National Park Service
U.S. Department of the Interior

Denali National Park and Preserve
Interior Region 11 – Alaska

FINDING OF NO SIGNIFICANT IMPACT
Ghiglione Bridge Replacement

Recommended:

DENICE SWANKE Digitally signed by DENICE SWANKE
Date: 2020.06.22 08:36:51 -08'00'

Denice Swanke — Date
Acting Superintendent, Denali National Park and Preserve

Approved:

DON STRIKER DONALD STRIKER Digitally signed by DONALD STRIKER
Date: 2020.06.22 14:49:11 -08'00'

Don Striker — Date
Acting Regional Director, Interior Region 11 – Alaska, National Park Service

Estimated Total Costs Associated with
Developing and Producing this
Environmental Assessment: $38,000

1. Introduction

In compliance with the National Environmental Policy Act, the National Park Service (NPS) prepared an Environmental Assessment to examine alternative actions and environmental impacts associated with the proposed project to replace Ghiglione Bridge in Denali National Park and Preserve. The project is needed to mitigate public risk and ensure continuity of park operations.

The statements and conclusions reached in this Finding of No Significant Impact (FONSI) are based on documentation and analysis provided in the Environmental Assessment and associated decision file. To the extent necessary, relevant sections of the Environmental Assessment are incorporated by reference below.

2. Selected Alternative and Rationale for the Decision

Based on the analysis presented in the Environmental Assessment, the NPS selected Alternative 2 – Replace Ghiglione Bridge (the NPS preferred alternative). This alternative will replace the existing bridge with a 180-foot concrete and steel curved bridge with wooden rails, located 70 feet north of the existing bridge, closer to the original alignment (National Park Service 2019).

Approximately 150 linear feet of total road length will be added to connect the existing park road to the east and west ends of the bridge. These new bridge approaches will improve sight distances and soften approach and exit curves for larger vehicles. The proposed bridge replacement will be compatible with the Mount McKinley National Park Road Historic District in terms of design, materials, setting, and location (National Park Service 2019).

The replacement bridge will require 20 steel piles (18-inch diameter) for piers and abutments. Each pile is estimated to take one day to drive and occur entirely in year one of construction. Vibratory pile driving is proposed for the initial stage of installation; an impact hammer is proposed to complete installation.

Vegetation clearing will take place during the fall prior to construction to comply with Migratory Bird Treaty Act guidelines. Construction will occur over two summer seasons, approximately June 1 through September 30 each year. Revegetation of new disturbance and reclaimed areas will follow a park-developed revegetation plan to prevent non-native species from establishing in the project area.

The existing bridge will continue to be used during the project providing through traffic access. Limited delays or closures controlled by a flagger will likely be necessary during some phases of construction. In year two of construction, the existing bridge will be dismantled. All concrete and rebar from the dismantled bridge will be removed from the park and taken to a suitable disposal site.

As part of the bridge removal process, approximately 4,200 cubic yards of fill adjacent to the existing bridge abutments will be removed from the project site. Removal will occur within five years of project initiation and the material will be used for future projects, such as fill for the Pretty Rocks landslide area. Fill removal will prevent downstream movement once unanchored from the bridge abutments.

Rationale

Alternative 2 was selected because it best meets the project purpose to replace the bridge to conform to contemporary safety standards, mitigate public risk, and contribute to continuity of park operations. The bridge design will accommodate contemporary traffic volumes and vehicles and be compatible with the Park Road Historic District in terms of design, materials, setting, and location (National Park Service 2019).

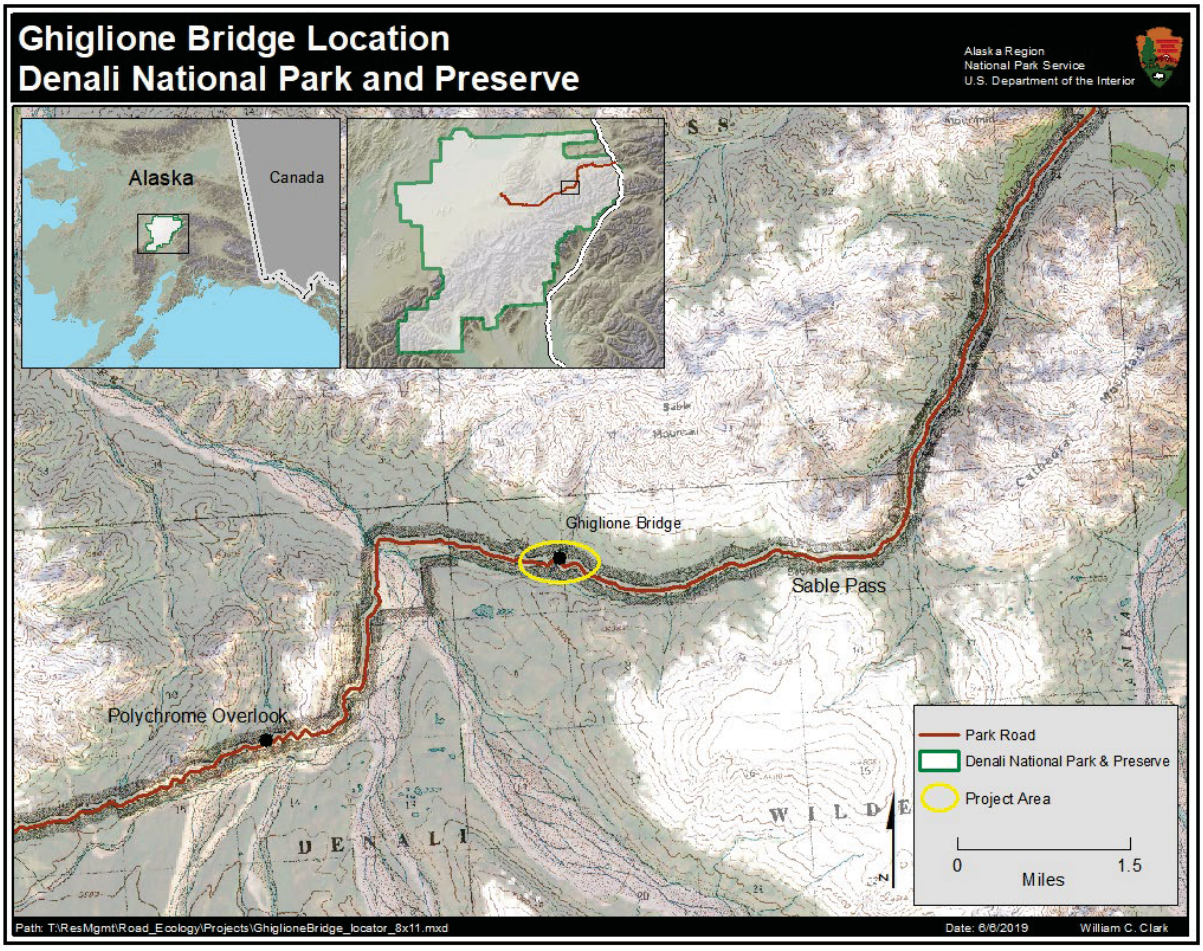

Figure 1. Location of Ghiglione Bridge in Denali National Park and Preserve

3. Mitigation Measures

The selected alternative is an agency-proposed action; best management practices are incorporated in the selected alternative.

4. Other Alternatives Considered

In addition to the selected alternative, the Environmental Assessment analyzed one other alternative, Alternative 1, as a no action alternative, and the associated impacts on the environment.

Under Alternative 1, Ghiglione Bridge would not be removed nor replaced in a new location. Park operations and local business operations would continue using the existing bridge provided that the condition of the bridge allows safe transit. Frequent inspections would continue as advised by the Federal Highway Administration (FHWA) inspection rating. Ghiglione Bridge would be closed if deemed unsafe. Bridge closure would result in visitor traffic turning around prior to mile 41of the Denali Park Road.

The NPS also considered but dismissed from detailed analysis rehabilitating the current bridge and replacing the bridge with a culvert.

Rehabilitate Ghiglione Bridge: The National Park Service considered rehabilitating Ghiglione Bridge to meet current earthquake and the American Association of State and Highway Transportation Officials Load and Resistance Factor Design standards. The Federal Highway Administration estimated a rehabilitation project would cost nearly 80% of the total cost of a bridge replacement. The National Park Service determined that rehabilitation of Ghiglione Bridge is not fiscally judicious and dismissed this alternative from analysis.

Replace Ghiglione Bridge with a culvert: The National Park Service considered replacing Ghiglione Bridge with an 18-foot diameter, 130-foot long culvert. Improving sight distances would not be necessary because the road alignment would remain the same. The agency has determined that replacement of a Mission 66 era bridge with a culvert would too greatly adversely affect the Mount McKinley National Park Road Cultural Landscape. Moreover, alternatives that would use the current alignment would cause interruptions and delays to traffic the agency determined unacceptable. This alternative was dismissed from analysis.

5. Public Involvement/Agency Consultation

The Environmental Assessment was published on the Planning, Environment, and Public Comment website at https://parkplanning.nps.gov/, for public review and comment from May 27 through June 10, 2020. Four public correspondences were received, resulting in 18 comments on 10 different topics. The public comments did not change the conclusions regarding the environmental effects of the action but did offer substantive feedback, which is addressed in Appendix A of this FONSI.

6. Finding of No Significant Impact

As described in the Environmental Assessment, the selected alternative has the potential for adverse impacts on soils, vegetation, wildlife, cultural resources, soundscapes, and vegetation. However, no potential for significant adverse impacts was identified.

Approximately 1,400 cubic yards of soil will be excavated during the construction phase of the project and approximately 4,200 cubic yards of material will be salvaged from the existing bridge abutments for use elsewhere in the park.

Approximately 1.5 acres of vegetation will be removed during construction. While there is potential for introducing non-native species and mixing with non-native soil, the park revegetation plan will be implemented to decrease the probability of introducing non-native species in the area. Tundra mats and native seed will be used to revegetate the area.

Wildlife, including birds and small mammals, may be displaced from the vicinity of the project area or stressed due to human activity, noise, and dust over two summer construction seasons. A raven nest will be removed and a nesting pair displaced, which could reduce raven predation on other species native to the area.

The current bridge is a Mission 66 bridge and a contributing feature of the Park Road Historic District and its removal will be an adverse effect to the Park Road Historic District. This adverse effect will be mitigated through a Programmatic Agreement with the State Historic Preservation Officer that will require Historic American Engineering Record Level One documentation following guidelines for inclusion in the Library of Congress.

The proposed project will generate a net increase in noise during the construction period from heavy equipment and power tools. Acoustic impacts will likely be realized in Sable Pass Wildlife Viewing Area, East Fork Cabin, and backcountry areas 7, 29, and 30. Notable noise sources include backup alarms and pile driving. Using broadband, amplitude-adjusting backup alarms, and vibratory pile driving will reduce acoustic impacts. A barrier back composite curtain may be used to reduce acoustic impacts from an impact hammer.

Construction activity, dust, and noise may affect recreation resources and displace visitors in backcountry areas 6, 7, 8, 29, 30, and 31. Visitors may encounter traffic delays and a decrease in wildlife viewing opportunities during the two-summer construction period. Park staff will provide construction updates to visitors who may wish to select alternate locations for recreation.

Implementation of the proposed project will not generate significant impacts on public health, public safety, or 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 selected alternative will not violate any federal, state, or local environmental protection law.

7. Conclusion

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement. The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of the National Environmental Policy Act.

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

Appendices Include:

- Appendix A: Errata Indicating Changes Text Changes to the Ghiglione Bridge Replacement Environmental Assessment
- Appendix B: NPS Responses to Public Comments on the Environmental Assessment for Ghiglione Bridge Replacement
- Appendix C: Non-Impairment Finding on the Environmental Assessment for Ghiglione Bridge Replacement

Appendix A:
Errata Indicating Text Changes to the Ghiglione Bridge Replacement Environmental Assessment

1. ERRATA

Page 2, Background

The elevation for the creek at the point it is crossed by the existing bridge, as listed in the Background section on Page 2 of the Environmental Assessment, is corrected to 3,331 feet as the original elevation of 3,200 feet was incorrect.

Page 4, Alternative 2: Replace Ghiglione Bridge (Proposed Action and Preferred Alternative)
The first paragraph of Alternative 2: Replace Ghiglione Bridge (Proposed Action and Preferred Alternative) on Page 4 of the Environmental Assessment is revised to include the Ghiglione Bridge Replacement Cultural Resource Report as a source for further design information. The full citation is as follows:

> National Park Service. 2019b. Ghiglione Bridge Replacement Cultural Resource Report No. 2019-DENA-010. National Park Service. Denali Park, Alaska.

Page 7, Cultural Resources
References on Page 7 of the Environmental Assessment under the Cultural Resources heading are incomplete and should read (National Park Service 2019b). See above for the full citation.

Page 10, Cultural Resources
The last sentence under the Cultural Resources heading on Page 10 of the Environmental Assessment is revised as shown in italics below to read "The siting and width of the bridge would encourage low vehicle speeds, fitting with the rustic character of the road (National Park Service 2019b) *and meeting Road Design Standards (National Park Service 2007).*" The full citation for the Road Design Standards is as follows:

> National Park Service. 2007. Denali National Park and Preserve Road Design Standards, Revised from 1995. National Park Service. Denali Park, Alaska.

Appendix B:
NPS Responses to Public Comments on the Environmental Assessment for Ghiglione Bridge Replacement

RESPONSE TO COMMENTS

In response to the environmental assessment, the National Park Service (NPS) received four correspondences through the Planning, Environment & Public Comment (PEPC) system. The correspondences equated to 18 comments on 10 topics. The NPS responses are below.

Topic #1: Bridge Design

Three comments related to the design of the proposed Ghiglione Bridge. There was a request that the environmental assessment more clearly cite the 2019 Ghiglione Bridge Replacement Cultural Resource Report as the source of design for the proposed Ghiglione Bridge. Another inquired about the correlation between the 2007 Road Design Standards and design of the proposed Ghiglione Bridge, wondering why the proposed bridge was not designed to the single lane width guideline (minimal need) to preserve the rustic character of the Park Road. Lastly, the comments requested additional information describing the bridge design from the Cultural Report be included in the environmental assessment.

NPS Response:
Reference to the 2019 Ghiglione Bridge Replacement Cultural Resource Report has been added in Appendix A: Errata Indicating Text Changes in the Ghiglione Bridge Replacement Environmental Assessment.

Consistent with Federal Highway Administration (FHWA) guidance and best practices, the new bridge has been designed to accommodate a large bus turning on the bridge, the largest fuel truck and trailer that provides deliveries to Kantishna, and any possible construction loads associated with future rock crushing and construction operations, such as those at Toklat Road Camp or Polychrome Pass. The bridge width is required to accommodate the tight curve in the design and is designed to the lowest turning radius needed for these large vehicles at slow speeds.

The existing bridge is 28 feet wide from rail to rail. The new bridge is proposed to be 22 feet, which is narrower by 6 feet and below the 24 feet allowed in the Road Design Standards (National Park Service 2007). This reference is also noted in the Appendix A: Errata Indicating Text Changes in the Ghiglione Bridge Replacement Environmental Assessment.

Topic #2: Bridge Removal

One comment sought to clarify whether the existing bridge will be removed to an alternative site for grinding or will be ground on site and what impact issues informed this decision. A second comment asked the NPS to clarify that the approximately 4,200 cubic yards of material to be removed from the creek banks beneath the existing bridge is part of the removal of the existing bridge and not an unrelated gravel extraction effort.

NPS Response:
The existing concrete bridge, abutments, and rebar will be removed from the park and not salvaged or reused. The 4,200 cubic yards of material is part of the removal of the existing bridge. The park does, however, plan to capitalize on the availability of this material, and use it as fill in future road projects.

Topic #3: Project Elevations

Two comments requested clarification on the elevations related to the bridge height, creek height, and pilings depth as listed in the Environmental Assessment.

NPS Response:
The heights and depths referenced in the Environmental Assessment are all tied to the elevation above sea level.

The NPS acknowledges the 3,200 feet elevation for the creek at the point it is crossed, as listed on Page 2 of the Environmental Assessment, is incorrect and should be corrected to 3,331 feet. This is corrected in Appendix A: Errata Indicating Text Changes in the Ghiglione Bridge Replacement Environmental Assessment.

The new bridge will cross the Ghiglione Creek at 3,344 feet above sea level (70 feet upstream of existing bridge). The bridge deck itself is at 3,369 feet above sea level (the 3,367 feet noted in Figure 2 of the FONSI refers to the beams below the bridge deck).

The red line in Figure 2 marks the elevation of 3,340 feet, which is the height to which vibratory piledriving can be used. Below the elevation of 3,340, the contractor will need to use an impact hammer to drive the tip (or bottom) of the pile down to the minimum elevations for each pile (also known as a pier, as seen in Figure 2).

Bridge piers 1, 2, and 3 will rest approximately 19 feet, 25 feet and 23 feet above the finished grade, respectively. Approximate expected depths of the piers and abutments are as follows: Piers 1 and 3 will be driven 43 feet into the ground, pier 2 will be driven 55 feet into the ground, abutment 1 will be driven 39 feet into the ground, and abutment 2 will be driven 55 feet into the ground. See Figure 2 on Page 11 of the FONSI.

Topic #4: Bridge History

One comment requested more history of the Ghiglione Bridge name. Although this comment is outside the scope of the Environmental Assessment, the NPS response below provides consolidated information for ease of reference.

NPS Response:
While being constructed in the late 1950s, references in Mount McKinley National Park Superintendent's Monthly Reports mention the "Ghiglione Creek Bridge" even though "Ghiglione Creek" was never an official name for the creek that the bridge spans (National Park Service 1958). Published Alaska Territory Reports from the late 1950s reference the name "Ghiglione Creek," which was most certainly named after Angelo Ghiglione—the Alaska Road Commission (ARC) president and engineer (U.S. Department of Interior 1957).

Angelo Ghiglione performed inspections of the Park Road beginning in the 1930s and 1940s while he was an engineer for ARC (National Park Service 1947). He resided near McKinley Park Station with his wife, Alice, for at least part of the late 1930s (Fairbanks Daily New Miner 1939). Ghiglione was named president of the ARC in 1951 and served in that role until ARC was absorbed by the Department of Commerce's Bureau of Public Roads in 1956. (Other presidents of the ARC had major Alaska roads named after them, including the Richardson, Steese, Elliott, and Taylor Highways.)

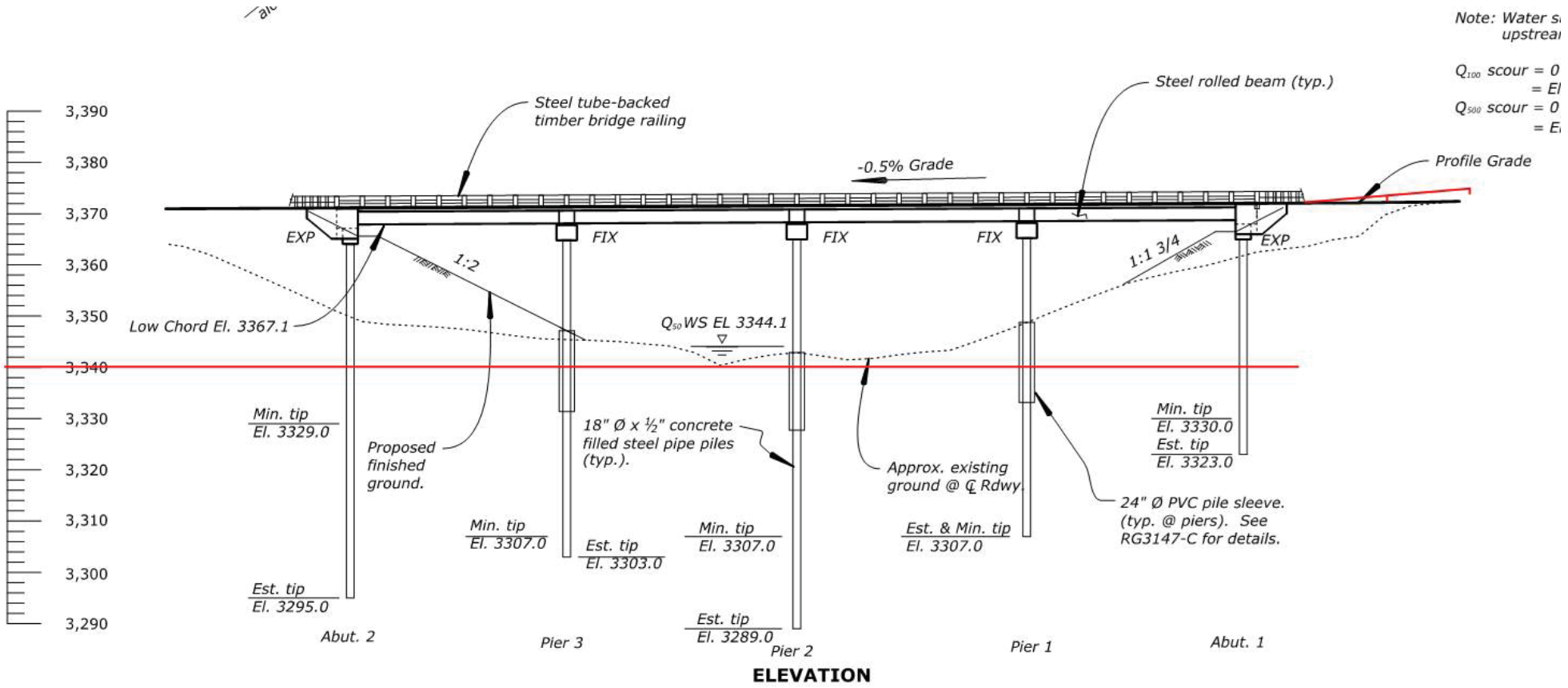

Figure 2 Pilings and Bridge Elevation Above Sea Level

Description: This figure shows the elevations to which the steel pilings need to be driven to support the new Ghiglione Bridge design. The red line marks the elevation of 3,340 feet, which is the height to which vibratory piledriving can be used. Below the elevation of 3,340 feet an impact hammer must be used (Federal Highway Administration 2020).

Topic #5: Construction Operations

Two comments asked NPS about the hours of operation, best management practices employed to reduce stream impacts, and dust mitigation or storm water measures taken during construction. They also asked if there are migratory birds in the area and whether bird and wildlife monitors will be on site or on call during construction.

NPS Response:
The standard hours of 7:30 PM to 7:30 AM when working on the Denali Park Road will apply to this project. Dump trucks and material hauling equipment are prohibited on the Denali Park Road from 7:30 AM to 7:30 PM. Work off the park road may be performed 24 hours per day 7 days per week. Best management practices used to reduce impacts to the stream will be documented in a Stormwater Pollution Prevention Plan maintained during the project. Routine dust mitigation measures will be taken along the Park Road in the project area. Brush cutting will be compliant with the Migratory Bird Treaty Act and park staff will be available to respond to wildlife or avian concerns as needed. Contractors will be trained in how to respond to potential wildlife interactions as part of their orientation.

Topic #6: Alternatives Dismissed

Two comments were related to dismissed alternatives. Other comments requested more detail on why the park dismissed bridge rehabilitation as an alternative and why the bridge replacement is in a new location. The last comment asked why NPS is spending money to replace a bridge while the country is in "deficit times."

NPS Response:
Rehabilitation was determined not to be the best option because of the "B" rating it received from the Federal Highway Administration labeling the bridge "seriously deficient" and "a safety hazard." Specifically, the beam ends at the east abutment shifted laterally and have broken weld connections between the rocker plates and bottom flanges of the beams, likely as a result of 6.7 and 7.9 magnitude earthquakes. Subsequent discussions with FHWA bridge engineers helped park management decide that bridge replacement for this bridge is more economically appropriate than rehabilitation. The current (deficient) bridge is over 60 years old with a possible remaining service life of 20 to 30 years. Replacement cost to construct a new 100-year lifespan bridge is similar to for substructure and superstructure retrofit on the existing bridge, and retrofit would not have the same 100-year lifespan expectation. Engineers also emphasized that the stability of Ghiglione Bridge would be seriously at risk during another seismic event or an event with a different seismic waveform or amplitude.

While NPS is not required to consider the cost of an action as part of an environmental assessment, funds for projects contracted through the Federal Highway Administration are often committed years in advance and may not be tied to current economics. Replacement of this bridge is a priority for safe road access, regardless of the economic environment.

Topic #7: Section 404 Permit

Two comments asked whether a Clean Water Act Section 404 Permit issued by the United States Army Corps of Engineers (USACE) is required for this project.

NPS Response:
Initial conversations with the USACE indicate that this project would qualify for the Nationwide Permit 14 (NWP-14) for Linear Transportation Projects. This permit will be obtained by the Federal Highway Administration prior to construction and is not needed for the Environmental Assessment and decision process.

Topic #8: Section 810 Analysis

Two comments requested clarification on why a Section 810 analysis was completed after the NPS dismissed subsistence as a resource issue to analyze.

NPS Response:
Section 810 of the Alaska National Interest Lands Conservation Act requires Federal agencies having jurisdiction over lands in Alaska to evaluate the potential impacts of proposed actions on subsistence uses and needs. NPS policy states that a Section 810 analysis be completed as part of an environmental assessment for Alaska national park system units. There is currently no exception to this subsistence analysis, so while the Ghiglione Bridge Replacement Environmental Assessment dismissed subsistence as a resource issue, a Section 810 Analysis was still completed as required.

Topic #9: Public Process

One comment encouraged NPS to use a full 30 days for the comment period with future NEPA documents.

NPS Response:
The NPS will always strive to provide sufficient time for the public to review documents but is not required to provide 30 days. The Ghiglione Bridge Replacement Environmental Assessment is on an accelerated timeline to take advantage of fund allocations, and to complete the contracting process prior to the federal fiscal year end of September 30, 2020. The environmental assessment was open for 16 days of public comment. The Ghiglione Bridge Replacement Cultural Resource Report was available for review and comment on PEPC for 30 days beginning September 17, 2019.

Topic #10: Road Management

One comment encourages the park to consider whether the Denali Park Road as a whole can support the drastic increase in vehicle use (cited as 2800% increase since the Ghiglione Bridge was built in the 1950's).

NPS Response:
Although this topic is outside the scope of this EA, other park documents, including the 2012 Final Vehicle Management Plan and Environmental Impact Statement, 1986 General Management Plan, and transportation concession contract, provide desired conditions for the kind and quantity of traffic on the Denali Park Road.

Appendix C:
Non-Impairment Determination on the Environmental Assessment for Ghiglione Bridge Replacement

A determination of non-impairment is made for each of the resource impact topics carried forward and analyzed in the Environmental Assessment for the preferred alternative. The park's Foundation Statement was used as a basis for determining if a resource 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 central to maintaining the park's significance.

SOILS AND VEGETATION

Soils and vegetation resources are not identified as a specific purpose in the establishing legislation of the park and are not specifically identified in the park's general management plan as central to maintaining the park's significance. The selected alternative will result in impacts to approximately 1,440 cubic yards of soils and 1.5 acres of vegetation in the proposed project area. Salvaging approximately 4,200 cubic yards of material from the existing bridge abutments will reduce material demands by the same amount from elsewhere in the park. By implementing the park revegetation plan to decrease the probability of introducing non-native species in the area and using tundra mats and native seed for revegetation, the level of disturbance from the proposed action will not result in impairment to soils and vegetation.

WILDLIFE

Legislation establishing Denali National Park and Preserve identified wildlife preservation as a purpose of the park. Subsequently, wildlife and habitat are identified as fundamental resources in the Foundation Statement for the park. Wildlife, including birds and small mammals, may be displaced from the vicinity of the project area or stressed due to human activity, noise, and dust over two summer construction seasons. As discussed in the Environmental Assessment, while individual animals may be temporarily stressed or displaced, potentially resulting in reproductive failure or death of dependent young of individuals, impacts are likely to be localized, not resulting in effects to populations. The level of disturbance from the proposed action will not result in impairment to wildlife.

CULTURAL RESOURCES

Protecting historic and archeological sites was identified as a purpose for establishing Denali National Park and Preserve. The Foundation Statement for the park similarly identifies cultural resources as a fundamental resource for the park. While removing the existing bridge will have an adverse effect to the historic integrity of the Park Road, the effects to cultural resources will be addressed through a Programmatic Agreement with the State Historic Preservation Officer. The agreement stipulates documentation of the historic structure, including three-dimensional scan,

photographic documentation, and replacement with an historically compatible bridge. The level of disturbance from the proposed action will not result in impairment to cultural resources.

SOUNDSCAPE

Soundscape was not specifically identified as a park purpose in enabling legislation or in the park's Foundation Statement. However, the park's natural soundscape, and its contribution to visitor enjoyment and wilderness character, was documented in the 2006 Denali National Park and Preserve Backcountry Management Plan. The proposed project will generate a net increase in noise from heavy equipment and power tools during the two summers when construction occurs. Acoustic impacts will likely be realized in Sable Pass Wildlife Viewing Area, East Fork Cabin, and backcountry areas 7, 29, and 30. Impacts to the soundscape will be temporary; measures will be employed to reduce noise impacts where practicable. The level of disturbance from the proposed action will not result in impairment.

RECREATION

One of the purposes identified for establishing Denali National Park and Preserve was public use and enjoyment. The recreation resources within the park will be impacted by construction activity, dust, and noise. Visitors may encounter traffic delays, displacement from backcountry areas near the proposed project area, and a decrease in wildlife viewing opportunities during the two-summer construction period. Adverse impacts to recreation resources will be temporary; replacement of the bridge will facilitate recreation access to the park for many years. The level of disturbance to recreation resources from the proposed action will not result in impairment.

CONCLUSION

In conclusion, as guided by this analysis, best available science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public engagement, it is the Superintendent's professional judgment that the proposed action will not result in impacts to park resources and values that constitute impairment.

References

Fairbanks Daily News Miner. 1939. "Park Road Chief to Wed Teacher," Fairbanks Daily News Miner, June 6th Edition. Fairbanks Daily News Miner. Fairbanks, Alaska.

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