investment, and floodplain functions and values.
- Presents mitigations to these impacts.

The NPS is proposing to redesign the South Entrance of Zion Canyon at Zion National Park (ZION). Visitor use in and surrounding ZION has grown steadily for many years. Recently, the demand for public access in the ZION region has increased exponentially, stressing existing infrastructure on public lands, trail systems, and the environmental resources

therein. The project would include realigning the road accessed from the South Entrance Fee Station to the Zion Canyon Visitor Center by adding two roundabouts, replacing the Watchman Campground Bridge, reconfiguring and enlarging the large vehicle parking lot, and expanding the ZION Shuttle Maintenance Facility and employee parking lot. Additionally, the project would address compliance with the Architectural Barriers Act (ABA) and Americans with Disabilities Act (ADA). The project components within the regulatory floodplain are described in more detail in the *Proposed Action* section.

LOCATION

The South Entrance to ZION (project area) is shown on Figure 1. The project area is about 3,930 to 3,980 feet above sea level. The natural sources for surface water hydrology are the North Fork of the Virgin River and Sammy's Canyon Wash, an ephemeral drainage that flows into the North Fork of the Virgin River.

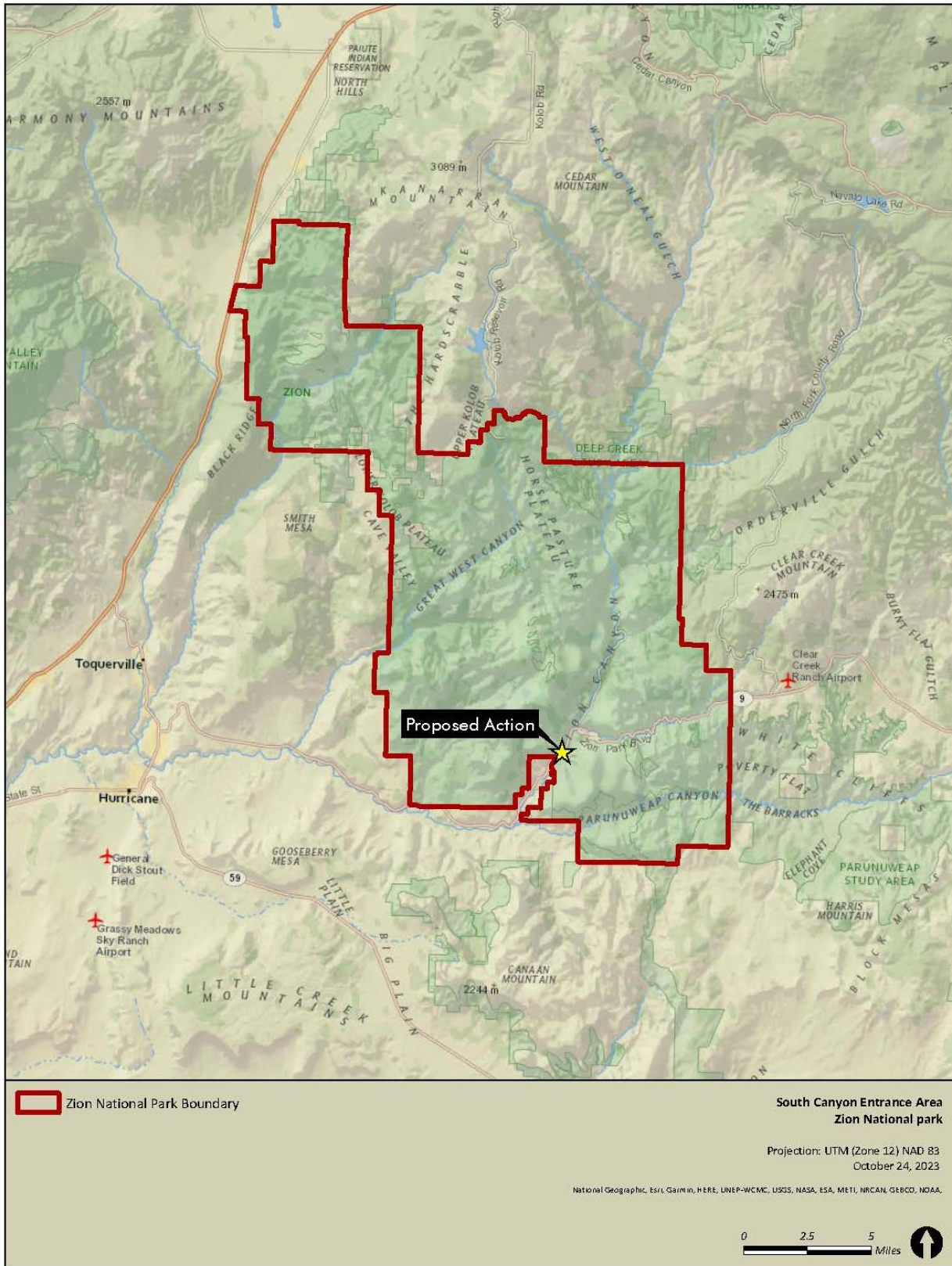


Figure 1. South Entrance and Visitor Center Road Rehabilitation

PROPOSED ACTION

Road improvements would be implemented at the South Entrance area to improve safety, reduce multimodal conflicts, and reduce traffic congestion. Road improvements would include the following proposed elements within the regulatory floodplain (Figure 2):

- Remove the existing Mission 66 vehicular Watchman Campground Bridge across the North Fork of the Virgin River.
- Construct a new vehicular bridge 60 feet upstream of the existing Watchman Campground Bridge location.
- Construct a concrete tread pedestrian underpass trail under the new bridge that connects to the Pa'rus trail running north-south along the east side of the Virgin River.
- Install rock rip rap embankment protection around the new underpass trail and the bridge abutments.
- Reconfigure and enlarge the employee parking lot.
- Pave the currently partially-paved shuttle bus parking lot.
- Reconfigure and enlarge the large vehicle parking lot.
- Grade all areas adjacent to the project area to connect to existing grades.
- Install culverts as needed.
- Plant and revegetate disturbed areas.
- Install bioswales for natural filtration of contaminants from all new and expanded parking areas.
- Reconstruct the old Watchman Trail alignment proximal to the large vehicle parking lot.

Access for construction would be from Zion-Mt. Carmel Highway. Access to the large parking lot and bus charging/employee lots would be disrupted during construction activities. Construction staging areas would include existing parking lots and previously disturbed areas (Figure 2).

The existing vehicle and pedestrian bridge across the river would be removed and the section of the river at the bridge would be restored. Portions of the existing road, large vehicle parking lot, employee parking, shuttle bus parking lot, and trails, would be removed and replaced by new infrastructure or removed as necessary.



Figure 2. Proposed Action

Grading would occur throughout the project area. Specifically, the new bridge would require extensive grading for installation and to connect adjacent roads and parking areas. The shuttle bus charging lot would require fill to meet grades and to tie into adjacent roads.

The total anticipated disturbance for the project would be about 11.8 acres, of which about 8 acres would be permanent and about 3.8 acres would be temporary. After accounting for currently paved areas that would be demolished and restored, there would be a net increase in paved area of about 2.5 acres. Of the 11.8 acres of disturbance, about 8.2 acres would be in the pre-project regulatory floodplain; however, the amount of impervious surface in the floodplain would decrease from about 3.1 acres to about 0.9 acre following construction, after accounting for the hydraulic changes that would happen because of removing the bridge. Revegetation would include placing topsoil and reseeding with native seed.

Equipment used would include skidsteers, graders, medium and large loaders, backhoes, trackhoes, trenchers, belly dumps, water trucks, compacters, concrete trucks, cranes, large dump trucks (material hauling), asphalt milling machines, paving machines, medium and large asphalt rollers, curbing machines, and various handheld medium and large power equipment (saws, drills, etc.). Pile drivers would be used for new bridge abutments. Standard work days and times are anticipated during construction.

Overall construction is anticipated to begin in fall 2024 and continue for approximately 24 months.

Bioswales would be installed for natural filtration of contaminants from all new and expanded parking areas. The bioswales would be designed as vegetated, shallow, landscaped depressions that would capture, treat, and infiltrate stormwater runoff as it moves downstream from the parking areas.

The shuttle facility improvements would include the following proposed elements (Figure 2):

- Pave shuttle bus parking lot.
- Construct a new administrative access road to access the shuttle bus charging and parking area, Shuttle Maintenance Facility, and employee housing area.
- Expand existing employee parking to include concessioner, partner, and NPS employee parking in a single location separate from visitor parking.
- Remove and revegetate existing Visitor Center employee parking.
- Add an accessible route from employee parking to the Visitor Center.

The existing Watchman Campground Bridge and abutments would be removed, and the river channel would be restored. The new four-lane bridge across the North Fork of the Virgin River would be designed to pass the 100-year flood, plus 2 feet of freeboard. The abutments of the new bridge would be outside the 100-year floodplain, as modeled, based on removal of the existing Watchman Campground Bridge (HDR 2023). The modeled 100-year floodplain elevation at the new bridge would be 3,924.30 feet (HDR 2023), and the 100-year floodplain elevation with 2 feet of freeboard would be 3,926.30 feet. The trail under the new bridge, parallel to the river, would be above the 10-year water surface (3,920.61 feet).

REGULATORY FLOODPLAIN

Following PM 77-2, three action classes were considered when determining the regulatory floodplain:

1. Class I Actions include location or construction of administrative, residential, warehouse, and maintenance buildings; non-excepted parking lots; or other man-made features which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values.
2. Class II Actions, also referred to as Critical Actions, include any activity for which even a slight chance of flooding is too great such as construction of schools, medical facilities, emergency services, hazardous material storage, and records/collections storage.
3. Class III Actions include any action that involves human occupation or substantial human exposure in high hazard areas such as drainages subject to flash flooding.

This project proposes to place roads, parking lots, bridges and trails in the floodplain which are considered Class I Actions. While the North Fork of the Virgin River and Sammy's Canyon Wash is a high hazard area subject to flash flooding, this project does not propose human occupation or substantial human exposure, therefore, this project constitutes a Class I Action. The regulatory floodplain for Class I actions is the 1-percent annual exceedance probability flood, also referred to as the 100-year flood or the base flood (DO #77-2).

Additionally, following EO 13690, any proposed action that involves federal capital investment must include a Federal Flood Risk Management Standard (FFRMS). Per the Federal Emergency Management Agency's implementing guidelines for EOs 11988 and 13690, agencies may use a Freeboard Value Approach in establishing FFRMS flood elevations in areas where the 100-year base flood elevation (BFE) levels are known. This method adds 2 feet to the BFE for non-critical actions. Therefore, the regulatory floodplain for the proposed action is the 100-year flood elevation plus 2 feet. Post-construction flood conditions, including the regulatory floodplain, are described below under *Description of Site-Specific Flood Risk* and are shown on Figure 4.

Work on the bridge abutments would occur within the regulatory floodplain. In addition, the trail underpass below the new bridge, the large vehicle parking area, the shuttle parking lot, and employee parking lot are within or partially within the post-project regulatory floodplain. Portions of Highway 9, which provides access into and out of the South Entrance, are in the regulatory floodplain. Visitors to the project area frequently travel in and through flood hazard areas. The project area is on leveled land adjacent to the North Fork of the Virgin River and Sammy's Canyon Wash. A portion of the large vehicle parking area and most of the shuttle parking and employee parking areas are within the regulatory floodplain, both under current conditions and post-project. No existing or newly constructed buildings would be within the regulatory floodplain in the project area after the project is complete (Figure 4).

The existing floodplain in the project area was mapped in 2022 by Wood Environment and Infrastructure Solutions, Inc. (Wood 2022). North Fork Virgin River's peak flow values were determined by performing a statistical stream gage analysis using Bulletin 17C (Advisory Committee on Water Information, 2017) in the Hydrologic Engineering Center's Statistical Software Package (HEC-SSP) (Hydrologic Engineering Center (HEC), 2017) published by the United States Army Corps of Engineers (USACE). Annual peak flow data was downloaded from the United States Geological Survey (USGS) National Water Information System (USGS 2019) from the stream gage station on the North Fork Virgin River near Springdale, Utah (09405500). Hydrologic analyses of Sammy's Canyon Wash were performed using the 2D rain-on-mesh model developed in the Hydrologic Engineering Center River Analysis Systems Version 6.2 (Hydrologic Engineering Center 2022). This methodology applies a unit precipitation hyetograph to each mesh element within the study area. The model then estimates the amount of runoff lost due to infiltration and evaporation characteristics, creating an excess rainfall hyetograph for each mesh element. Using the unique hydraulic properties of each mesh element (i.e., roughness coefficient, volume vs. elevation curve, terrain profile of each mesh edge, slope, etc.) hydraulic routing is calculated through each mesh element to the next. This model was then used to calculate future flood elevations under the proposed design (Figure 4).

The modeled floodplain area would improve when the proposed project is implemented (Figure 4). Existing infrastructure (Watchman Campground Bridge and the Sammy's Canyon Wash culverts) were dramatically undersized causing a damming effect which resulted in floodwaters backing up upstream. Under the proposed actions in this project, the Watchman Campground Bridge would be removed and replaced with a new vehicular bridge designed to convey the 100-year + 2 feet added to the BFE event resulting in a restoration of the river's natural floodplain. The Sammy's Canyon Wash culverts are proposed to be replaced in another project (PEPC 117719 Expand Bus Parking Area to Facilitate Electric Charging Stations, Zion National Park) designed to convey the 100-year flood event.

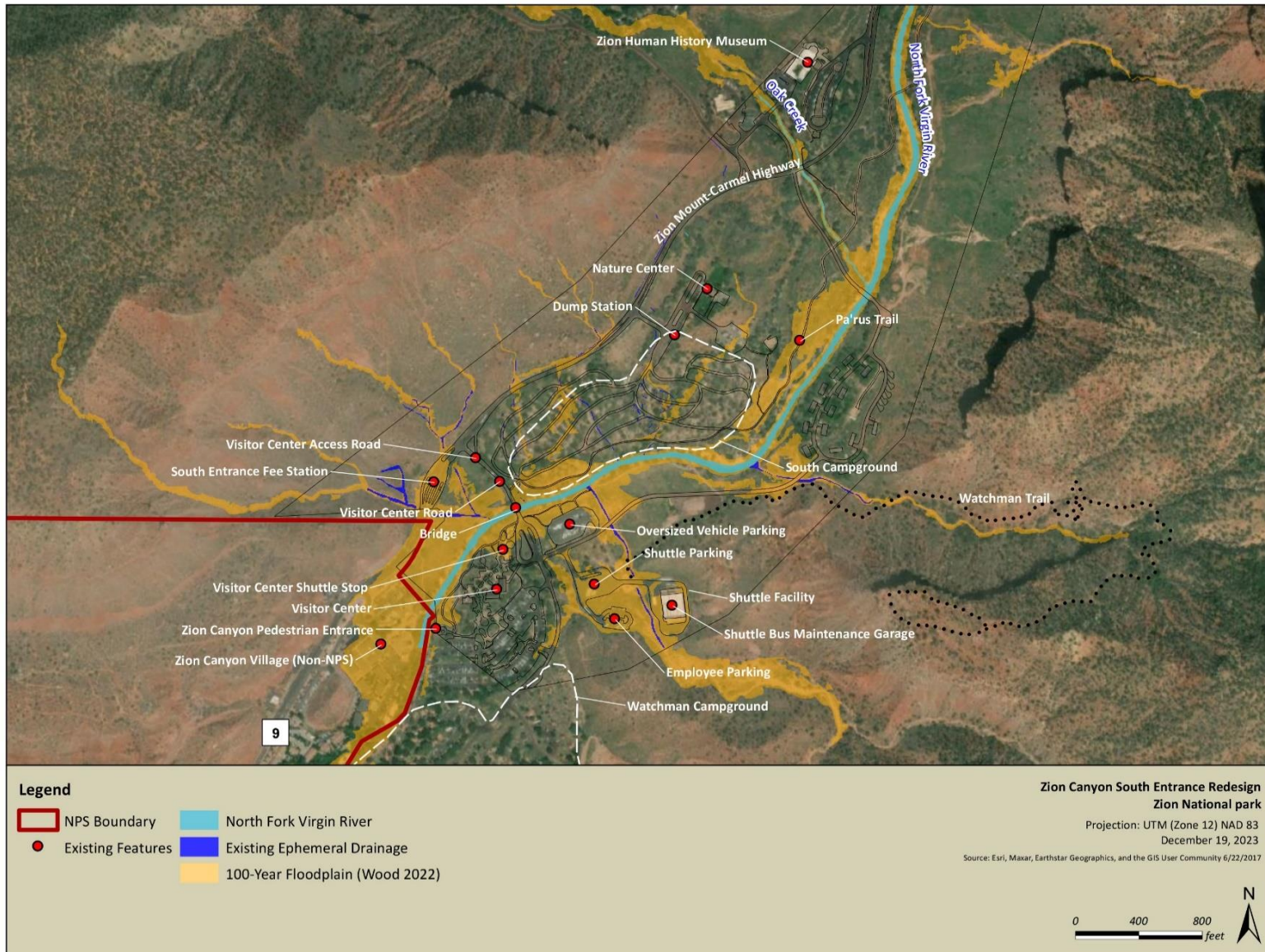


Figure 3. Project Area within Existing 100-Year Floodplain.

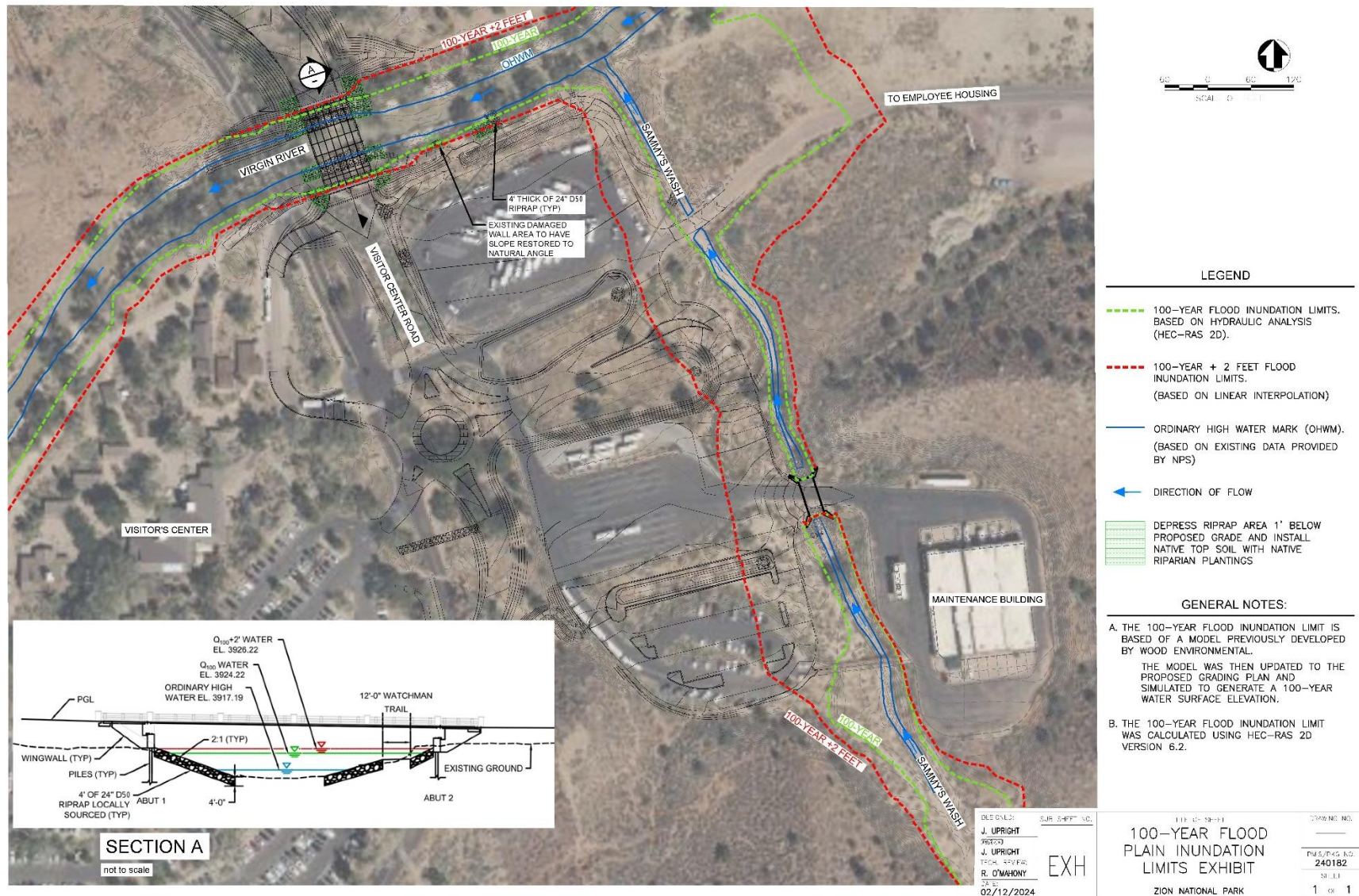


Figure 4. Project Area within Post-Project Regulatory Floodplain (100-Year plus Two Feet of Freeboard)

JUSTIFICATION FOR USE OF THE FLOODPLAIN

No practicable alternatives exist for locating the project outside of the regulatory floodplain because:

- The project area and associated floodplain have already been heavily disturbed by the existing infrastructure in the floodplain including the existing Watchman Campground Bridge, roads, parking areas, and trails. Alternative sites nearby are less disturbed, and moving these facilities out of the floodplain would result in impacts on nearby natural and cultural resources.
- Potential alternative sites outside the floodplain are constrained by steep terrain that is not suitable for construction without substantial grading and recontouring that would damage ZION resources.

INVESTIGATION OF ALTERNATIVE SITES

No alternative sites were identified that would entirely avoid locating project facilities in the floodplain. As described above under *Justification for Use of the Floodplain*, the existing bridge, roads, and parking areas are in or partially within the floodplain, and no practicable alternative sites exist for locating the project outside of the floodplain.

DESCRIPTION OF SITE-SPECIFIC FLOOD RISK

The watershed area that could contribute flows from the North Fork of the Virgin River at the project area is 354 square miles. Precipitation anywhere within this watershed has the potential to cause flooding along the North Fork of the Virgin River. The watershed area for Sammy's Canyon Wash is about 1 square mile. Flood risks associated with the proposed action include risk to human health and life and risk to capital investment resulting from damage to existing and expanded infrastructure. The post-project regulatory floodplain within the project area is shown on Figure 4.

Three types of floods typically occur in ZION: riverine floods, flash floods/debris flows, and sheet floods (Lund et al. 2010, 16-27). The project area contains areas subject to all three types of floods (Lund et al. 2010, 20). Riverine floods result from rapid melting of the winter snowpack or from prolonged heavy rainfall associated with major frontal storms, or from both conditions simultaneously. Flash floods can occur with little to no warning when sudden, intense, localized events occur in response to cloudburst rainfall that often accompanies convective monsoonal thunderstorms. Because cloudburst storms result from strong convective cells produced by differential atmospheric heating, flash floods are largely a summertime phenomenon in desert regions. Flash floods in ZION can affect both large perennial drainages and small ephemeral drainages. The North Fork of the Virgin River and its tributaries in the project area are subject to periodic flash floods (Lund et al. 2010, 17). Debris flows occur when flash floods contain large amounts of sediment, ranging in size from clay to boulders. Like flash floods, debris flows are fast moving. Because of their high density and high speed, debris flows are particularly dangerous to life and destructive to property.

Sheetfloods occur when a broad expanse of unconfined moving storm water spreads as a thin, continuous, and relatively uniform sheet over a large area and is not concentrated into well-defined channels (Lund et al. 2010, 18). Additional types of floods could occur from unintentional water release from water retention structures or from breaching of rockfall or landslide dams. These two types of floods would not necessarily be associated with precipitation events.

Destructive floods have occurred periodically in ZION, including in the project area. The history of flooding and flood risk in ZION is described in Lund et al. (2010, 16-27) and summarized below. The project area is, and has been, susceptible to flooding during 100-year flood events. Major floods in the project area included a flood in December 1966 that produced a maximum flow of 9,150 cubic feet per second (cfs) on the North Fork of the Virgin River just outside ZION near Springdale and a flood in January 2005 that produced a maximum flow of 5,450 cfs on the North Fork of the Virgin River near Springdale. In 1998, a flash flood and debris flow inundated the current location of the Zion Canyon Visitor Center and the shuttle bus maintenance facility. Lund et al. (2010, 21) estimated the 100-year flood discharge on the North Fork of the Virgin River at the Springdale gage at 9,020 cfs and the 500-year flood at 13,500 cfs. The flood study by Wood calculated the 100-year flood event flow in the North Fork of the Virgin River as 10,660 cfs at the South Entrance Visitor Center and the Sammy's Canyon Wash 100-year flow as 1,020 cfs at the confluence with the North Fork of the Virgin River (Wood 2022).

In recent years, floods in Zion Canyon included a flash flood in June 2021 when ZION received more than an inch of rain in one hour. This flood required temporary closure of the South Entrance and evacuation of visitors.

With removal of the Watchman Campground Bridge, restoration of the river channel, and construction of a new bridge with a longer span, the post-project floodplain along the North Fork of the Virgin River would be less constricted since the new bridge would have a longer span and elevated low chord height than the existing bridge. As previously described, the new four-lane bridge across the North Fork of the Virgin River would be designed to pass the 100-year flood, plus 2 feet of freeboard. The abutments of the new bridge would be outside the 100-year floodplain, as modeled, based on removal of the existing bridge (HDR 2023). Stream velocities and flow data for the proposed bridge are summarized in Table 1.

Table 1. Design Discharge Summary Calculated at Proposed Bridge.

Existing Bridge VIR070 Low Cord (feet) [According to Model] 3925.84 ft	U/S Face of PR Visitor Center Road Bridge				
	WSE (ft)		Flow (cfs)	Velocity (ft/s)	
Plan Name	Average	Max	Max	Average	Max
100-YR	3924.30	3924.30	10,748	11.1	18.0
50-YR	3923.19	3923.30	8,698	10.3	16.9
25-YR	3922.01	3922.17	6,754	9.5	15.7
10-YR	3920.61	3920.66	4,761	9.6	13.9

Source: HDR 2023.

Potential Risk to Human Health and Safety

Over the long term, the proposal would reduce risks to human health and safety from flooding by improving traffic circulation and improving egress from the east side of the Virgin River. As previously described, several roads and facilities in the project area are within the regulatory floodplain, including the roads providing access to the project area (Figure 4). Inundation of the roads leading to the new bridge is not expected during the regulatory flood event. The proposed action would generally reduce flooding in the project area and upstream in the South Campground by removing the existing Watchman Campground Bridge and replacing it with a new bridge with a longer span. In addition, by improving vehicle and pedestrian access and circulation at the South Entrance, the proposed project would allow more rapid evacuation of the area in an emergency, such as a flash flood. The new bridge across the North Fork of the Virgin River would have four lanes and would allow more rapid evacuation than the existing two-lane bridge. There exists adequate escape terrain east and west of Sammy's Canyon Wash and the north and south of the North Fork of the Virgin River to quickly move people out of the course of floodwaters during an event.

Guided by Homeland Security Presidential Directive 20 and National Security Presidential Directive 51, ZION has established a Continuity of Operations Plan (COOP) which identifies steps to be taken in an emergency situation to minimize disruption to essential functions and return the park to normal operations as soon as possible. The COOP would be activated in case of flooding in ZION. Continuity of operations planning aims to identify risks, institute preventative mechanisms, and develop measures to deal with consequences when prevention fails. The COOP is a flexible, structured common sense approach to outline the prudent actions relevant to any adverse situation that could arise, but specific to each individual park's needs and the severity of the crisis. The COOP covers evacuation planning for Zion Canyon, including the site of proposed development in Sammy's Canyon Wash and the North Fork of the Virgin River.

Because flood events in Zion Canyon could affect a wide range of visitor and administrative facilities (lodge, visitor center, multiple campgrounds, trails, roads and bridges), and involve rapid changes and developments in what areas are impacted, an Incident Command structure will be utilized in order to be responsive to evolving conditions. As directed by the Incident Commander, Zion National Park rangers on scene will notify individuals utilizing daytime parking facilities and trails located in the floodplain of impending conditions if information and time allows and will direct evacuation timing and path as dictated by best paths open at the time of the event. In some cases, users may be directed to shelter in place until conditions permit evacuation. This project area is located in the frontcountry of the park with good access to communications and timely weather and reporting data.

The COOP also includes information on communication and agreements with local government entities outside of the park to ensure that evacuation and flood response is coordinated and shelter or evacuation instructions to park users are consistent with conditions including road closures in the surrounding area.

The proposed action includes an underpass with a pedestrian and bicycle trail beneath the bridge, parallel to the river. The trail would be at an elevation above the 10-year water surface

elevation but would be subject to periodic flooding and would be within the regulatory floodplain. People using the underpass during a flood event could be exposed to flood hazards. This risk would be mitigated by installing signs warning visitors of the flood dangers and to not enter during active flooding. Despite the reduction in the floodplain from existing conditions due to the removal of undersized bridges and culverts, portions of the shuttle bus charging area, employee parking lot, large vehicle lot, and Watchman Trail would be located in the post-project floodplain and humans located in these areas would be exposed to flood hazards during a flood event. The park would place warning signs at the entrance to the shuttle bus charging/parking area and the large vehicle lot to inform visitors and staff of the flood hazard. However, even with these mitigation measures, the risk to human life and safety cannot be eliminated.

Potential Risk to Property

The proposed project would construct infrastructure within the regulatory floodplain. Most of the facilities would be constructed at or near existing grade and would not increase the flood elevation.

As previously described, the new bridge across the North Fork of the Virgin River and the abutments of the new bridge would be outside the regulatory floodplain, as modeled, after accounting for removal of the existing bridge. The newly constructed trail under the new bridge would be within the regulatory floodplain. Although the trail under the bridge would be within the floodplain, the trail would be designed to have limited hydraulic effects on the river during flood events. Additional infrastructure located in the post-project regulatory floodplain would include portions of the large vehicle parking lot, shuttle charging area, employee parking lot, and a section of the Watchman Trail. All structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). With these design features, the new infrastructure would be resilient to flood damage, and no increased risk to property is expected compared to existing conditions; however, risk to property cannot be eliminated.

Potential Risk to Floodplain Values

The North Fork of the Virgin River floodplain is adjacent to the river and serves important functions such as reducing flood risks downstream by absorbing and storing excess water during flood events, improving water quality by filtering contaminants during flood events, providing habitat for plants and animals, and recharging groundwater aquifers. The floodplain natural values in the project area have been altered by human activities such as construction of the bridge and parking areas. Modifications of the floodplain have resulted from construction of drainage swales and irrigation ditches, and construction of infrastructure, such as roads. Past construction and proposed improvements in the South Campground resulted in increased impervious surface adjacent to the project area.

The floodplain would be negatively impacted during construction due to the presence of staging areas, construction equipment, and materials in the floodplain and possible erosion from bare soils prior to revegetation. However, construction activities would be monitored, and erosion and sediment control best management practices would be implemented to

minimize erosion and sediment movement. Disturbed areas would be revegetated following construction with native species.

Impervious surface in the project area would increase following construction. Impervious surfaces in the project area would increase from about 5.5 acres to about 8 acres, a net increase in impervious surface of about 2.5 acres. Although the overall impervious surface in the project area would increase, the amount of impervious surface in the modeled floodplain would decrease after construction, after accounting for removal of the existing bridge. The amount of impervious surface in the floodplain would decrease from about 3.1 acres to about 0.9 acre following construction. Land cover changes would result from increased impervious surface, soil compaction, and changes in existing drainage patterns. Changes in land cover could alter the hydrology of the project area and increase the volume of runoff. Impervious areas also collect pollutants, which are then mobilized after rainfall and potentially transported to streams or other waters. Decreasing impervious surface in the floodplain would benefit floodplain functions and values by increasing flood storage capacity and the ability of the floodplain to recharge and infiltrate stormwater. To reduce the risk of pollutants entering waterways, fuel storage and hazardous waste storage during construction would be at least 3 feet above the regulatory floodplain elevation.

FLOODPLAIN IMPACT MITIGATION MEASURES

The following floodplain impact mitigation measures would be implemented:

- The COOP would be activated in case of flooding in ZION. As previously described, the COOP covers evacuation planning for Zion Canyon, including the site of proposed development in Sammy's Canyon Wash and the North Fork of the Virgin River
- To reduce the risk of exposure to flood hazards, warning signs would be placed on the trail approaching the underpass under the new bridge, warning visitors not to use the underpass during flood conditions.
- To reduce the risk of exposure to flood hazards, warning signs would be placed at the entrance to the shuttle bus charging/parking area and the large vehicle lot to inform visitors and staff of the flood hazard.
- To reduce the risk of pollutants entering waterways, fuel storage and hazardous waste storage during construction would be at least 3 feet above the regulatory floodplain elevation.
- Structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

SUMMARY

The NPS has determined that implementing the proposed action would restore the flood capacity and conveyance of North Fork of the Virgin River that would result in a net reduction of risk to human health and safety, property and floodplain values. Risks to life,

property, and natural resources from flooding can be mitigated. Bioswales designed to collect runoff from developed surfaces would be installed to reduce impacts to water quality. Necessary adverse floodplain impacts would be reduced to the greatest extent practicable while meeting the design requirements and operational needs of the project area. With the proposed mitigations applied, the NPS finds that the proposed action would have minor adverse impacts on floodplains and their associated values due to increased impervious surface in the valley bottom.

REFERENCES

- Executive Order 11988, “Floodplain Management.” 1980. Executive Order of the President of the United States. May 28.
- Executive Order 13690, “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input.” 2015. Executive Order of the President of the United States. January 30.
- HDR. 2023. Basis of Design Report. Draft. ZION 240182 South Entrance Visitor Center Road Rehabilitation. Zion National Park. October 13.
- Hydrologic Engineering Center (HEC). (2022, March). River Analysis System (HEC-RAS), Version 6.2. US Army Corps of Engineers (USACE).
- Lund, W.R., T.R. Knudsen, and D.L. Sharrow. 2010. Geologic hazards of the Zion National Park geologic hazard study area, Washington and Kane Counties, Utah: Utah Geological Survey Special Study 133, p. 16-27.
- National Park Service (NPS). 2003. Director’s Order 77-2: *Floodplain Management*. Washington Office, Washington, D.C.
- Wood Environment and Infrastructure Solutions, Inc. (Wood). 2022. Floodplain Mapping for Zion National Park South Entrance Area.

Appendix E:
Wild and Scenic Rivers Act Section 7 Determination



National Park Service
U.S. Department of the Interior
Zion National Park
Springdale, Utah

Zion Canyon South Entrance Redesign

Wild and Scenic Rivers Act Section 7 Determination

May 2024



North Fork of the Virgin River, Zion National Park

Approved by:

Kate Hammond, Regional Director, Interior Regions 6, 7, and 8

WILD AND SCENIC RIVERS ACT SECTION 7 DETERMINATION

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

ZION NATIONAL PARK

May 2024

PROJECT: Zion Canyon South Entrance Redesign [PMIS ZION 240182]

RIVER: North Fork of the Virgin River below the Temple of Sinawava, Virgin River, Utah

WSR CLASSIFICATION: Recreational

WILD AND SCENIC RIVER ATTRIBUTES

The purpose of the Wild and Scenic Rivers Act (WSRA) of 1968 (Public Law 90-542, as amended, 16 United States Code 271-1278) is to protect designated rivers from negative effects of water resource projects and Federal Energy Regulatory Commission (FERC) hydropower projects on free-flowing condition, water quality, and the protected resource values identified for each river segment. The Omnibus Public Land Management Act of 2009, signed by President Obama (Public Law 111-11), designated approximately 165.5 miles of the Virgin River and tributaries of the Virgin River across federal land within Zion National Park and adjacent Bureau of Land Management Wilderness as part of the National Wild and Scenic River System. The section of the Virgin River to be affected by the proposed Zion Canyon South Entrance Redesign – North Fork of the Virgin River below the Temple of Sinawava – is classified as a Recreational section. A Recreation classification indicates rivers or river segments readily accessible by road or railroad that may have some development along the shorelines and that may have undergone some impoundment or diversion in the past (National Wild and Scenic River System 2019). A portion of this project is considered a water resources project and has the potential to affect the North Fork of the Virgin River below the Temple of Sinawava within the designated corridor (defined as extending ¼ mile on either side from the center line of the river) and is subject to the provisions of Section 7(a) of the WSRA. Section 7(a) of WSRA requires managing agencies to conduct a rigorous and consistent process to protect the free-flowing condition, water quality, and Outstandingly Remarkable Values (ORVs) of the Virgin River and its tributaries. In July 2013, the National Park Service and Bureau of Land Management co-authored a Comprehensive River Management Plan (CRMP) and Environmental Assessment identifying ORVs. ORVs that apply to this section of the Virgin River are:

1. **Cultural:** The Virgin River system contains some of the best examples in the Southwest region of prehistoric American Indian sites that provide a tangible connection between culturally associated tribes and their ancestors as well as places and resources important to the cultural traditions of contemporary American Indian tribes.
2. **Recreational:** This segment offers a recreational setting that is both intimate and sublime, defined by the river and the extreme geology. Visitors of all ages come here from around the world to engage in a full spectrum of river-related activities. Nearly all visitors come to this segment to experience the scenery, which is unarguably moving and memorable. A diversity of towering iconic features dominates this segment, including the Great White Throne, Angel's Landing, Weeping Rock, and the Court of the Patriarchs. Artists, writers, and

photographers have long been drawn to this area of the river to capture the canyon's ever-changing beauty.

3. **Geologic:** A dynamic geologic system creates a diverse landscape of channels, canyons, and springs, and these factors contribute to the unique and exemplary geologic values of the Virgin River and its tributaries.
4. **Fish:** The Virgin River and its tributaries provide a unique and intact habitat for four native species of concern, including the Virgin spinedace (*Lepidomeda mollispinis*), flannelmouth sucker (*Catostomus latipinnis*), desert sucker (*Catostomus clarkii*), and speckled dace (*Rhinichthys osculus*). Additionally, the Zion stonefly (*Isogenoides zionensis*), an important component of the food web, is found along the Virgin River and its tributaries.
5. **Scenic:** The landscape is transformed as the narrow river bottom widens, exposing open expanses framed by vertical sandstone walls. Foreground views include a variety of textures and colors including grasses, cottonwoods, and riparian vegetation that change color with the seasons and give way to soaring red rock walls. A diversity of towering iconic features dominate this segment, including the Great White Throne (the world's largest sandstone monolith), Angel's Landing, the Watchman, the Beehives, the Weeping Rock, Streaked Wall, West Temple, Alter of Sacrifice, and the Court of the Patriarchs.

Free-flowing condition and water quality that supports the integrity of the ORVs are key components of the Comprehensive River Management Plan (CRMP) for the Virgin River.

ANALYSIS

Define the Proposed Activity

Project Proponent

The project proponent is Zion National Park (ZION), National Park Service.

Purpose/Need for the Project

The purpose of the proposed project is to improve road circulation and safety for vehicular, bicycle, and pedestrian traffic on roads and trails in the project area; create pedestrian and bicycle connections and intuitive wayfinding; and modernize ZION facilities and utility infrastructure to support current and future visitation levels. Additionally, the purpose of the proposed project is to bring the project area into compliance with the Architectural Barriers Act (ABA) and Americans with Disabilities Act (ADA) while reducing user group conflicts, improving visitor safety, and protecting natural and cultural resources. The proposed project is needed because visitation levels have outgrown the existing road facilities and alignments, creating dangerous and confusing traffic situations with potentially harmful interactions between vehicles and more vulnerable road users such as bicyclists and pedestrians.

Geographic Location of the Project Area

The South Entrance to ZION is shown on Figure 1. The project area is about 3,930 to 3,980 feet above sea level. The natural sources for surface water hydrology are the North Fork of the Virgin River and Sammy's Canyon Wash.

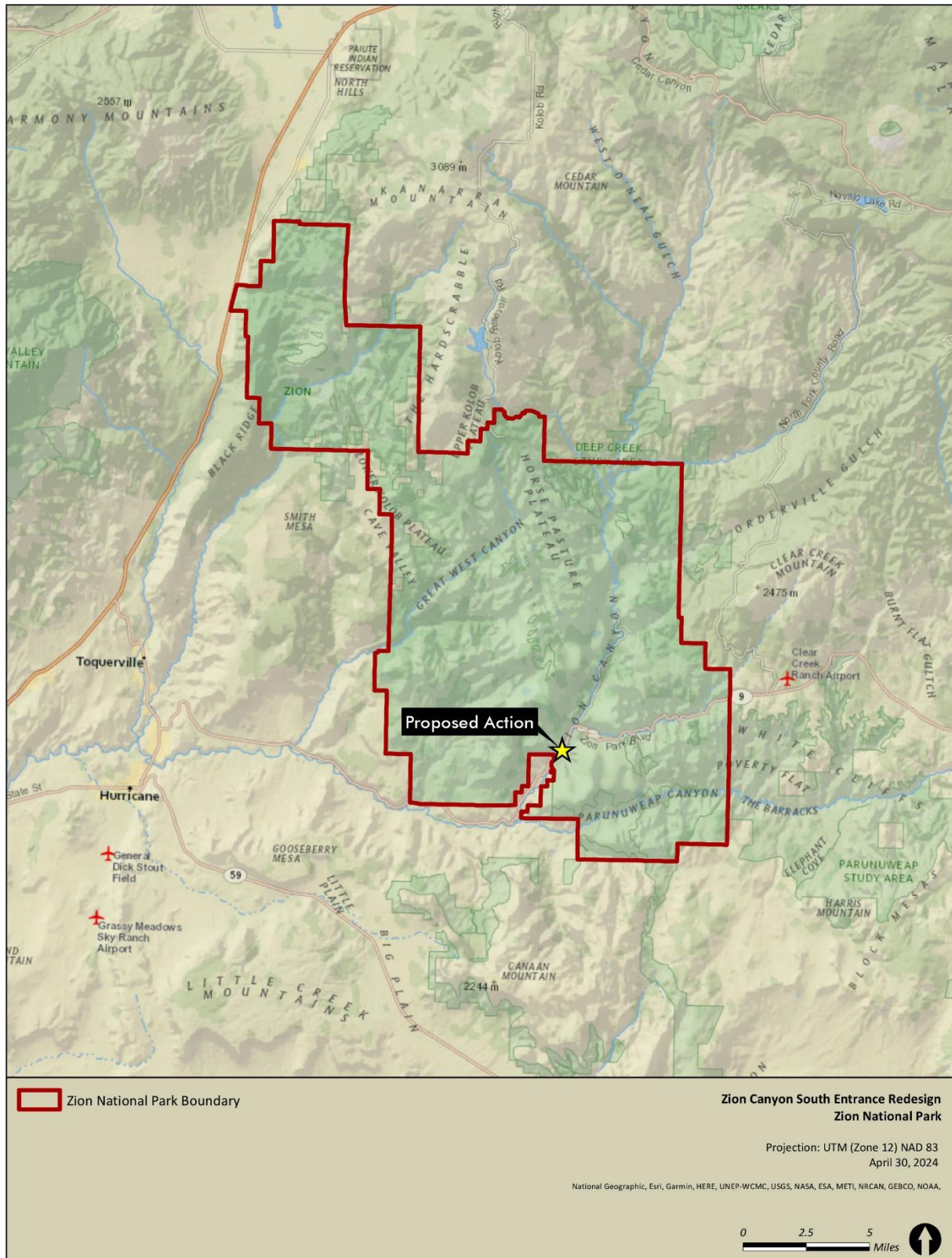


Figure 1. Project Area Location

Duration of the Proposed Activities

Overall construction of the proposed project is anticipated to begin in fall 2024 and continue for approximately 24 months. The following timing restrictions would be implemented to reduce impacts on wildlife and visitor experience.

- In-water work would not occur from April 1 to July 31 to protect sensitive fish species during the spawning period.
- The hours of operation of motorized equipment would vary by season to protect dawn, dusk, and nighttime quiet (8:00 a.m. to 5:00 p.m. during normal time and 8:00 a.m. to 6:00 p.m. during Daylight Savings time).
- The park would ensure that clearing and grubbing activities would occur only during November through February to avoid the migratory bird season (March 1 through September 15) and the monarch butterfly active season (April through October).
- Tree removal would occur only in October and November to protect nesting migratory birds and roosting bats. If this is not possible, visual inspections by ZION Wildlife Program staff of vegetation marked for removal would be required each day prior to tree removal.
- From April through October, construction personnel would be briefed to check underneath vehicles for tortoises before driving.

Magnitude/Extent of the Proposed Activities

Road Improvements

Road improvements would be implemented at the South Entrance area to improve safety, reduce multimodal conflicts, and reduce traffic congestion. Road improvements would include the following proposed elements (Figure 2):

- Construct a new roundabout north of the existing South Entrance Fee Station (with an associated new road alignment).
- Construct a short-term pullout and bypass lanes to facilitate traffic flow at the roundabout just past the South Entrance Fee Station.
- Realign the Watchman Campground Road running southeast from the entrance roundabout and restore the old roadbed to natural conditions with native vegetation.
- Construct a new road configuration east of the new vehicular bridge (described below).
- Construct a second new roundabout to facilitate traffic flow to the large vehicle parking lot, Visitor Center parking lot, shuttle bus parking lot, and Watchman Campground.
- Add new traffic signage at the new roundabouts.
- Construct a road connection to the shuttle bus parking lot.
- Reconfigure and enlarge the large vehicle parking lot from about 1 acre to about 1.73 acres.
- Create road and trail connections to the shuttle stop area as needed.
- Grade all areas adjacent to the project area to connect to existing grades.
- Install culverts as needed.
- Demolish and revegetate sections of the existing road that are no longer needed.
- Install bioswales for natural filtration of contaminants from all new and expanded parking areas. The bioswales would be designed as vegetated, shallow, landscaped depressions that would capture, treat, and infiltrate stormwater runoff as it moves downstream from the parking areas.
- Construct trail connections to the adjacent campground as needed.
- Replace and modernize utility infrastructure where appropriate.
- Add signage, fencing, and dark sky-compliant path lighting to better define pedestrian routes.

Watchman Campground Bridge Replacement

The existing Watchman Campground Bridge across the North Fork of the Virgin River would be removed and replaced. Bridge replacement would include the following proposed elements:

- Construct a new four-lane vehicular bridge with a longer span upstream of the existing Watchman Campground Bridge.
- Remove the existing Watchman Campground Bridge and restore the river channel in the same location to a natural free-flowing condition.
- Construct a pedestrian trail underpass at the new bridge along the east side of the North Fork of the Virgin River.

The new four-lane bridge across the North Fork of the Virgin River would be designed to pass the 100-year flood, plus 2 feet added to the Base Flood Elevation of the 100-year flood event. The abutments of the new bridge would be outside the 100-year floodplain, as modeled, upon removal of the existing Watchman Campground Bridge (HDR 2023).

The existing Watchman Campground Bridge across the river would be demolished, and the section of the river channel at the existing bridge would be restored. Bridge construction and removal would follow the requirements outlined in *NPS Reference Manual 46: Wild and Scenic Rivers* (NPS 2021), specifically *NPS Reference Manual 46 Appendix I: Examples of Best Practices and Required Measures for Bridge Construction, Removal and/or Replacement*. Appendix B of this report contains additional mitigation measures for the proposed action.

Shuttle Facility

The shuttle facility improvements would include the following proposed elements (Figure 2):

- Pave the recently expanded shuttle bus parking lot.
- Realign the entrance of the administrative access road to access the bus charging parking area and ZION Shuttle Maintenance Facility.
- Expand existing employee parking to include concessioner, partner, and NPS employee parking in a single location separate from visitor parking. The employee parking lot would be expanded from about 0.22 acre (34 spaces) to about 1.30 acres (87 spaces).
- Remove existing Zion Canyon Visitor Center employee parking. A portion of this area would be part of the new entrance road, and a portion would be revegetated.
- Add an accessible route from employee parking to the Zion Canyon Visitor Center.

Access, Staging, and Construction Methods

Access for construction would be from the Zion–Mt. Carmel Highway. Access to the large vehicle parking lot, shuttle bus parking lot, and employee parking lot would be disrupted during construction activities. Construction staging areas would include existing parking lots and previously disturbed areas. The primary staging area would be the large vehicle parking lot (Figure 2). To reduce the risk of pollutants entering waterways, fuel storage and hazardous waste storage would be at least 3 feet above the regulatory floodplain elevation.

Grading would occur throughout the project area. Specifically, the new bridge would require extensive grading for installation and to connect adjacent roads and parking areas. The shuttle bus parking lot would require fill to tie into adjacent roads. Construction of the bridge and trail underpass would require placement of riprap embankment protection or other fill to protect the new bridge from scour (Figure 3). All fill, rock, or other earth materials would be obtained from the project area or nearby

areas whenever possible. Soil and fill material would be weed free and from a source approved by the NPS. Visible fill, rock, or other earth materials would be a color compatible with the surrounding landscape.

Equipment used for the road improvements would include skidsteers, graders, medium and large loaders, backhoes, trackhoes, trenchers, belly dumps, water trucks, compactors, concrete trucks, cranes, large dump trucks (material hauling), asphalt milling machines, paving machines, medium and large asphalt rollers, curbing machines, and various handheld medium and large power equipment (saws, drills, etc.). Pile-driving equipment would be used during installation of the new bridge abutments. Temporary dewatering would be necessary and is expected to consist of sandbags placed in the channel to divert water from the area where riprap would be installed (Figure 4). Dewatering work would occur when the streamflow is minimal and extreme weather conditions are not expected.

Standard workdays and times are anticipated during construction. Some weekend work may be required and would be reviewed by the park's superintendent before approval. Construction would occur only during daylight hours.



Figure 2. Proposed Action

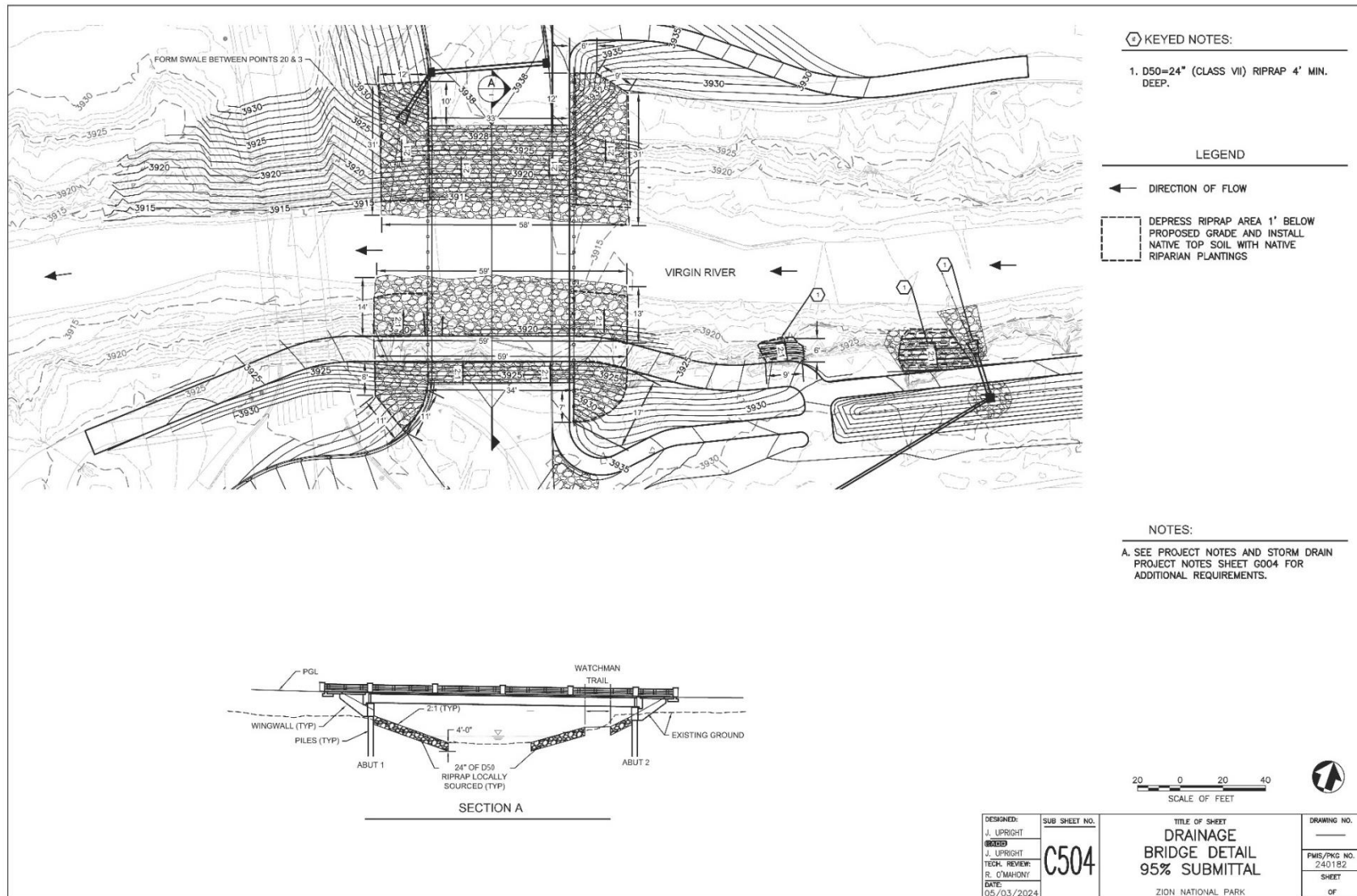


Figure 3. Riprap and Grading at New Bridge Over North Fork of the Virgin River

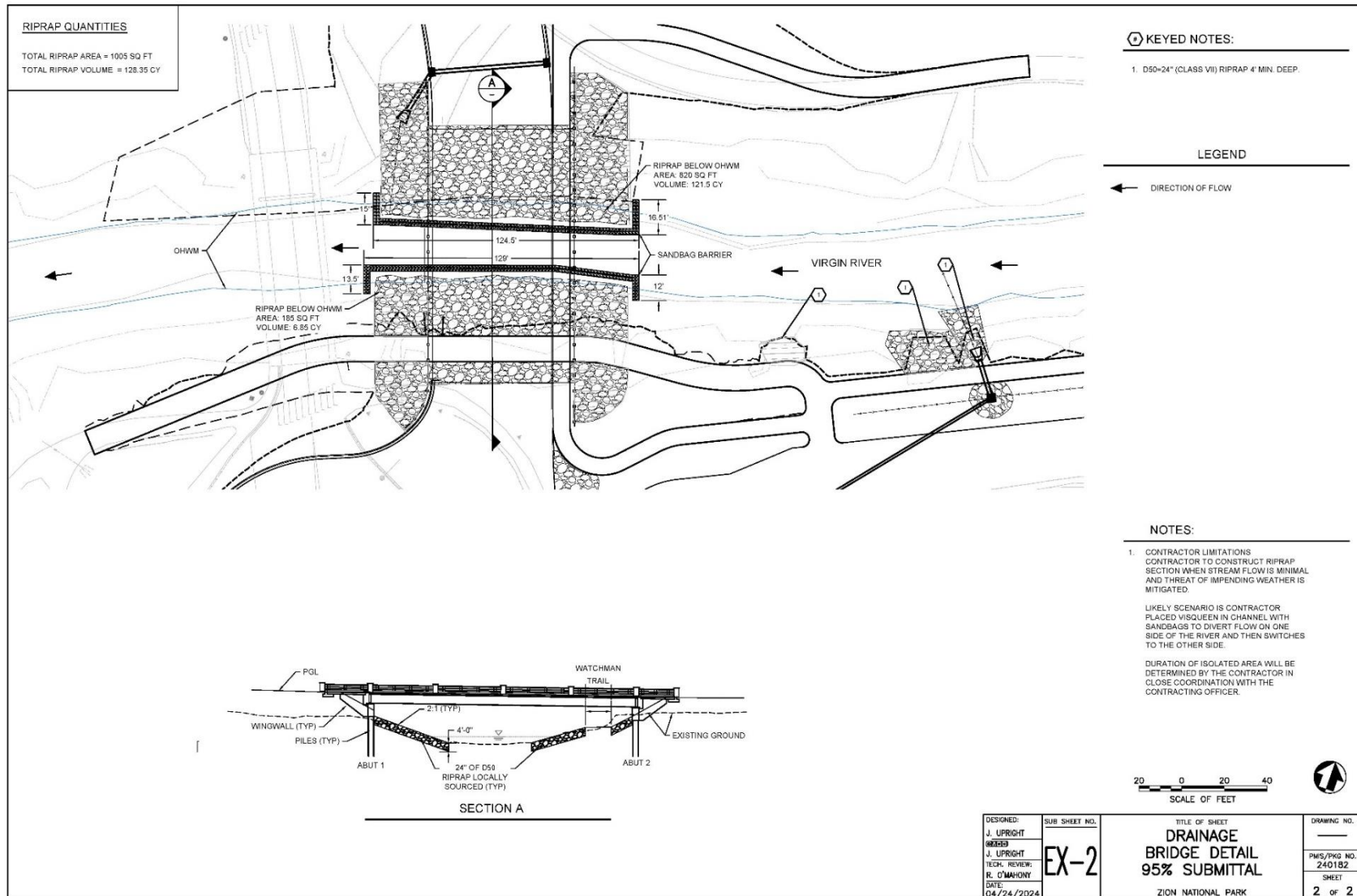


Figure 4. Potential Dewatering during New Bridge Installation

Relationship to Past and Future Management Activities

The proposed project is part of a larger effort to reconstruct and rehabilitate infrastructure at the South Entrance area of ZION. Other related ongoing or possible future management activities include rehabilitation of the South Campground, which would clarify pedestrian and vehicle circulation and improve visitor services and circulation in the campground. A culvert will be placed in Sammy's Canyon Wash, located within the corridor of the North Fork of the Virgin River below the Temple of Sinawava in an earlier phase of the South Entrance redesign project. ZION is developing a Visitor Use Management Plan which will cover the entire park and develop strategies to manage increasing peak season visitation.

Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions

This section addresses the magnitude and spatial extent of the effects the proposed activity would have on within-channel attributes, including changes in features that would affect the ORVs.

Position of the Proposed Activity Relative to the Streambed and Streambanks

The proposed activity would remove the existing Watchman Campground Bridge, and the streambed and streambanks of the North Fork of the Virgin River under the existing bridge would be restored to a free-flowing condition. The new bridge over the river would be constructed approximately 100 feet upstream from the existing bridge and would span the streambed and streambanks of the river. Impacts on within-channel conditions are described below.

Changes in Within-Channel Conditions

1. **Active channel location:** The proposed project would not alter the location of any active channel, although the short segment of the North Fork of the Virgin River under the existing Watchman Campground Bridge would be restored to natural conditions after removal of the bridge.
2. **Channel geometry (cross-sectional shape, width/depth characteristics):** The section of the river under the existing Watchman Campground Bridge would be restored to a natural cross-sectional shape and natural channel characteristics after removal of the existing bridge. The new bridge would span the active channel and would not affect cross-sectional shape or width/depth characteristics in the river.
3. **Channel slope (rate or nature of vertical drop):** The proposed project is not expected to result in notable changes in channel slope.
4. **Channel form (straight, meandering, or braided):** The proposed project would not affect channel form, except for a possible slight improvement in the channel section under the existing Watchman Campground Bridge, which would be restored after removal of the bridge.
5. **Relevant water quality parameters (turbidity, temperature, and nutrient availability):** The proposed project is not expected to affect water quality parameters such as turbidity, temperature, and nutrient availability. Temporary increases in turbidity could occur from runoff during construction; however, standard erosion control measures would be implemented to avoid and minimize sediment in runoff. The new bridge would result in shading of a short segment of the river; however, this would be mitigated by removing the existing Watchman Campground Bridge, so any resulting impacts on water temperature from shading effects is expected to be minimal. A Programmatic General Permit through the U.S. Army Corps of Engineers to satisfy permitting requirements for the placement of fill within Waters of the United States under Section 404 of the Clean Water Act and

approval through the State of Utah Engineer's office will be acquired and all mitigations will be adhered in project implementation.

6. **Navigation of the river:** The proposed project would have no effect on navigation of the Virgin River because the new bridge would span the active channel.

Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Conditions

Address the magnitude and spatial extent of the effects the proposed activity would have on riparian/floodplain attributes. Give special attention to changes in features that would affect the ORVs.

Position of the Proposed Activity Relative to the Riparian Area and Floodplain

The base floodplain in the project area was mapped in 2022 by Wood Environment and Infrastructure Solutions, Inc. (2022). The project area is partially within the base elevation for 100-year flooding. Portions of the project area are also within the 500-year floodplain. Figure 5 shows the existing 100-year and 500-year floodplain elevations in the project area.

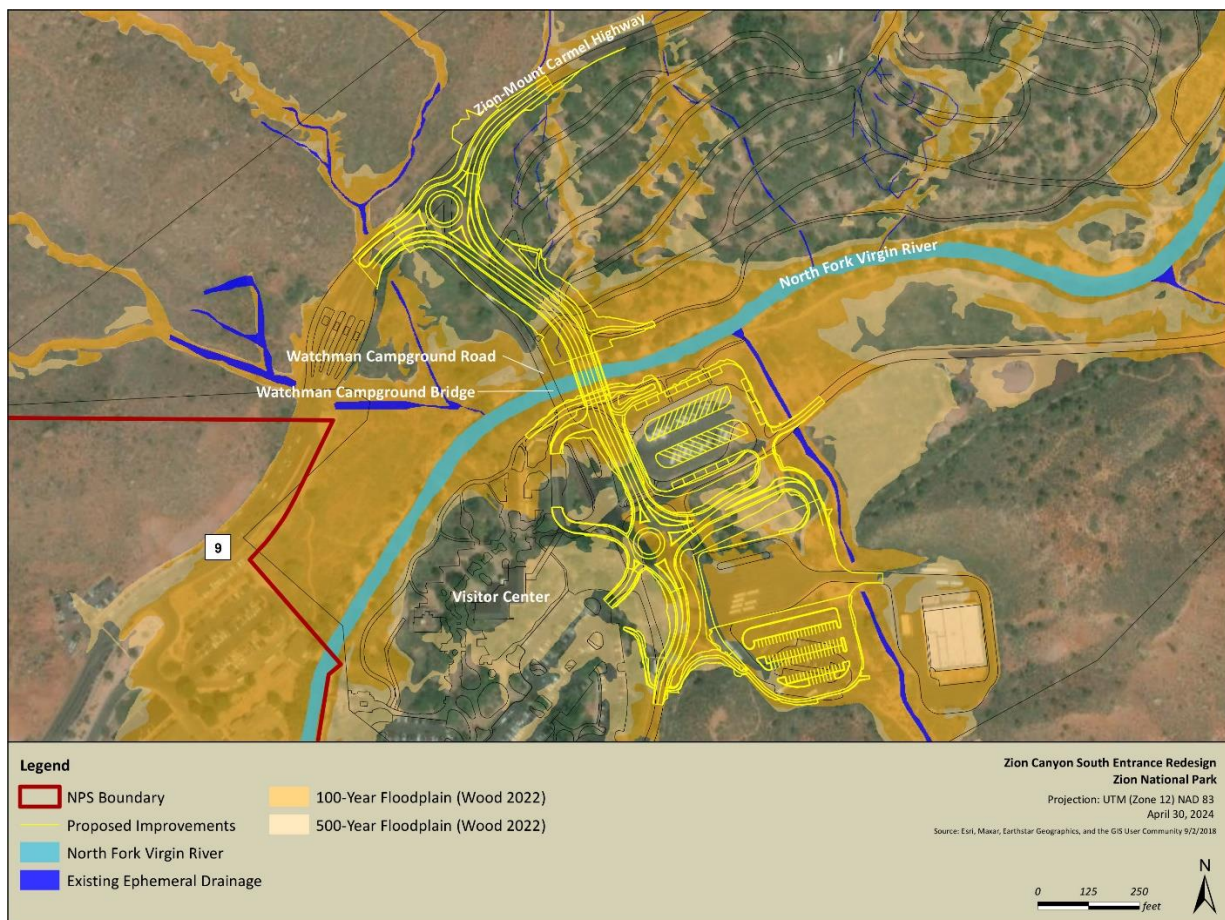


Figure 5. South Entrance Area Floodplain

The existing Watchman Campground Bridge and abutments would be removed and the river channel would be restored. The new four-lane bridge across the North Fork of the Virgin River would be designed to pass the 100-year flood, plus 2 feet added to the Base Flood Elevation (Figure 6). Since the existing bridge does not span the 100-year floodplain, the bridge causes a backwater effect to occur

increasing the flood elevation immediately upstream of the existing bridge. The abutments of the new bridge would be outside the 100-year floodplain, as modeled after removal of the existing Watchman Campground Bridge (HDR 2023). The modeled 100-year floodplain elevation at the new bridge would be 3,924.30 feet (HDR 2023) and the 100-year floodplain elevation with 2 feet added to the Base Flood Elevation would be 3,926.30 feet. The trail under the new bridge, parallel to the river, would be above the 10-year flood water surface elevation (3,920.61 feet).



Figure 6. South Entrance Area Post-Construction Modeled Floodplain

Changes in Riparian Area and Floodplain

1. **Vegetation composition, age structure, quantity, or vigor:** The proposed project would result in impacts on vegetation from clearing and grading during construction, from construction of the new roads, and from expansion of parking areas. Vegetation in the project area has been heavily disturbed by human activity. Numerous invasive, exotic, and nonnative plant species are present in the project area. The total anticipated disturbance for the proposed project would be about 11.8 acres, of which about 8 acres would be permanent and about 3.8 acres would be temporary. Revegetation would include preparing soil for revegetation, placing topsoil, and seeding with native seed.
2. **Relevant soil properties such as compaction or percent bare ground:** The total anticipated disturbance for the proposed project would be about 11.8 acres, of which about 8 acres would be permanent and about 3.8 acres would be temporary. Of the 11.8 acres of disturbance, about 8.2 acres would be in the pre-project regulatory floodplain; however, the amount of impervious surface in the floodplain would decrease from about 3.1 acres to about 0.9 acre following construction, after removing the hydraulic impact of the existing Watchman Campground Bridge. Revegetation would include placing topsoil and reseeding with native seed.
3. **Relevant floodplain properties such as width, roughness, bank stability, or susceptibility to erosion:** The new bridge would have a larger span and would be designed to pass a larger flood than the existing Watchman Campground Bridge, so no permanent adverse effects on floodplain width are expected. Roughness, bank stability, and susceptibility to erosion are not expected to be affected by the proposed project.

Describe How the Proposed Activity Will Directly Alter Upland Conditions

This section addresses the magnitude and spatial extent of the effects the proposed activity would have on upland attributes, including changes in features that would affect the ORVs.

Position of the Proposed Activity Relative to the Uplands

The project area is located almost entirely in uplands, except for the portions in the floodplain (Figure 5).

Changes in Uplands

1. **Vegetation composition, age structure, quantity, or vigor:** Vegetation impacts are described above.
2. **Relevant soil properties such as compaction or percent bare ground:** The total anticipated disturbance for the proposed project would be about 11.8 acres, of which about 8 acres would be permanent and about 3.8 acres would be temporary. Of the 8 acres of permanent disturbance, 0.9 acre would be in the floodplain and the remainder (about 7.1 acres) would be in uplands.
3. **Relevant hydrologic properties such as drainage patterns or the character of surface and subsurface flows:** Drainage properties in uplands in the project area are not expected to be adversely affected by the proposed project. Although the proposed project would increase impervious surfaces in uplands, it would incorporate drainage improvements, such as bioswales, to mitigate surface flows and to treat runoff as needed (HDR 2023).

Potential Changes in Upland Conditions That Would Influence Archaeological, Cultural, or Other Identified Significant Resource Values

The proposed action would adversely affect the existing Watchman Campground Bridge from demolition and replacement. The existing Watchman Campground Bridge is eligible for listing in the National Register of Historic Places under Criteria A and C for its association with the Mission 66 program and for embodying distinctive design characteristics under the Mission 66 program. The NPS has developed a programmatic agreement with the Utah State Historic Preservation Office to resolve effects on the South Campground. The park would continue consultation efforts to resolve the adverse effects on the existing Watchman Campground Bridge by amending the existing programmatic agreement for the South Campground. The likely treatment would be a Historic American Engineering Record. No other cultural resources would be affected by the proposed action.

Evaluate and Describe How Changes in On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes

This section evaluates potential changes in hydrologic and biologic processes by quantifying, qualifying, and/or modeling the likely effects of the proposed activity on the following attributes.

Ability of the Channel to Change Course, Reoccupy Former Segments, or Inundate Its Floodplain

The proposed project would not adversely affect the ability of the Virgin River channel to change course, reoccupy former segments, or inundate its floodplain. Replacing the existing Watchman Campground Bridge with a new bridge with a longer span would improve floodplain functions. After construction, the river's ability to reoccupy former segments and inundate its floodplain would be slightly improved. The river's ability to change course would not be affected.

Streambank Erosion Potential, Sediment Routing and Deposition, or Debris Loading

Streambank erosion would be minimized because the reach of the river affected by the Watchman Campground Bridge removal would be restored as part of the proposed project. As previously described, temporarily disturbed areas would be seeded with an appropriate native seed mix. Sediment routing and deposition would generally be unchanged and could be improved because the proposed project would include drainage improvements throughout the site to mitigate surface flows and to treat runoff as needed.

Amount or Timing of Flow in the Channel

The proposed project is not expected to affect the amount or timing of flow in the North Fork of the Virgin River.

Existing Flow Patterns

The proposed project is not expected to adversely affect existing flow patterns in the North Fork of the Virgin River. The new bridge would span the active channel and would be sized to avoid restricting flows in a 100-year flood event, with 2 feet of freeboard. Removing the existing Watchman Campground Bridge would remove an existing restriction to flow and would restore natural flow patterns during flood events.

Surface and Subsurface Flow Characteristics

No changes to surface or subsurface flow characteristics are expected from the proposed project.

Flood Storage (Detention Storage)

The proposed project would not include detention storage. Removing the existing Watchman Campground Bridge may minimally affect flood storage by allowing flood waters to pass more freely through the area.

Aggradation/Degradation of the Channel

Removing the existing Watchman Campground Bridge and constructing a new bridge that would span the active channel is not expected to affect aggradation or degradation of the Virgin River channel. Placement of embankment protection would reduce the potential for degradation of the channel.

Biological Processes

1. **Reproduction, vigor, growth, and/or succession of streamside vegetation:** The proposed project would have neutral effects on streamside vegetation overall. Some streamside vegetation would be permanently lost by construction of the new bridge; however, removal of the existing Watchman Campground Bridge and restoration of the river channel and adjacent riverbanks would offset this impact.
2. **Nutrient cycling:** The proposed project is not expected to affect nutrient cycling.
3. **Fish spawning and/or rearing success:** The proposed project is not expected to affect fish spawning or rearing success overall. Temporary increases in turbidity could occur from stormwater runoff during construction or during in-water work to restore the stream channel; however, standard erosion control measures would be implemented to avoid and minimize sediment release to the Virgin River. As previously described, the new bridge would result in shading of a short segment of the river; however, this would be mitigated by removing the existing Watchman Campground Bridge; therefore, any resulting impacts on water temperature from shading effects is expected to be minimal and neutral overall.
4. **Riparian-dependent avian species needs:** The proposed project would have neutral effects on streamside vegetation overall. Some streamside vegetation would be permanently lost by construction of the new bridge; however, removal of the existing Watchman Campground Bridge and restoration of the river channel and adjacent riverbanks would offset this impact. These changes would adversely affect riparian-dependent avian species in the short term from temporary loss of habitat and displacement due to increased noise and human activity during construction. These changes would be beneficial to riparian avian species over the long term as vegetation becomes reestablished in the restored areas.
5. **Amphibian/mollusk needs:** The proposed project is not expected to affect amphibian and mollusk habitat. Temporary increases in turbidity could occur from stormwater runoff during construction or during in-water work to restore the stream channel; however, standard erosion control measures would be implemented to avoid and minimize sediment release to the Virgin River. As previously described, the new bridge would result in shading of a short segment of the river; however, this would be mitigated by removing the existing Watchman Campground Bridge; therefore, any resulting impacts on water temperature from shading effects is expected to be minimal and neutral overall.
6. **Species composition (diversity):** The project area has been disturbed by past human activity, including the introduction of nonnative and invasive plant species, which has reduced habitat available for native plant and wildlife species. Wildlife diversity is also lower in the project area compared to surrounding areas due to ongoing human activities, noise, and vehicle traffic. Disturbed areas would be revegetated with native plant species following construction, including restoration of a short section of the Virgin River after

removal of the existing Watchman Campground Bridge. Invasive plant species would be monitored and controlled in accordance with a weed management plan. Over the long term, the proposed project would improve the diversity of native plant and wildlife species by reducing the prevalence of invasive plant species.

Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes

This section addresses potential off-site or indirect effects of the proposed activity.

Potential Off-Site Changes

1. **Changes that influence other parts of the river system:** Construction of the proposed project would involve ground-clearing activities that would expose soil surface to increased potential for erosion from wind and rain during construction. Increased erosion could lead to sedimentation in the North Fork of the Virgin River, which is immediately downstream of the project area. Off-site transport of sediment would be minimized by implementing standard best management practices (BMPs), including an erosion control plan.
2. **The range of circumstances under which off-site changes might occur (for example, as may be related to flow frequency):** Off-site sedimentation could occur following precipitation events.
3. **The likelihood that predicted changes would be realized:** Off-site sedimentation is unlikely to occur because BMPs and erosion control measures would be implemented as described above.

Processes Involved, Such as Water and Sediment, and the Movement of Nutrients

Increased erosion could lead to sedimentation in the North Fork of the Virgin River, which is within and downstream from the project area. Off-site transport of sediment would be avoided and minimized by implementing standard BMPs, including an erosion control plan.

Duration of Impacts

Riparian and/or Floodplain Conditions

As described above, adverse impacts on riparian vegetation and floodplains would occur during the construction period - approximately two years. Following construction, the disturbed areas would be revegetated with native species and would return to preconstruction conditions or better within about 2 to 5 years. Trees planted could take several decades to mature. Changes in impervious surfaces such as asphalt and concrete would be permanent.

Upland Conditions

The duration of upland impacts would be the same as described above for riparian and floodplain conditions.

Existing Hydrologic or Biologic Processes

Adverse impacts on hydrologic and biologic processes would occur during the construction period, lasting about two years. Following construction, the disturbed areas would be revegetated with native species, as previously described, and would return to preconstruction conditions or better within approximately two to five years. After construction and restoration are complete, no impacts on biologic processes are expected. Removing the existing Watchman Campground Bridge would improve natural flow conditions by restoring the natural channel and result in a permanent improvement in hydrologic conditions.

Compare Project Analyses to Management Goals

The North Fork of the Virgin River is classified as “Recreational” with Recreation, Scenic, Cultural, Fish, Geologic, and Wildlife ORVs.

Recreation

During construction, temporary adverse effects on recreation would occur from disruptions to traffic flow, temporary traffic control, and increased noise from construction equipment. After construction is complete, activities such as rafting, fishing, artistic endeavors, and camping would continue unabated along this stretch of the North Fork of the Virgin River.

Over the long term, the proposed project would benefit recreational values. Constructing new circulation patterns at the South Entrance and Visitor Center would improve the visitor experience by reducing congestion, improving traffic flow, and making it easier for visitors to navigate. Construction of the trail underpass and improved trail connections in the project area would also improve the recreational experience for visitors. Improvements to the shuttle bus system would improve the recreational experience for visitors by improving the routing of the shuttles, increasing capacity, and improving the parking for the shuttles. This would facilitate visitor access to recreational activities in Zion Canyon, such as hiking and sightseeing.

This is consistent with the recreation goal and objective contained in the 2013 CMP/EA, which states: “To protect and enhance river-related recreation, offering a diversity of appropriate recreational opportunities that allow visitors to experience the river and have a direct connection to its unique values. The recreational opportunities along the Virgin River range from the self-reliant adventure of canyoneering or hiking and backpacking through narrow river and creek channels, to enjoying photography and other artistic pursuits, to viewing scenery or camping, to opportunities to experience serenity, solitude, and general enjoyment along the river corridor” (NPS 2013).

Scenic Values

Potential short-term impacts on scenic values may occur due to proposed vegetation removal during construction. Impacts from vegetation clearing would be mitigated by implementing a revegetation plan as previously described. Long-term changes to scenic values could result from construction of the new bridge. Visual impacts from the construction of the new bridge would be mitigated by removing the existing Watchman Campground Bridge and by design features to minimize the obtrusiveness of the new bridge. The new bridge would be similar in height and scale to the existing Watchman Campground Bridge and would not be more prominent in the landscape. The color and design of the new bridge would be chosen to blend into the existing landscape and would be visually compatible with existing infrastructure as described in *NPS Reference Manual 46: Wild and Scenic Rivers* (NPS 2021).

Therefore, long-term scenic values would remain consistent with the scenic attributes described in the 2013 CMP/EA, pages 22-23, as well as the goals and objectives on page 9, specifically the following: “To establish land use and development practices; to establish clear direction on managing land uses and associated developments in the river corridors so that the protection and enhancement of river values and function, including scenery, are supported; and to strive to resolve conflict between development and river function” (NPS 2013).

Cultural Resources

NPS Reference Manual 46: Wild and Scenic Rivers (NPS 2021) recommends using the following categories when identifying cultural ORVs: archeological resources, structures, ethnographic resources, cultural landscapes, and museum objects. No archeological resources, ethnographic

resources, or museum objects would be affected by the proposed project. As previously described, the proposed action would adversely affect the existing Watchman Campground Bridge from demolition and replacement. The existing Watchman Campground Bridge is eligible for listing in the National Register of Historic Places under Criteria A and C for its association with the Mission 66 program and for embodying distinctive design characteristics under the Mission 66 program. The NPS would implement a memorandum of agreement with the State Historic Preservation Officer to mitigate the adverse effect on the Watchman Campground Bridge. The likely treatment would be a Historic American Engineering Record. No other cultural resources would be affected by the proposed action.

This is consistent with the cultural resources goal and objective contained in the 2013 CMP/EA, which states: “To protect and enhance river-related cultural resources and manage cultural resources to ensure long-term integrity. The Virgin River basin has been inhabited for thousands of years and evidence of this history, including historical and precontact sites, remains today. River-related cultural resources are cherished and preserved as important links to the human history of the river basin” (NPS 2013).

Fish

Special status fish species in the project area include the Virgin spinedace, flannelmouth sucker, desert sucker, and speckled dace. Ground disturbance from construction and staging activities in the Virgin River drainage would expose soils to erosion, which could result in increased sedimentation and turbidity in the Virgin River. Potential short-term impacts on fish values may include minor sedimentation due to construction. However, BMPs would be used to minimize runoff and sediment discharges into the river. Therefore, there would be no long-term impacts on fish values, including habitat for the four native species, Virgin spinedace, flannelmouth sucker, desert sucker, and speckled dace.

Geological Values

Geological values would not be affected by the proposed activities because no short- or long-term disturbance would occur to upland and off-site unique geologic landforms such as Navajo sandstone, canyons, and cliffs. This is consistent with relevant goals and objectives contained in the 2013 CMP/EA, specifically: “To protect and enhance free flow and water quantity, promoting the river’s ability to shape the geologic landscape by reducing impediments to free flow, improving hydrological function, and ensuring flows that are largely natural” (NPS 2013).

Wildlife

Potential effects on wildlife during construction could include increased noise from construction activities, which could result in changes in normal foraging behavior or displacement outside the project area. These effects could adversely affect localized populations in the project area. Impacts on wildlife could also occur from destruction of habitat during construction. Removal of vegetation and ground disturbance in the project area would degrade the quality of foraging habitat. The proposed project would result in removal of about 11.8 acres of vegetation, of which about 8 acres would be permanent and about 3.8 acres would be temporary. Most vegetation impacts would be reestablished following construction; thus, habitat loss for these species would recover over time. Given the temporary nature of construction impacts and the availability of extensive habitat nearby, the proposed project is not expected to have measurable adverse effects on wildlife over the long term. Work during the summer migratory bird breeding season (from March 1 to September 15 for most species) could disrupt breeding activities by increased noise and human activities; however, the project area is heavily used by visitors from spring through fall, and any breeding birds in the project area are likely acclimated to some human disturbance. Tree removal activities would occur during the fall months (October and November) to avoid impacts on breeding birds and roosting bats.

The project area is in critical habitat for Mexican spotted owl (MSO), a species listed as threatened under the Endangered Species Act. The NPS prepared a biological assessment (BA) for the proposed project, which was submitted to the U.S. Fish and Wildlife Service on April 11, 2023, as part of formal consultation under the Endangered Species Act (NPS 2023). The BA concluded that the proposed project is *likely to adversely affect* MSO and *may affect, but is not likely to adversely affect*, MSO critical habitat. No suitable nesting habitat for the MSO is present in the project area; therefore, nesting MSOs would not be directly affected by the proposed project. No protected activity centers for MSO are located near the project area; however, it is possible that a MSO could roost or forage in the project area before or during construction. If this were to happen, it is possible a MSO could be displaced from the project area by the increased noise and human activity resulting from construction. These effects would last only during construction. Project activities could cause MSOs to avoid the immediate project area during periods of active construction. The U.S. Fish and Wildlife Service concurred with the findings of the BA in a Biological Opinion dated August 8, 2023 (U.S. Fish and Wildlife Service 2023).

Overall, the proposed project would have minor impacts on wildlife during construction and may benefit wildlife over the long term due to post-construction revegetation efforts with native vegetation, which may improve habitat for native wildlife species such as MSO. This is consistent with relevant goals and objectives contained in the 2013 CMP/EA for fish and wildlife, which states: “To protect and enhance river-related natural resources and ecological processes. The natural function of riparian areas, wetlands, and floodplains of the Virgin River and its tributaries would be maintained and restored; restoration activities would strive to return habitat to natural levels of complexity and diversity; water quality would be maintained at the highest possible levels; and achievement of this goal would benefit fish, wildlife, ecological processes, geologic values, and recreation” (NPS 2013).

DETERMINATION

Pursuant to Section 7(a) of the Wild and Scenic Rivers Act, the NPS has determined, on behalf of the Secretary of the Interior, that this project will not have a direct and adverse effect on the free-flowing character, water quality, or Cultural, Geologic, Recreational, Scenic, and Fish Outstandingly Remarkable Values of the North Fork of the Virgin River below the Temple of Sinawava section of the Virgin River Wild and Scenic River.

References

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Appendix A: Outstandingly Remarkable Values Matrix

TABLE 2. OUTSTANDINGLY REMARKABLE VALUES MATRIX

River Segment Main Segment or Tributary Segment	ORV Category						
	Cultural	Geologic	Recreational	Scenic	Ecological Processes	Wildlife	Fish
North Fork Virgin River above Temple (wild)		*	*	*	*	*	*
Kolob /Oak Creek (BLM) (wild)		*					
Goose Creek (wild)		*				*	
Imlay Canyon (wild)		*	*			*	
Orderville Canyon (wild)		*	*	*	*	*	
Deep Creek (wild)		*	*	*			*
Mystery Canyon (wild)		*	*	*			
North Fork Virgin River below Temple (recreational)	*	*	*	*			*
Birch Creek (wild)		*		*			
Pine Creek (wild and recreational)		*	*	*		*	
Oak Creek (wild and recreational)				*		*	
Heaps Canyon (wild)		*				*	
Behunin Canyon (wild)		*				*	
Echo Canyon (wild)		*				*	
Clear Creek (recreational)		*					
East Fork Virgin River (wild)	*	*			*	*	*
Shunes Creek (wild)					*		*
North Creek (wild)		*	*	*			*
Wildcat Canyon / Blue Creek (wild)						*	
Right Fork North Creek (wild)		*		*		*	
Left Fork North Creek (wild)		*	*	*		*	
Grapevine Wash (scenic)							
Wolf Springs Wash (scenic)							
Pine Springs Wash (scenic)							
Little Creek (wild)		*					
Russell Gulch (wild)		*		*		*	
La Verkin Creek (wild)		*	*			*	
Willis Creek (wild)		*				*	
Beartrap Canyon (wild)		*				*	
Timber Creek (wild)		*					
Current Creek (wild)		*				*	
Cane Creek (wild)		*					
Hop Valley Creek (wild)		*					
Smith Creek - BLM (wild)		*					
Taylor Creek (scenic)		*		*			
North Fork Taylor Creek (wild)		*		*			
Middle Fork Taylor Creek (wild)		*		*			
South Fork Taylor Creek (wild)		*		*		*	

Source: Outstandingly Remarkable Values, Virgin Wild and Scenic River (Zion National Park and and BLM St. George Field Office) (see appendix B for the more detailed report)

Appendix B. Preliminary Mitigation Measures

The following preliminary mitigation measures will minimize the degree and/or extent of adverse impacts and will be implemented during implementation of the project.

Air Quality

- ☐ All haul loads will be secured and/or covered within NPS boundaries and in accordance with state regulations.
- ☐ Equipment and/or vehicles will not be allowed to idle longer than three minutes when not in use.

Archeology and Historic Preservation

- ☐ Archeological monitoring is required. The project manager will contact the ZION cultural program manager at least two weeks in advance to schedule monitoring activities.
- ☐ Building and site design will be as compatible as practical with the historic architectural characteristics and incorporate similar architectural features, materials, surface finishes, and color.
- ☐ Prehistoric/historic resources near the project area will be identified for avoidance prior to the implementation of construction activities. Staging areas will be restricted to ensure no fill or materials disturb known prehistoric/historic resources. Site selection will be coordinated with the ZION cultural program manager prior to construction.
- ☐ Construction staging areas will be restricted to ensure no fill or materials disturb known prehistoric/historic resources. Site selection will be coordinated with the ZION cultural program manager prior to construction.
- ☐ If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity (600 feet) of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
- ☐ In the event of the discovery of human remains, all work on the project must stop and the ZION archeologist must be contacted immediately. As required by law, the coroner will be notified first. All provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- ☐ All workers will be informed of the criminal penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers will also be informed of the correct procedures should previously unknown resources be uncovered during construction activities.

Human Health and Safety

- ☐ In developed areas, the presence of underground utilities must be determined and flagged prior to excavation using heavy machinery, handheld tools, or equipment.
- ☐ Before any remodel, renovation, demolition, or abatement activity, the proper hazard material testing shall be conducted. For asbestos, an assessment and inspection written report, by a state certified inspector, will need to be conducted to determine the presence, location, and quantity of asbestos-containing material in and adjacent to the work area at all buildings

managed by the NPS. Where there is a possibility of disturbing lead, the presence of existing lead must be determined prior to the undertaking. The report findings shall be submitted to the ZION safety manager.

☐ Contractors shall submit a site-specific safety plan to the NPS contracting officer. The site-specific safety plan will be shared with the ZION safety manager. Within two weeks, the ZION safety manager will accept or reject the plan (with feedback). The site-specific safety plan shall demonstrate compliance with Occupational Safety and Health Administration and other applicable laws and include an emergency response plan.

☐ Traffic management shall be planned prior to project implementation to address the location of warning signs, type of signs, placement of flaggers, placement of cones/fencing, barricades, duration of anticipated delays, use of pilot cars, etc. This plan shall address vehicular and pedestrian traffic in the construction zone.

☐ Contractors and/or NPS staff to include volunteers, interns, etc. shall follow all park safety and health policies and programs. A hierarchy of hazard control shall be implemented. Personal protective equipment is required. Hard hats, safety vests, eye protection, and other personal protective gear, as needed, shall be worn at all times in the construction zone.

☐ Any safety violations shall be corrected immediately. If the violation is not corrected immediately, the project shall be postponed until such corrections are made.

☐ Dust containment, in accordance with NPS, state, and local regulations, shall be achieved. This shall include, but is not limited to, physical barrier containment and/or water sprinkling dust controls.

☐ The construction zone shall be clearly marked. Fencing or other types of NPS-approved temporary barriers shall be installed. Closures and temporary safety fencing will be required to keep visitors out of construction and staging areas.

☐ Spill containment kits and fire extinguishers shall be available on-site at all times.

☐ Copies of Safety Data Sheets shall be available on-site at all times.

Museum Collections and Archives

☐ All official and nonofficial records created from this project (textual, electronic, audiovisual, or visual) shall be accessioned and cataloged in ZION's archives collection. Coordinate with the ZION curator to close out the project and submit project deliverables to the archives. Refer to PRF Section 6 or Planning, Environment, and Public Comment (PEPC) #8 Close Project.

Paleontological Resources

☐ All workers will be informed of the potential to encounter paleontological resources in the project area, which may be in the form of body fossils, tracks, and burrows, and to remain vigilant for these resources during construction. If paleontological resources are encountered, work will stop, and findings will be reported to the ZION physical scientist.

Park Communications and Compliance

☐ The ZION environmental protection specialist shall be notified of the beginning and ending dates of the project. The notification shall also include any unexpected problems or any modifications to project implementation. Any decisions made in the field that result in greater impacts than anticipated by the proposed action must undergo additional environmental analysis.

☐ The ZION environmental protection specialist shall be updated as project milestones are met including documents related to design development and construction. All documents

related to site visits/field notes, meeting notes and/or agendas, design and/or construction schedules, signed project agreements, approved plan sheets, and/or concept designs/As-Builts shall be forwarded to the ZION environmental protection specialist. Refer to PRF Section 6 or PEPC #8 Close Project.

Night Sky and Soundscape

- ☐ Actions must comply with the Zion National Park Lighting Management Plan.
- ☐ The hours of outdoor construction will be limited to hours between sunrise and sunset; no artificial lighting will be allowed.
- ☐ The hours of operation of motorized equipment will be limited to 9:00 a.m. to 5:00 p.m. to protect dawn, dusk, and nighttime quiet.
- ☐ All motor vehicles and equipment will have mufflers conforming to original manufacturers' specification that are in good working order and are in constant operation to prevent excessive or unusual noise.

Soils, Geology, and Hydrology

- ☐ The project area is located in the 100-year or 500-year floodplain or in an area susceptible to geologic hazards. Precipitation may increase the risk of geologic hazards. In the event of flooding or other geologic hazards, NPS staff and contractors will be prepared to move personnel and equipment out of the hazard area immediately.
- ☐ Actions occurring in a floodplain, wetland, or area greater than 1 acre shall include erosion-control measures during project planning. This erosion plan shall be reviewed by ZION and approved by the appropriate federal, state, and local review authorities as required. More information on the occurrence of floodplains is located at <https://msc.fema.gov/portal/home>.
- ☐ To minimize the amount of ground disturbance, staging and stockpiling areas shall be located in previously disturbed sites, away from visitor use areas to the greatest extent possible. All staging and stockpiling areas shall be returned to preconstruction conditions following construction.
- ☐ All fill, rock, or other earth materials will be obtained from the project area or nearby areas, whenever possible. Soil and fill material must be weed-free and from a source approved by the NPS. Visible fill, rock, or other earth materials will be of a compatible color to the surrounding landscape.
- ☐ Recontouring of disturbed soils to complement the surrounding landscape is required following the completion of construction.

Heavy Equipment Use

- ☐ Use of heavy equipment where soils are wet or extensive compaction could occur shall be avoided.
- ☐ The visible limit of disturbance shall be clearly marked using stakes, flagging, or fencing; and all demarcations must be removed and disposed of properly upon the completion of construction.
- ☐ Surface soils that have been compacted shall be scarified to slow runoff and promote revegetation.
- ☐ All equipment working in a waterway such as a river or tributary shall be cleaned, inspected, and cleared of aquatic invasive species prior to entry on the work site. In-water work may NOT occur annually from April 1 to July 31 to protect sensitive fish species. Supplemental guidance is located in the Utah Aquatic Invasive Species Management Plan and the Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations.

- ☐ Wildlife-friendly erosion-control products and methods shall be used. These may include, but are not limited to, silt fencing, filter fabric, excelsior or fumigated straw filter logs, temporary sediment ponds, check dams of pea-gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas.
- ☐ In order to prevent import of nonnative plants, straw bales or nonfumigated products shall not be permitted. Silt protection structures must be inspected and cleaned out regularly.
- ☐ All erosion- and sediment-control devices shall be adequately maintained to assure continued performance of their intended function. Those that have sustained damage or have reached their capability shall be replaced or have maintenance performed.
- ☐ All irrigation and utility lines will be installed according to applicable laws and regulations, especially regarding the proper depth of the lines in the soil column. The project manager shall oversee or inspect this work in time to allow for corrections prior to burial of the lines. Damage to existing lines during construction will be reported or repaired the same day.
- ☐ Trash and construction waste, including rubble, concrete, asphalt, broken irrigation pipe, etc., will not be left on-site or buried but will be removed and disposed of in an approved manner.

Vegetation

- ☐ The project manager will contact the ZION vegetation program manager at least two weeks in advance to notify ZION of pending actions and the potential for vegetation salvage. If irrigation systems will be shut down during construction, the vegetation program manager or nursery manager will be notified at least one week prior. If existing irrigation systems are damaged and cannot be repaired the same day, the vegetation program manager will be notified within 24 hours to minimize loss of vegetation.
- ☐ All vehicles, equipment, and tools shall be cleaned completely prior to entering the work zone to prevent the spreading of nonnative and invasive plant seeds. Daily inspections will occur to identify and prevent any fluids from leaking.
- ☐ To avoid introduction of nonnative, invasive plant species into ZION, only certified seed-free materials will be used during construction.
- ☐ Construction activities shall be restricted during saturated soil conditions or severe weather conditions to avoid damage to soils and vegetation.
- ☐ Vehicle and equipment operations will be limited to paved areas whenever possible. All vehicles will use the same entry, egress, and turnaround areas. Travel corridors will be delineated prior to construction.
- ☐ Wherever possible, vehicles and equipment will not be driven within the drip lines of trees and shrubs to minimize soil compaction in the main root zones.
- ☐ The number of vehicles and frequency of equipment accessing the project area will be restricted to the minimum amount required to successfully complete operations.
- ☐ Wherever possible, construction activities, including irrigation and utility line installation, will be planned to avoid damaging tree roots. Supplemental guidance may be found at Construction damage causes and remedies - Tree Planting and Care | Minnesota DNR (state.mn.us).
- ☐ Recontouring and soil decompaction of disturbed areas will take place immediately following construction such that the project area is readied for revegetation efforts. Weed control will be implemented to minimize the introduction of noxious weeds.
- ☐ All disturbed ground shall be reclaimed using appropriate BMPs, which may include planting or seeding with native vegetation or, in the case of small treatment areas, allowing

native vegetation to reclaim the area naturally. The ZION project leader shall consult with the vegetation branch to determine the best methods for restoration.

☐ Revegetation, when implemented, shall use salvaged plants, seeds, or propagules from native species (genetic stocks originating in the project area) to the maximum extent feasible. Any revegetation plantings will strive to reconstruct the natural spacing, abundance, and diversity of native plant species.

Wildlife

☐ The ZION project manager will contact the ZION wildlife program manager at least two weeks in advance to schedule monitoring activities.

☐ Care shall be taken not to disturb any wildlife species (reptiles, migratory birds, raptors, or bats) found nesting, hibernating, estivating, or otherwise living in, or immediately nearby, worksites.

☐ For any actions involving trenching or digging holes, provisions (generally in the form of ramps with a slope less than 45°) will be made every 20 to 50 feet to allow for the escape of animals that may fall into these recesses, or they will be covered in such a way as to prevent animals (vertebrates) from falling in them.

☐ All gate posts, ground pipes, and bollards will be permanently capped to negate wildlife entrapment.

☐ If erosion-control material is used (wattles/fiber rolls, blankets/matting/netting), the materials must be made of 100 percent biodegradable and natural materials (e.g., jute) with large-diameter netting to prevent entrapment of wildlife. Wildlife-friendly erosion-control products and methods shall be used.

☐ Resource management personnel shall be notified/consulted when any wildlife must be disturbed or handled. They will be available to assist with moving/relocating snakes or any other wildlife, when necessary, or to make recommendations for relocating any disturbed animals.

☐ Migratory bird nests shall not be damaged by timing the project outside of the annual nesting period from March 1 to September 15. If this is not possible, visual inspections of vegetation marked for removal are required. The ZION wildlife program manager shall be contacted to schedule inspections as needed.

☐ If a condor occurs at the project area, construction will cease until it leaves on its own or until techniques are employed by permitted personnel that result in the individual condor leaving the area. Prior to any helicopter operation, the ZION wildlife program manager will be contacted to ensure condors are not in the vicinity of the project area.

☐ Compliance with food storage and waste disposal will be achieved at all times. The project area will be cleaned up at the end of each work period (daily) to reduce the attraction of wildlife.

☐ If euthanasia of wildlife in ZION must occur, lead ammunition and toxins that may impact scavengers such as California condor will not be used.

☐ Components of the proposed action within a Mexican spotted owl (MSO) Protected Activity Center (PAC) or within 0.5 mile of a core area will be planned outside of the MSO breeding season, which is March through August, and will occur only during daylight hours (when MSO are not foraging).

☐ If a MSO is identified in the project area during construction, the project area will be resurveyed daily until the MSO is confirmed to have left the area.

- ☐ MSO PACs will continue to be monitored at a minimum once every three years for occupancy and productivity to help track and gauge potential impacts from visitor use.
- ☐ Clearing and grubbing activities will occur only during November through February. This is to avoid the migratory bird season from March 1 to September 15 and the monarch butterfly active season from April through October.
- ☐ Tree removal will occur only in October and November to protect nesting migratory birds and roosting bats.
- ☐ Larger dead/dying trees that are not a hazard to humans or property will be preserved either fully or partially intact (i.e., left standing dead or topped/trimmed and left standing) to provide habitat for wildlife. Larger logs/woody debris (~35 trunks with >24" DBH) will be left on the ground on-site to provide habitat for rodents, reptiles, and insects.
- ☐ If a tortoise occurs in the project area, construction work will immediately cease, and the park wildlife biologist will be contacted immediately to move the individual from the site.
- ☐ From April to October, construction personnel will be briefed to check underneath vehicles for tortoises before driving the vehicle.
- ☐ Native seed mixes (approved by the NPS) used during revegetation efforts will include flowering plants, and milkweed at the biologists' discretion.

Appendix F:

Comments and Responses

Appendix F: Response to Public Comment

The National Park Service (NPS) prepared an Environmental Assessment (EA) for the Zion Canyon South Entrance Redesign Project (project) at Zion National Park (ZION or park) in compliance with the National Environmental Policy Act (NEPA). The EA was open for public comment on the Planning, Environment, and Public Comment (PEPC) website from March 12, 2024 through April 10, 2024. The NPS received 62 correspondences.

The NPS considers all comments that are received during the comment period, and the standard NPS practice is to summarize and respond to substantive comments submitted during the public review period of the EA. Substantive comments question, with reasonable basis, the accuracy of the information in the NEPA document or the adequacy of the environmental analysis, or present reasonable alternatives other than those described in the EA. Comments that merely support or oppose a proposal or that merely agree or disagree with NPS policy are not considered substantive. This appendix includes concern statements, which summarize similar comments received during public review of the EA that are substantive or otherwise warranted a response. It also includes responses to those concern statements.

Concern Statement:

A clearly defined route should be provided for bicycles from the pedestrian entrance to the Pa'rus Trail. A trail for bicycles and pedestrians, separated from vehicle traffic, is needed to connect the Watchman Campground to the Pa'rus Trail.

NPS Response:

The current route for pedestrians and cyclists to access the South Entrance Area from Springdale starts from Zion Canyon Village, outside the park. From Zion Canyon Village, pedestrians and cyclists use the footbridge to cross the Virgin River to access the pedestrian entrance of the park. After passing the pedestrian entrance, cyclists may continue to the left along a river-side path to avoid the Visitor Center plaza area. Currently, the path intersects the Watchman Campground Road on the east side of the existing Watchman Campground Bridge. Cyclists cross the Watchman Campground Bridge, then cross the Watchman Campground Road to access the Pa'rus Trail. Once the project is complete, cyclists and pedestrians will use the existing path from the pedestrian entrance around the Visitor Center plaza. Before cyclists reach the Watchman Campground Road, the new path will proceed to the underpass below the new bridge. The path will then loop around to meet the elevation of the new bridge, and cyclists will cross the bridge on the sidewalk and connect to the Pa'rus Trail on the west side of the Virgin River.

Currently, cyclists travel along the road from the Watchman Campground to the Pa'rus Trail. During construction activities, cyclists will be re-routed towards the pedestrian entrance to the existing path along the river, which avoids the Visitor Center plaza area. Pedestrians will be re-routed towards the Visitor Center plaza area using existing crosswalks. Following the

improvements proposed in this project, a future project could provide a more robust trail connection for cyclists staying at the Watchman Campground to the existing river-side path in the Visitor Center area so that all cyclists will use the underpass below the new bridge to connect with the Pa'rus Trail.

Concern Statement:

The project will not address congestion at the South Entrance Area; the park should add timed entry, set limits on visitor numbers, require reservations, increase the entrance fee, or implement other limits on visitors.

NPS Response:

The actions proposed by the commenter are outside the scope of the EA for current project to redesign the Zion Canyon South Entrance Area. ZION has initiated a separate, extensive planning effort, collectively referred to as the Visitor Use Management (VUM) Plan, to improve visitor access and experiences, protect park resources, and promote visitor and staff safety. Specific measures to manage visitor use and address impacts to experiences will be addressed in the VUM Plan. The public will be given an opportunity to provide comments on this plan when a draft is released.

During project construction, there may be interruptions to visitor access. ZION may implement temporary measures such as using flaggers or changes to circulation patterns, to proactively manage the timing and routing of traffic to reduce congestion and delays associated with construction. To mitigate the effects on visitors, ZION will develop a communications plan to inform the public and help them make alternate plans.

Concern Statement:

There is inadequate visitor parking at the South Entrance Area; the park should add more parking. The proposed expanded parking for large vehicles and employees could also be used as overflow parking or otherwise used to increase visitor parking for standard-sized personal vehicles.

NPS Response:

The purpose of the proposed Zion Canyon South Entrance Redesign (project) is to improve road circulation and safety for vehicular, bicycle, and pedestrian traffic on roads and trails in the Project Area; create pedestrian and bicycle connections and intuitive wayfinding; and modernize ZION facilities and utility infrastructure to support current and future visitation levels. Therefore, increasing visitor parking for standard-sized visitor vehicles does not address the purpose and need for the project and is outside the scope of the EA.

Reconfiguring and enlarging the large vehicle parking lot addresses the modernization of facilities to support the safe circulation of large vehicles, and converting this to standard-sized vehicle parking would not meet the purpose and need.

However, the project includes expanded parking for employees and redesign of the large vehicle parking area at the South Entrance, as explained in the EA (pages 6 -11). Employees working at the Visitor Center currently park in designated spaces within the visitor lot. By expanding employee parking within the shuttle facility area, the designated spaces within the visitor lot could be reallocated to visitor parking.

Concern Statement:

The South Entrance Area should have a designated hiker and cyclist campsite that does not require advanced reservation.

NPS Response:

Creation of a new hiker and cyclist campsite at the South Entrance Area is not within the scope of the current project. The purpose of the project is to improve road circulation and safety for vehicular, bicycle, and pedestrian traffic on roads and trails in the Project Area; create pedestrian and bicycle connections and intuitive wayfinding; and modernize ZION facilities and utility infrastructure to support current and future visitation levels. Camping at the South Entrance Area is only allowed within designated campgrounds: South Campground and Watchman Campground. The scope of the project does not include alterations to sites in either campground because it does not meet the purpose and need of the road circulation and safety project.

Concern Statement:

A dedicated lane should be added at the South Entrance Fee Station for visitors who already have a pass, which would reduce wait times and frustration at the entrance.

NPS Response:

The addition of a dedicated lane for passholders at the South Entrance Fee Station is not within the scope of the current project. The purpose of the current project is to improve road circulation and safety for vehicular, bicycle, and pedestrian traffic on roads and trails in the Project Area; create pedestrian and bicycle connections and intuitive wayfinding; and modernize ZION facilities and utility infrastructure to support current and future visitation levels. The scope of the project does not include modifications to operations at the fee station because it would not address the purpose and need of the current project.

ZION prepared an Environmental Assessment for the South Entrance Fee Station Reconfiguration in 2018. The objectives of the 2018 South Entrance Fee Station Reconfiguration included reducing park entry wait time for vehicular traffic and reducing localized vehicle congestion. That project expanded the number of regular entrance lanes from two to three to reduce wait times at the entrance. It also added a combined express/employee lane to serve as an employee lane during off-peak hours, and to serve as an express lane for pre-paid vehicles during days with peak visitation. The 2018 EA considered a lane configuration with a dedicated express lane in addition to the employee lane. This alternative was dismissed from detailed

analysis in the 2018 EA because it did not meet the purpose and need to reduce overall wait times and reduce congestion. While a dedicated express lane would reduce wait times for eligible users or those holding previously purchased entry credentials, it would not reduce overall wait times. The result of moving many of the fastest transactions away from the other lanes is that the remaining lanes have a high proportion of slow transactions, and average wait times and congestion would not change overall.