



National Park Service
U.S. Department of the Interior
Chickasaw National Recreation Area
Oklahoma

Finding of No Significant Impact

Construct a Bridge, Trails, and Parking Improvements

Background

In compliance with NEPA, the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine various alternatives and environmental impacts associated with the proposal to construct a bridge, three visitor trails, and improved parking in the Cat's Eye Road area at Chickasaw National Recreation Area (Chickasaw NRA). The purpose for taking action is to enhance the physical and cultural connection between the Chickasaw Cultural Center and Chickasaw NRA and to provide additional visitor opportunities in this area. Currently, there is no safe or convenient access between Chickasaw Cultural Center and Chickasaw NRA, and visitor opportunities in this area of the park are few. This project will promote increased access to between these two entities, as well as develop new visitor trails and improve parking in this area.

Selected Action

Alternative B, New Bridge, Three New Trails, Improved Parking is NPS's preferred alternative and selected action because it best meets the purpose and need for the project as well as the project objectives to 1) provide safe and convenient access between the Chickasaw Cultural Center and Chickasaw NRA; 2) enhance and improve visitor opportunities in the project area; 3) improve parking and visitor safety in the Cat's Eye Road area; and 4) identify sustainable designs that minimize impacts to park resources in accordance with NPS regulations and policies and is consistent with Chickasaw Nation regulations and policies. Following is a summary of the selected action. Details regarding this action can be found in the EA.

Under Alternative B, the new bridge will cross over Rock Creek, just slightly north of the Cat's Eye Road cul-de-sac, at the southeast corner of the Chickasaw Cultural Center property. The bridge will be situated entirely on NPS property.

Three new trails will be constructed that provide linkages to create a more continuous trail network within Chickasaw NRA and greater access to the bridge that crosses over to the Chickasaw Cultural Center. The total length of these three trails is approximately 2,647 feet. NPS is not required to promulgate Special Regulations (NPS Bike Rule, 36 CFR 4.30) to authorize use of these trails by bicyclists because these trails are within a developed area of the park designated "Recreation". Use of these trails and the bridge is for pedestrians and bicyclists, not motor vehicles or horses.

In addition, parking improvements will include approximately 5-8 new paved parking spaces added to the Cat's Eye Road cul-de-sac including one delineated handicap parking space. These new parking spaces will be for single-family vehicles, not for recreational vehicles or trailers.

Best Management Practices

The following best management practices will be implemented to minimize the degree and/or severity of adverse effects:

Floodplains and Water Resources

- Best management practices will be implemented to ensure no pollutants enter Rock Creek as a result of the project.
- Only biodegradable, vegetable-based hydraulic fluid will be used in excavators that may reach into Rock Creek.
- All fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water.
- To minimize possible petrochemical leaks from construction equipment, the contractor will regularly monitor and check construction equipment to identify and repair any leaks.
- A fuel/lubricant spill absorption kit will be in place to address potential land and water spills and leaks.
- Stormwater runoff control measures, including silt capture techniques such as silt fences will be employed to improve quality of runoff and prevent degradation of the stream.
- Design and construction measures will include development of surface water control features to minimize post-construction run-off.
- Equipment will not be allowed to operate within the stream. If any pumping of water is required, it will be discharged to an upland site.
- Fuel and oil services for construction machinery will be provided in a designated area away from Rock Creek when feasible. This will include secondary containment for all fuel storage tanks and on-site availability of a spill kit.
- Sediment curtains will be used when needed to contain sediment to the immediate work zone.
- Design will be completed in such a way as to leave the creek bank and channel in its present configuration with no change. The bridge span will be sufficiently long to reduce floodplain impacts.
- In-water work will be completed during low flow periods and equipment will not be operated (driven) below the water surface elevation, but will need to reach into the water.
- Staging and stockpiling areas will be situated outside of the floodplain.
- Based on NPS guidelines, no mitigation is required for extreme or dam-break flood events. However, preparation for such disasters should be considered due to the risk of human life. To reduce the severity of impact from severe flood events, Chickasaw NRA and the Chickasaw Cultural Center will communicate immediately.

Wildlife

- Construction personnel will be orientated on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage and other attractants.
- The bridge site and staging areas will be monitored throughout the duration of the project.

- Construction vehicles with heavy loads within the park boundary at night will be limited to speeds 10 mph below the posted speed limit to avoid collisions with wildlife, and/or will be escorted through the park.

American Burying Beetle

The American Burying Beetle was not found in the project area during surveys in June and August 2014; however, if needed, the following mitigation measures will be implemented:

- To decrease habitat loss, clearing of temporary work areas will be minimized and small equipment or hand cutting techniques will be used that leave the root zone intact. In general, using hand cutting techniques is likely to result in a smaller area of impact and reduce soil compaction relative to heavy equipment.
- Construction requiring artificial lighting will be minimized. In situations where night construction work is necessary, direct light to the work area will be shielded and light will be prevented from projecting upwards, thus minimizing the potential to attract insects, including American Burying Beetle.
- In areas where American Burying Beetles are present (determined by valid surveys) or where American Burying Beetle presence is assumed (when no American Burying Beetle surveys were completed), surface soils will be returned to approximate pre-construction conditions.
- Areas in native range will be restored using approved native seed mixes developed for the applicable ecozone.
- Prior to the topsoil replacement, the impacted area will be ripped (i.e., mechanically turn soil with a plow or ripping device). Rip and disk will occur at a time when the soil is dry enough for normal tillage operations to occur on undisturbed farmlands adjacent to the areas to be ripped. This soil de-compaction treatment should be beneficial to the American Burying Beetle by reducing the extent of soil compaction.
- All workers operating in the project area will be educated about American Burying Beetle habitat, biology, reasons for American Burying Beetle decline, and the responsibility of all workers to protect the American Burying Beetle. All workers will be required to report any American Burying Beetle sightings to the project manager or environmental inspector, remove all food wastes from the area each day, and prohibit dogs or cats on the area. Each worker will be provided with a full color Endangered Species Card with a picture of the American Burying Beetle and all information summarized on the card before they are allowed to conduct soil disturbing activities. Signs will be posted at all access points to the project area highlighting the areas as American Burying Beetle habitat and reminding workers to follow special restrictions in the area.
- Appropriate erosion controls will be installed, including such items as straw bales, biologs, silt fence, and similar materials.
- Pollution Prevention Requirements will be implemented as required in section 3.3.3 of the Oklahoma Department of Environmental Quality General Permit OKR10 for Storm Water Discharges. Additionally, all equipment will be fueled outside of American Burying Beetle habitat (that is, outside of undisturbed native vegetation) and all fuel and motor vehicle oil stored outside of American Burying Beetle habitat.

Vegetation

- Disturbance to vegetation will be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Non-native invasive plant infestations near the disturbed areas will continue to be treated on a yearly basis, with emphasis on these areas for a minimum of three years following project completion.
- Construction equipment will be cleaned before entering the park to minimize the transportation of exotic seeds to the site. All equipment entering the park will be inspected and may be required to be pressure washed to remove foreign soil, vegetation, and other materials that may contain non- native seeds or vegetation.
- Revegetation and recontouring of disturbed areas will take place following construction, and will be designed to minimize the visual intrusions. Revegetation efforts will strive to reconstruct the natural spacing, abundance, and diversity of native plant species using native species. All disturbed areas will be restored as nearly as possible to pre-construction conditions shortly after construction activities are completed.
- Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as the use of silt fences will be used to minimize any potential soil erosion.
- No more than 100 trees that are 2-6 inch diameter, 50 trees that are 6-12 inch diameter and 20 trees 12-36 inch diameter may be removed. Some of these are dead, wildlife habitat trees, that will be removed to eliminate hazards next to the trail. Other existing vegetation at the site will not be disturbed to the extent possible.

Soils

- Disturbance to soils will be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Erosion control measures that provide for soil stability and prevent movement of soils into waterways will be implemented.
- Any topsoil temporarily disturbed during construction will be aerated and replanted with native vegetation and mulched with native hay to reduce compaction and prevent erosion.
- Any disturbed top soil will be salvaged, stored, and used to restore the area.
- To minimize the amount of ground disturbance, staging and stockpiling areas will be placed on as much previously disturbed land as possible. All staging and stockpiling areas will be returned to pre-construction conditions following construction.

Historic Structures and Cultural Landscapes

- A collaborative team of NPS and Chickasaw Nation Staff, and others as appropriate, will meet regularly to ensure the bridge design is compatible with the natural setting, the Platt Historic District, other historic properties in the area, the Chickasaw Cultural Center, and NPS design standards. Elements of scale, color, texture, non-reflectivity, and other design components will be sensitive to the surrounding features and landscape. Visual impacts to nearby historic properties will be minimized to the extent possible. The bridge will be less than 35-feet tall, or less than the height of the surrounding trees, to minimize visual effects.

- Should construction unearth previously undiscovered cultural resources, work will be stopped in the area of any discovery and the NRA will consult with the state historic preservation officer and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- The National Park Service will ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties. Contractors and subcontractors will also be instructed on procedures to follow in case previously unknown paleontological or archeological resources are uncovered during construction.

Visitor Use and Experience

- To minimize the potential for impacts to park visitors, variations on construction timing will be considered. One option includes conducting the majority of the work in the off-season (winter) or shoulder seasons. Another option includes implementing daily construction activity curfews such as not operating construction equipment between the hours of 6 PM to 7 AM in summer (May – September), and 6 PM to 8 AM in the winter (October – April). Extended hours may be considered and will to be approved by both NPS and the Chickasaw Nation.
- Signs will be posted and press releases done to inform visitors about construction and traffic delays.
- Speed limits through construction areas will be reduced and posted.
- Construction zones will be identified and fenced with construction tape, snow fencing, or some similar material prior to any construction activity. The fencing will define the construction zone and confine activity to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications and workers will be instructed to avoid conducting activities beyond the construction zone as defined by the construction zone fencing.

Air Quality and Soundscapes

- Fugitive dust generated by construction will be controlled by spraying water on the construction site and if needed on Cat's Eye Road.
- All motor vehicles and equipment will have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive or unusual noise, fumes, or smoke.
- To reduce noise and emissions, construction equipment will not be permitted to idle for long periods of time.
- Equipment will not be allowed to idle longer than 15 minutes when not in use. All haul loads will be tarped if required and no engine brakes will be used in or near developed areas and campgrounds.

Night Skies

- Work lights will be shielded to direct the light downward and minimize the amount of upward light scatter.

Park Operations

- The NPS will develop emergency response protocols for implementation of the project. Construction activities will be conducted in accordance with established safety protocols.
- Employees and construction crews will be required to park their vehicles in established staging areas.
- Construction workers and supervisors will be informed about the special sensitivity of NRA's values, regulations, and appropriate housekeeping.
- According to 2006 Management Policies, NPS will strive to construct facilities with sustainable designs and systems to minimize potential environmental impacts. Development will not compete with or dominate the NRA's features, or interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity associated with wetlands. To the extent possible, the design and management of facilities will emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. NPS also reduces energy costs, eliminates waste, and conserves energy resources by using energy-efficient and cost-effective technology. Energy efficiency is incorporated into the decision-making process during the design and acquisition of buildings, facilities, and transportation systems that emphasize the use of renewable energy sources.

Alternatives Considered

Two alternatives were fully evaluated in the EA including the no action alternative and one action alternative. Under Alternative A, No Action, the bridge, trails, and parking improvements would not be constructed. Alternative B, New Bridge, Three New Trails, Improved Parking, is the selected alternative, as described previously.

Environmentally Preferable Alternative

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Overall Alternative A (No Action) is the environmentally preferable alternative because there will be no activities that will disturb elements of the biological and physical environment. With no new construction of a bridge, trails, and parking, this alternative best protects, preserves, and enhances historical, cultural, and natural resources. Existing conditions will be maintained and no new adverse effects to the environment will occur. This alternative will not involve new construction or any other development that could disturb existing natural and cultural resources.

Alternative B (New Bridge, Three New Trails, Improved Parking) is not the environmentally preferable alternative because it will result in disturbances and adverse effects to natural and cultural resources. Implementation of Alternative B includes construction which results in impacts to the environment that are both temporary and permanent in nature, and mostly localized to the project area. Therefore, when compared to Alternative A, Alternative B is not

the environmentally preferable alternative because of the resultant impacts to natural and cultural resources from construction activities.

Why the Selected Action Will Not Have a Significant Effect on the Human Environment

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

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

Implementation of the selected alternative will result in some adverse impacts; however, the overall benefit of the project, particularly enhancing the physical connection between Chickasaw NRA and the Chickasaw Cultural Center, outweighs these negative effects.

All of the adverse effects resulting from this project are localized and less than significant. Most of the adverse impacts are temporary, related to construction activities. In the project area, construction activities will adversely affect: soils as a result of grading, compacting, paving over soils, removing soils, and removing vegetation; vegetation as a result of trampling, permanent vegetation loss, and the increased potential for non-native weed species; floodplains as a result of increased sedimentation into Rock Creek; and visitor use and experience from increased noise, decreased air quality (dust and fumes), and traffic disruptions.

Long-term adverse effects will result from placing permanent structures (bridge, three trails, parking lot) within the floodplain of Rock Creek. For traditional users of Forty-Foot Hole, long term adverse effects may result from placing a bridge in the viewshed and increasing visitor use of this general area.

There will be no adverse physical effects to the two historic properties situated within the project area; the Platt Historic District (National Historic Landmark) and the (Rock Creek Campground. The bridge and trails will not be visible from Rock Creek Campground, so there will be no impact to this historic property. The bridge and portions of the trails will be permanent, distant features within the viewshed of the Platt Historic District, thereby having a long-term adverse effect to this cultural landscape.

In the long term, construction of a new bridge will create a beneficial connection between the park and the Chickasaw Cultural Center. Introducing additional trails in the area, as well as improving the parking at Cat's Eye Road will also benefit visitor use and experience for the long term.

The degree to which the proposed action affects public health or safety

The selected alternative will have an overall beneficial effect on public health and safety. The design for the new bridge and trails will meet all current safety and accessibility standards. In addition, the trail to the Forty-Foot-Hole will formalize a current social trail that is relatively unstable. Lastly, the parking improvements in the Cat's Eye Road cul-de-sac will provide a formal parking area for vehicles, rather than vehicles parking along the road shoulders.

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

The selected alternative will not impact unique characteristics of the area including prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas because these resources do not exist in the project area. The project will occur within a national park unit; however, the values associated with the park's designation as a unit of the national park system will not be affected. Cultural resources are addressed later in this document.

The degree to which the effects on the quality of the human environment are likely to be highly controversial

Throughout the environmental process, this project was not highly controversial, nor are the effects expected to generate future controversy. During public review of the EA, all of the comments received were in favor of the project.

The degree to which the possible effects on the quality on the human environment are highly uncertain or involve unique or unknown risks

This bridge construction project is not unique or unusual, and the effects related to this type of bridge construction are well known. The studies, research, inventories, and analyses conducted as part of this project were sufficient to indicate that the effects of constructing a bridge are not uncertain and do not involve unique or unknown risk. The environmental effects to the human environment are fully analyzed in the EA with a high degree of certainty.

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

The selected alternative is not expected to set a precedent for future actions with significant effects, nor does it represent a decision in principle about a future consideration. This project does not entail any known issues or elements that would create a precedent for future activities, such as constructing other bridges in the park. Construction of any other new amenities within the park would be evaluated on a case-by-case basis.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects are fully analyzed in the EA and no individually or cumulatively significant impacts were identified for the selected action. Any impacts identified for the selected action, in conjunction with any impacts of other past, present, or reasonably foreseeable future actions will result in less than significant cumulative effects to the human environment.

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Two historic properties are situated within the project area; the Platt Historic District (National Historic Landmark) and the Rock Creek Campground. This project does not result in physical impacts to either historic property. There is no visual impact to the Rock Creek Campground because the bridge, trails, and parking improvements are far enough away that they are not visible from the campground. There is a small adverse visual effect to the Platt Historic District because the bridge and portions of the trails will be permanent, distant features within the viewshed of the district.

Per Section 106 of the National Historic Preservation Act, NPS received concurrence on its finding of "no adverse effect" from the Oklahoma State Historic Preservation in a letter dated January 22, 2015.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

Per Section 7 of the Endangered Species Act, this project will have "no effect" on federally listed endangered or threatened species or habitat. Surveys conducted June 4 – 9, 2014 and August 23, 2014 confirmed that the American Burying Beetle, a federally endangered species, is not in the project area. A telephone conversation between NPS and the Oklahoma Department of Wildlife Conservation on May 8, 2014 confirmed that there are no state-listed species or designated critical or essential habitat in the project area.

Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment

The action will not violate any federal, state, or local laws or environmental protection laws.

Public Involvement and Native American Consultation

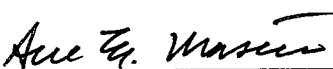
The EA was made available for public review and comment during a 30-day period ending October 12, 2014. To announce this review period, NPS mailed a letter to stakeholders, agencies, interested parties, five Native American tribes, and newspapers. NPS made the EA available for review in the Visitor Center at the park and posted it on the NPS PEPC website at <http://parkplanning.nps.gov/>. One piece of correspondence was received from the public during this review period, indicating support for the project. No comments warranted additional response or changes to the EA.

Conclusion

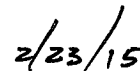
As described above, the selected alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The selected alternative will not have a significant effect on the human environment. Environmental impacts that could occur are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

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

Approved:



Sue E. Masica
Regional Director, Intermountain Region, National Park Service



Date



National Park Service
U.S. Department of the Interior
Chickasaw National Recreation Area
Oklahoma

Appendix A – Statement of Findings for Floodplains

Recommended by:

William J. Wright, Superintendent, Chickasaw National Recreation Area, National Park Service

Concurred by:

1/28/2015

Forrest E. Harvey, Chief of the Water Resources Division, National Park Service,

Approved by:

2/23/15

Sue E. Masica, Intermountain Regional Director, National Park Service

Introduction

Executive Order 11988 *Floodplain Management* requires the NPS and other federal agencies to evaluate the likely impacts of actions in floodplains. The objective of Executive Order 11988 is to avoid, to the extent possible, the long- and short- term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. NPS Director's Order 77-2: *Floodplain Management* and NPS Procedural Manual 77-2: *Floodplain Management* provides NPS policies and procedures for complying with Executive Order 11988. This Statement of Findings for Floodplains (SOF) documents compliance with Executive Order 11988 *Floodplain Management*, NPS Director's Order 77-2: *Floodplain Management*, and NPS Procedural Manual 77-2: *Floodplain Management*.

The purpose of this Floodplain SOF is to review the actions associated with the proposal to construct a new bridge, three new trails, and parking lot improvements within Chickasaw NRA in sufficient detail to:

- Provide an accurate and complete description of the flood hazard assumed by implementation of the selected alternative (without mitigation);
- Provide an analysis of the comparative flood risk among alternative sites;
- Describe the effects on floodplain values associated with the selected alternative.
- Provide a thorough description and evaluation of mitigation measures developed to achieve compliance with Executive Order 11988 *Floodplain Management*, NPS Director's Order 77-2: *Floodplain Management*, and NPS Procedural Manual 77-2: *Floodplain Management*

Selected Action

NPS prepared an Environmental Assessment for the proposal to construct a new bridge between Chickasaw NRA and the Chickasaw Cultural Center, three new trails, and improved parking in the Cat's Eye Road area. All of these amenities will be constructed within Chickasaw NRA, as follows:

New Bridge – The new bridge will cross over Rock Creek, just slightly north of the Cat's Eye Road cul-de-sac, at the southeast corner of the Chickasaw Nation Cultural Center property. The east end of the bridge will be located approximately 70 feet north of the end of Cat's Eye Road, and the west end will extend toward the Chickasaw Nation Cultural Center. Two types of bridge design are being considered: a truss bridge and a suspension bridge. Either bridge design will span approximately 200 feet across Rock Creek. Bridge components include abutments, piers, steel superstructure, concrete deck, combined pedestrian and bicycle trails, and security gates. The abutments and piers will be supported on foundations that extend into bedrock. The bridge deck elevation will be set at or above the 500-year flood elevation of 915 feet. The bridge deck elevation will vary from 918 feet near the abutments to 919.25 feet at midspan.

Kiosks are an option at either/both ends of the new bridge. Use of the bridge will be reserved for pedestrians and bicyclists. Equestrians will not be permitted to use the bridge. Vehicles will be prohibited except for emergency and maintenance vehicles.

Three New Trails – Alternative B includes the construction of three new trails within Chickasaw NRA. The intended use of these trails includes pedestrians and bicyclists. No motor vehicles will be permitted on these trails except for maintenance activities. No horses will be permitted on these new trails. All proposed trails will be accessible for people with disabilities and follow the Architectural Barriers Act Accessible Standards intended for federal agencies. Some

minimal directional and interpretive signage or exhibits may be added along these trails. These trails provide linkages to create a more continuous trail network within Chickasaw NRA and greater access to the bridge that crosses over to the Chickasaw Cultural Center. The total length of these three trails is approximately 2,647 feet. The direct disturbance including cut and fill will be about 42,000 square feet and the indirect disturbance will be approximately 10,000 square feet.

Trail 1 will have a concrete surface and will be 8 feet wide. Trail 2 will have a concrete surface and will be 3-6 feet wide. Trail 3 will have a compacted and stabilized aggregate surface and will be approximately 6 feet wide. Some contouring of the landscape will be necessary but will be minimized to the extent possible. Three bridges with small concrete and stone abutment will be needed to cross small drainages. Retaining walls will be needed in certain locations to minimize cut and fill.

Trail 1 - From Bridge Southwest to Cat's Eye Road Cul-de-sac and Northwest to the Chickasaw Cultural Center – On the southeastern end of the new bridge, Trail 1 will be constructed to connect the bridge to the Cat's Eye Road cul-de-sac, and on the northwest end of the bridge, Trail 1 will be constructed to connect to the Chickasaw Cultural Center. The length of this trail will be approximately 180 feet. Total disturbed area will be approximately 3,600 square feet. Trail 1 will be outside the 100-year and 500-year floodplains.

Trail 2 - Forty-Foot Hole – Trail 2 will replace an existing, eroded social trail that leads from the Cat's Eye Road cul-de-sac to a popular swimming hole. The new trail will be formalized and rerouted as necessary for safety and maintenance considerations. The length of this trail will be approximately 180 feet. The total disturbed area will be approximately 3,200 square feet. The entirety of Trail 2 will be within the 100-year floodplain.

Trail 3 - South from Bridge to Veteran's Lake Trail and Parking Area – From the southeastern end of the new bridge, a new trail will be constructed that connects to the Multi-Use Trail and the accessible Veterans Lake Trail at the dam parking area. The length of this trail will be 2,287 feet. Minor road improvements will be made where the trail crosses Cat's Eye Road to increase safety and sightlines. Total disturbed area will be approximately 41,600 square feet. Most of Trail 3 will be outside the 100-year floodplain, but the Trail 3 connector to the existing Multi-Use Trail may be within the 100-year floodplain.

Cat's Eye Road Parking Improvements - Approximately 5-8 new paved parking spaces will be added to the Cat's Eye Road cul-de-sac, including one delineated handicap parking space. These new parking spaces will be provided for single-family vehicles, not for recreational vehicles or trailers. Minimal signage will be added to this area to help direct visitors to the amenities in the area and offer interpretation. Since Trail 1 will provide an accessible route from the bridge to the cul-de-sac parking area, Trails 2 and 3 will connect to the cul-de-sac as well. The total disturbed area for this parking lot will be approximately 2,500 square feet. The parking area will be situated outside both the 100-year and 500-year floodplains.

Staging and stockpiling areas on both sides of the bridge will be situated outside the 100-year floodplain.

Site Description

Site Location

The project site is located in the Rock Creek valley at an elevation of approximately 915 feet (Figure 1 – Project Area). The proposed bridge will span Rock Creek 200 feet upstream of the popular swimming area known as Forty Foot Hole. Rock Creek empties into Arbuckle Lake approximately one to two miles downstream, depending on the lake elevation.

The Rock Creek watershed has good vegetative cover and consists primarily of grasslands and woodlands over clay loam soils. No information is available on the yearly sediments loads into Rock Creek or through the project area.

Climate

Chickasaw NRA has a moist, subhumid climate. Temperatures in Murray county range from an average daytime high of 95 degrees in July and August to an average low of 31 degrees in January. Average annual precipitation is about 41 inches. May and October are the wettest months, on average, but much of the spring through fall receives sufficient rainfall. One in two winters have at least one inch of snow, with one year in seven having ten or more inches. Thunderstorms occur on about 47 days each year, predominantly in the spring and summer (Oklahoma Climatological Survey, 2014).

Hydrology

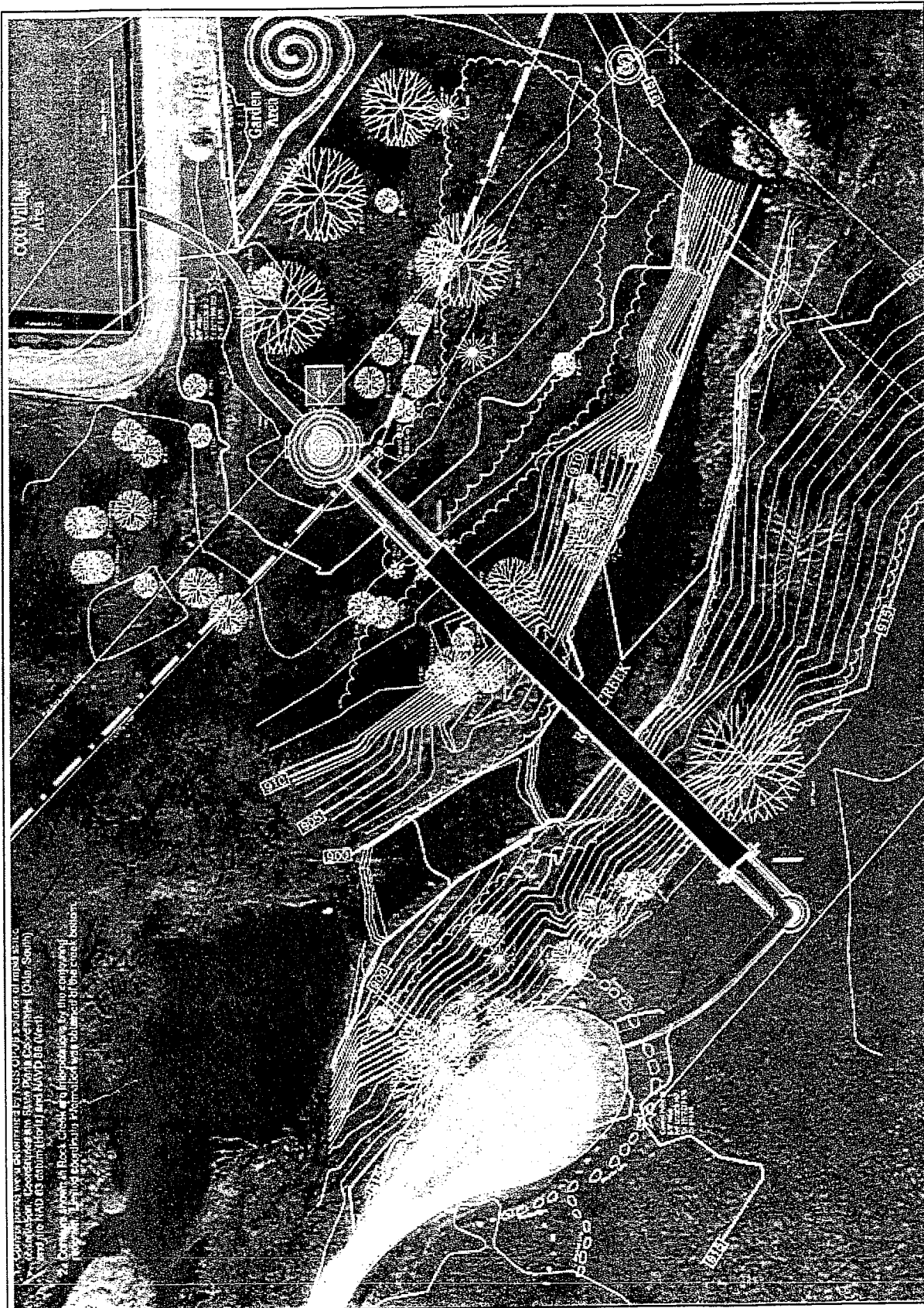
Rock Creek begins about 10 miles north of Chickasaw NRA and flows south through the park into Lake of the Arbuckles before discharging into the Washita river near Dougherty, Oklahoma. The perennial stream derives flow from springs, flowing artesian wells, and storm runoff. Streamflow is regulated by numerous flood-retarding structures upgradient from the gage.

A 1981 flood insurance rate map produced by the Federal Emergency Management Agency (FEMA) for the City of Sulphur shows the 100-year and 500-year flood boundaries along Rock Creek, but the mapped boundaries terminate about 1,500 feet north of the proposed bridge site.

The U.S. Geological Survey (USGS) maintains a streamflow gaging station at Sulphur (station 07329852) on Rock Creek near Rock Creek Campground (80 feet west of campsite 69) and about 1,800 feet upstream from the proposed bridge site. Rock Creek drains 44 square miles upstream of the gage. Streamflow has been recorded at this station from October 1, 1989 to present (2014). For water years 1990-2013 (Oct. 1, 1989 to Sept. 30, 2013), the annual mean flow was 47.2 cubic feet per second (cfs), and ranged from 5.68 cfs in 2013 to 129 cfs in 1990. The lowest daily mean flow was 0.51 cfs (August 7, 2011), and the highest daily mean flow was 3,450 cfs (May 2, 1990). A maximum peak flow of 10,400 cfs was recorded on April 26, 1990; peak flows exceeding 4,000 cfs have occurred in 14 of the past 24 years. The maximum peak stage was 19.65 feet on April 26, 1990 (U.S. Geological Survey, 2013).

Heavy rains can present a flooding hazard within Chickasaw NRA. Flooding occurs as a result of violent thunderstorms than can produce heavy downpours over a short period of time, saturating the soil and creating significant flood hazards. The first documented flash flood occurred on January 21, 1916. This flood caused widespread damage within the park by sweeping away parts of the pavilion and other structures at the present Bromide Pavilion site. The most damaging flood recorded at Chickasaw NRA occurred on October 8, 1970, when the area received a record one-day rainfall of almost 12 inches (Wilke and others, 1998).

Figure 1A – Project Area



Just upstream of the park, Rock Creek's natural floodplain values have been altered by human activities, including urban and agricultural development that has increased the magnitude of runoff. In the 1960s and 1970s, 22 flood control detention dams were constructed in the Rock Creek watershed above Sulphur to reduce flooding downstream. Impervious surfaces such as roads, roofs, and parking lots have increased the rate at which storm runoff flows to the creek. Within the park, the floodplain still has many natural values. Rock Creek is deeply incised adjacent to the project area and the adjacent floodplain is largely covered by a riparian forest that provides habitat for a variety of plant and wildlife species. Outside of the wooded riparian banks of Rock Creek is a gently sloped, prairie grass covered terrace. The wooded riparian buffer bordering Rock Creek within the park remains in a natural state without development.

Development in the vicinity of the proposed bridge has occurred in the flat, gently sloping, prairie grass-covered terrace. Cat's Eye Road and the entrance to the Rock Creek Multi-Use Trail have altered some of the natural floodplain value but do not obstruct flows during major flood events. Veterans Lake Dam helps reduce streamflows conveyed downstream during minor and major flood events, but there are no gates to allow control of releases. When the spillway releases water downstream, the north entrance to the Multi-Use Trail may be impassible.

Justification for Use of the Floodplain

One objective of the project is to provide safe and convenient access between the Chickasaw Nation Cultural Center and Chickasaw NRA. The proposed bridge over Rock Creek just north of Cat's Eye Road is the closest feasible and reasonable location between Chickasaw NRA and the Chickasaw Nation Cultural Center. It is the shortest distance between these two destinations. As such, to connect these two destinations over Rock Creek requires the construction of a bridge, which must cross the 100-year floodplain.

Another objective of the project is to enhance and improve visitor opportunities in the project area. The three proposed trails are intended to support the proposed bridge and make viable trail connections in the area. The majority of the project area is situated near Rock Creek close to the site of the new bridge. Most of the three proposed trails will be situated outside the 100-year floodplain.

A third objective of the project is to improve parking and visitor safety in the Cat's Eye Road area. Hydraulic analysis indicates that the existing cul-de-sac at the end of Cat's Eye Road, which provides access to this area, is outside both the 100-year and 500-year floodplains.

Investigation of Other Alternatives

Several locations for the new bridge were considered, including upstream and downstream from the proposed location. Other bridge design options were also considered and dismissed as discussed in the Environmental Assessment. Trail options (additional trails and other locations) were considered and dismissed for having too great of an environmental impact. Other parking options for the Cat's Eye Road area were considered, including larger and smaller parking lots and construction of a new parking lot closer to the bridge; however, those were dismissed for having too great of an environmental impact and/or not meeting the project objectives. There are no alternative bridge sites that will provide convenient access and avoid crossing the Rock Creek floodplain. The trails were minimized in number and length to the extent possible that will still meet the project objectives, and the parking lot at Cat's Eye Road was minimized in size and positioned to reduce floodplain impacts.

Site Specific Flood Risk

High-magnitude floods in the project area occur as a result of rainfall events, as described in Site Description – Hydrology. Hydraulic analysis of the project area was determined using data

Historic District, thereby having a long term adverse effect to this cultural landscape; however, these impacts are do not rise to the level of significance. Therefore, this project will not result in impairment to cultural landscapes.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action will have significant effects. This project does not result in significant effects.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the selected action

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

Fundamental resources and values for Chickasaw NRA are identified in the 2008 General Management Plan. According to the GMP, the purpose of Chickasaw National Recreation Area is to "protect the springs and waters; preserve areas of archeological or ethnological interest; provide outdoor recreation; protect scenic, scientific, natural, and historic values; and memorialize the Chickasaw Indian Nation". Of the impact topics carried forward in this EA, only the topics of Geology and Soils, Vegetation, Floodplains, and Cultural Landscapes are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's General Management Plan or other relevant NPS planning document.

- **Geology and Soils** – The National Recreation Area was established, in part, to protect natural values. The selected alternative will adversely affect soils in the project area as a result of grading, compacting, paving over soils, removing soils, and removing vegetation; however, these impacts are localized, mostly temporary resulting from construction, and do not rise to the level of significance. Therefore, this project will not result in impairment to geologic and soil resources.
- **Vegetation** – The National Recreation Area was established, in part, to protect natural values. The selected alternative will adversely affect vegetation in the project area as a result of trampling, permanent vegetation loss, and the increased potential for non-native weed species; however, these impacts are localized, mostly temporary resulting from construction, and do not rise to the level of significance. Therefore, this project will not result in impairment to vegetation.
- **Floodplains** – The National Recreation Area was established, in part, to protect the springs and waters, and the natural values. The selected alternative will adversely affect floodplains as a result of increased sedimentation into Rock Creek. Long-term adverse effects will result from placing permanent structures (bridge, three trails, parking lot) within the floodplain of Rock Creek; however, these impacts are localized and do not rise to the level of significance. Therefore, this project will not result in impairment to floodplains.
- **Cultural Landscapes** – The National Recreation Area was established, in part, to protect historic values. The selected alternative will result in no adverse physical effects to the two historic properties situated within the project area; the Platt Historic District (National Historic Landmark) and the (Rock Creek Campground. The bridge and trails will not be visible from Rock Creek Campground, so there will be no impact to this historic property. The bridge and portions of the trails will be permanent, distant features within the viewshed of the Platt

Appendix B – Non-Impairment Finding

National Park Service's Management Policies, 2006 require analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact will be more likely to 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;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

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

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Conclusion

The selected alternative was designed to achieve project objectives while considering the floodplain values of the Rock Creek area. The selected action will place an obstacle (bridge) and other permanent features (trails) within the floodplain; however, best management practices will be implemented to minimize the adverse effects to floodplain values, water quality, and the potential loss of property or human life during and after the construction. Although placement of these features is considered optional, the purpose of the project strongly supports construction of these amenities to meet the project objectives. In addition, individual state and federal permits will be obtained prior to the commencement of construction activities. Therefore, the National Park Service finds the selected alternative to be acceptable per Executive Order 11988 *Floodplain Management*, NPS Director's Order 77-2: *Floodplain Management*, and NPS Procedural Manual 77-2: *Floodplain Management*.

References

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parking lot, and constructing these features using best management practices will minimize the adverse effect.

- Best management practices will be implemented to ensure no pollutants enter Rock Creek as a result of the project.
- Only biodegradable, vegetable-based hydraulic fluid will be used in excavators that may reach into Rock Creek.
- All fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water.
- To minimize possible petrochemical leaks from construction equipment, the contractor will regularly monitor and check construction equipment to identify and repair any leaks.
- A fuel/lubricant spill absorption kit will be in place to address potential land and water spills and leaks.
- Stormwater runoff control measures, including silt capture techniques such as silt fences will be employed to improve quality of runoff and prevent degradation of the stream.
- Design and construction measures will include development of surface water control features to minimize post-construction run-off.
- Equipment will not be allowed to operate within the stream. If any pumping of water is required, it will be discharged to an upland site.
- Fuel and oil services for construction machinery will be provided in a designated area away from the lake and wetlands when feasible. This will include secondary containment for all fuel storage tanks and on-site availability of a spill kit.
- Sediment curtains will be used when needed to contain sediment to the immediate work zone.
- In-water work will be completed during low flow periods and equipment will not be operated (driven) below the water surface elevation, but will need to reach into the water.
- Staging and stockpiling areas will be situated outside of the floodplain.
- Design will be completed in such a way as to leave the streambank and channel in its present configuration with no change. The bridge span will be sufficiently long to reduce floodplain impacts.
- The bridge will be designed to convey water through the structure when in 50 to 100-year flood events.
- The lowest exposed structural member of the proposed bridge will be above the 50-year flood.
- Approaches for the trails and the bridge will be on grade as much as possible, but the grade may be slightly higher where Trail 1 connects with the bridge.
- Based on NPS guidelines, no mitigation is required for extreme or dam-break flood events. However, preparation for such disasters should be considered due to the risk of human life. To reduce the severity of impact from severe flood events, Chickasaw NRA and the Chickasaw Nation Cultural Center will communicate immediately.

collected from USGS gage station 07329852, located on Rock Creek about 1,800 feet upstream from the proposed bridge site. Flood frequency was determined using methodology proposed by the USGS (Lewis, 2010), which incorporates both gage data and regression methods to predict peak discharges associated with various annual chance probabilities. The method also takes into account regulation by the NRCS floodwater structures in the watershed. Water-surface profiles through the project site and the 100-year and 500-year floodplain elevations were computed using the HEC-RAS model.

As seen in Table 1, the predicted 100-year flood elevation (defined as the 100-year flow recurrence interval) in the open channel at the project site is 913.31 feet, and the predicted 500-year flood elevation is 915.38 feet. Computed water-surface elevations just upstream of the proposed bridge site are slightly higher than at the open channel at the project site: 914.02 feet at the 100-year year recurrence interval and 918.27 feet at the 500-year recurrence interval.

The predicted peak discharge is 11,600 cfs at the 100-year recurrence interval and 15,380 cfs at the 500-year recurrence interval (Table 1). Predicted velocity of the open channel is 12.52 feet per second (fps) at the 100-year recurrence interval and 13.62 fps at the 500-year recurrence interval. The predicted velocity just upstream of the proposed bridge site is slightly lower than at the open channel at the project site: 11.59 fps at the 100-year recurrence interval and 10.45 fps at the 500-year recurrence interval.

The proposed bridge deck passes all events through the 100-year event and overtops in the 500-year event. The lowest exposed structural member of the proposed bridge will be above the water-surface elevation of 913.13 feet at the 50-year recurrence interval. The low-flow channel of Rock Creek is three to four feet deep and is full in the 2-year event. The high-flow channel has steep banks with slopes ranging from 4:1 to 7:1. The 100-year event is generally contained within these banks. The 100-year flood extent encompasses all of proposed Trail 2, which leads to Forty Foot Hole, and part of proposed Trail 3.

Table 1 - HEC-RAS Model Output for Proposed Rock Creek Bridge

Flow Recurrence Interval (year)	Peak Discharge (cubic feet per second)	Open Channel		Proposed Bridge Site	
		Water Surface Elevation (feet)	Velocity (feet per second)	Water Surface Elevation (feet)	Velocity (feet per second)
2	3,792	907.95	7.85	908.26	7.4
10	6,852	910.37	10.06	910.88	9.37
25	8,770	911.64	11.1	912.24	10.32
50	10,129	912.46	11.78	913.13	10.99
100	11,600	913.31	12.52	914.02	11.59
500	15,380	915.38	13.62	918.27	10.45

Mitigation

The following best management practices will be implemented to minimize the degree and/or severity of adverse effects to floodplains and water quality. Designing the new bridge trails, and