U.S. ARMY GARRISON ALASKA

FORT WAINWRIGHT BAILEY BRIDGE REPLACEMENT

FINDING OF NO SIGNIFICANT IMPACT

August 2019

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FINDING OF NO SIGNIFICANT IMPACT

The National Environmental Policy Act of 1969 (NEPA) (42 United States Code 4321 et seq.) requires federal agencies to consider the potential environmental impacts prior to undertaking a course of action. Within the United States (U.S.) Department of the Army (Army), NEPA is implemented through regulations promulgated by the Council on Environmental Quality (CEQ; 40 Code of Federal Regulations (CFR) 1500–1508) with supplemental requirements provided under 32 CFR 651, Environmental Analysis of Army Actions, and Army regulations. In adherence with NEPA, 40 CFR 1500–1508, and 32 CFR 651, the U.S. Army Garrison Alaska (USAG Alaska) prepared an environmental assessment (EA) to assess the potential environmental impacts from the replacement of the Bailey Bridge in Fort Wainwright, Alaska.

Description of Proposed Action

The USAG Alaska proposes to replace the existing Bailey Bridge with a new precast-concrete, bulb-tee bridge structure in its place. The new single-lane bridge would provide access across the Chena River for passenger, military, and emergency services vehicles. Bridge removal would occur during the winter when the river is frozen. In-river construction would commence during the summer of 2020. The current route through the Bailey Bridge would be closed to passenger vehicles from the time of demolition until construction of the new bridge is complete. Specific construction activities, schedule, and equipment for implementing the proposed action would be developed through the design-build process.

Alternatives Considered

The Army used several screening criteria to determine which alternatives would be analyzed in greater detail in the EA. These screening criteria were based on the needs identified for replacing the bridge balanced against anticipated impacts to the natural and human environment. The screening criteria for alternatives were to provide military access across the Chena River, provide an additional route for emergency services access north of the Chena River, minimize environmental impacts from construction activities, and minimize impact to the Chena Bend Golf Course during construction. Of the potential alternatives that were screened, only the alternative to replace the existing Bailey Bridge with a new bridge in its place met all the screening criteria. Thus, the following alternative was carried forward for analysis in the EA.

- Alternative 1: Replace the Bailey Bridge at current location

In addition, per CEQ regulations 40 CFR 1502.14, the USAG Alaska considered the No Action Alternative where the decision-maker would elect to not replace the Bailey Bridge and leave the existing bridge in its current state. Under this alternative, the existing bridge would be closed for all use by January 2019 due to structural degradation.

Preferred Alternative

The Army's preferred alternative is implementing Alternative 1: Replace Bailey Bridge at current location.

Discussion of Anticipated Environmental Impacts

The EA, which is attached and incorporated by reference into this Finding of No Significant Impact (FNSI), fully analyzed the potential effects from implementing the Proposed Action under Preferred Alternative and the No Action Alternative for the following twelve resources: land use, air quality, noise, geological and soil resources, water resources, biological resources, cultural resources, recreational resources, socioeconomics and environmental justice, transportation and traffic, solid waste and hazardous and toxic materials and waste, and human health and safety. Table FNSI-1 summarizes the environmental impacts associated with each alternative for each resource evaluated in the EA. A summary of proposed mitigation and best management practices (BMPs) is provided after the table.

Table FNSI-1. Summary of Environmental Impacts

Resource Area	Preferred Alternative	No Action Alternative
Land Use	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: no impacts.
Air Quality	*Short-term*: minor. *Long Term*: beneficial.	*Short- and Long-term*: minor.
Noise	*Short-term*: minor. *Long-term*: minor.	*Short- and Long-term*: no impacts.
Geological and Soil Resources	*Short-term*: minor. *Long-term*: minor.	*Short- and Long-term*: no impacts.
Water Resources	*Short-term*: minor to moderate. *Long-term*: no impacts.	*Short- and Long-term*: moderate to surface water quality.
Biological Resources	*Short-term*: wetland impacts minor to moderate; invasive species impacts minor; fish and fish habitats impact minor; minor to no impacts on vegetation communities and special status plant and wildlife habitat. *Long-term*: minor to no impacts of construction to wildlife habitat.	*Short- and Long-term*: moderate to aquatic species.
Cultural Resources	*Short- and Long-term*: adverse impact mitigated through National Historic Preservation Act Section 106 consultation and Memorandum of Agreement.	*Short- and Long-term*: potential significant adverse effect from bridge deterioration and possible collapse.

Recreational Resources	*Short-term*: minor. *Long-term*: no impacts.	*Short- and Long-term*: no impacts.
Socioeconomics and Environmental Justice	*Short-term*: beneficial impacts through contract award; no impacts to regional demographics or environmental justice populations; minor construction impacts to Chena Bend Golf Course. *Long-term*: beneficial.	*Short- and Long-term*: no impacts.
Transportation and Traffic	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: minor.
Solid Waste and Hazardous and Toxic Materials and Waste	*Short-term*: moderate. *Long-term*: beneficial.	*Short- and Long-term*: moderate.
Human Health and Safety	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: moderate.

Mitigation and Best Management Practices

The Proposed Action incorporates mitigation and a number of BMPs where appropriate, to reduce and/or eliminate potential impacts. With mitigations and BMPs incorporated, the proposed action is not expected to result in significant impacts to any of the resource areas. In addition, and if required, specific mitigation measures will be determined during the project's permitting process to avoid, minimize, or mitigate impacts to resource areas.

USAG Alaska has consulted with the Alaska State Historic Preservation Officer (SHPO) for compliance with National Historic Preservation Act Section 106. A Memorandum of Agreement (MOA) has been developed that contains mitigations to offset adverse effects on historic properties from the demolition of the Bailey Bridge.

Mitigations are to:

- Undertake documentation of the Bailey Bridge following Historic American Engineering Record Phase II guidelines.
- Report on the history, prevalence, and continued usage of Bailey Bridges in Alaska.
- Produce a monograph on the Fort Wainwright Bailey Bridge.

The MOA was signed by the SHPO on 18 July 2019. Once it is made available to the public, it can be accessed at: https://home.army.mil/wainwright/index.php/about/environmental/cultural-resources/section-106-consultation.

The USAG Alaska and U.S. Army Alaska have produced a variety of analyses in subject areas such as installation-wide planning, cultural resources management, and natural resources management. The BMPs and mitigation measures discussed in the following documents are ongoing and will continue as part of the baseline management employed by the USAG Alaska and the U.S. Army Alaska on Army-owned and controlled lands, including the replacement of the Bailey Bridge as a part of the current Proposed Action:

- Fort Wainwright Environmental Stewardship Guidelines, 2017
- Army Low Impact Development Technical User Guide, 2013
- Fort Wainwright Chena North District Area Development Plan and Fort Wainwright South Post District Area Development Plan, 2016
- Installation Compatible Use Zone Study, 2017
- Integrated Cultural Resources Management Plan (ICRMP), 2013; 2000 ICRMP EA, and 2012 ICRMP Update Record of Environmental Consideration
- Integrated Natural Resources Management Plan (INRMP), 2013; 2007 INRMP EA; and 2013 INRMP Update Record of Environmental Consideration
- Municipal Separate Storm Sewer System (MS4), Storm Water Management Plan, 2016
- Real Property Master Plan Programmatic Environmental Assessment, 2017
- U.S. Army Garrison Alaska Environmental Concerns for Construction, Demolition, and Renovation projects with Appendices, 2018
- U.S. Army Garrison Alaska Outdoor Recreation Regulation Supplement, 2018.

Cumulative Effects Analysis

The Army conducted a cumulative impact assessment to determine whether the combined effects of each alternative along with other projects in the region might be significant. After review of past, present, and reasonably foreseeable future actions occurring in the same region of influence as the Proposed Action, the Army determined that none of the alternatives would result in cumulative impacts that were significant for any resource areas.

Public/Agency Involvement

The EA and draft FNSI were available for review and comment from 26 July 2019 to 24 August 2019. The documents were made available for review at the Noel Wien Public Library located at 1215 Cowles Street, Fairbanks, Alaska; the Fort Wainwright Main Post Library at 3700 Santiago Avenue, Fort Wainwright, Alaska; and through the Fort Wainwright NEPA website at https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa. Primary comments received included questions on Bailey Bridge closure and the proposed replacement bridge, as well as comments on the importance of the area for salmon migration. Comments and Army responses are presented in Appendix A.

Conclusion

Based on the review of the information contained in the EA, the USAG Alaska has determined through this FNSI that implementing the preferred alternative would not significantly affect the quality of the environment within the meaning of NEPA Section 102(2)(C). The preparation of an environmental impact statement for the Proposed Action is not required.

Point of Contact

For further information, please direct requests to Directorate of Public Works, ATTN: IMFW-PWE (Laura Sample), 1046 Marks Road #6000, Fort Wainwright, AK 99703-6000. The EA and FNSI are available at: https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa.

APPROVED BY:

Christopher J. Ruga
Colonel, US Army
Commanding

4 SEP 19
Date

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APPENDIX A: EA and Draft FNSI Comments and Army Responses

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Table A-1 provides the USAG Alaska's responses to comments received during the public comment period for the Environmental Assessment (EA) and draft Finding of No Significant Impact (FNSI).

Table A-1: Army Responses to Public Comments on the EA and Draft FNSI

Comment Number	Comment	Response to Comment
PublicComment1	Is there a plan to replace or rebuild the Bailey Bridge or is the EA a step in the process to start the replacement process?	Thank you for your questions. The bridge was closed on 19 August 2019 because of damage to the support structure. The wooden railroad ties underneath have multiple cracks and splits, and some of the metal support beams are heavily rusted and bent. Because vehicles that were over the bridge's weight limit kept driving on it, the bridge was rapidly becoming unsafe for all vehicles and pedestrians, and needed to be closed. The bridge closure will not affect emergency vehicles responding to the housing and recreational areas in the area, as such vehicles already use River Road for access. There is a proposed plan to replace the Bailey Bridge with a larger, single-lane bridge. In the proposed bridge project, construction would begin in Spring or Summer of 2020. Bridge construction would be expected to be completed by Fall 2021. The EA is a document that evaluates the proposed bridge project, as well as the No-Action Alternative, for environmental impacts. During the proposed bridge project, residents of Secluded Acres would have to utilize River Road Bridge to access Fort Wainwright areas south of the Chena River. The USAG Alaska Public Information Office will be providing information on the closure schedule of both of the bridges and detour routes.
PublicComment2	It would just a fact check inquiry, I live back in Secluded Acres and was just wondering after I saw the sign posted at lunch, so is there actually a plan to replace the bridge? Will it be a planked structure or a concrete structure? Will this require the residents to use River Rd for access on and thru post. Thank you for your time.	
PublicComment3	When are they projected to begin construction on the new bridge if they actually are building one and also if there is a projected time of completion? If they don't plan on starting construction until after winter then why are they closing the bridge now?	

ADF&G1	The ADF&G Division of Habitat has no objection to the proposed replacement of Bailey Bridge on Fort Wainwright over the Chena River. As detailed in the FNSI, this area provides important migration habitat for Chinook and chum salmon. As such, moderating or eliminating impediments to migration for these species will be an important component of the bridge replacement. The most sensitive period for these salmon is from approximately June 30 to August 15. The existing plan is to demolish the existing bridge and install new bridge piers in the winter, which is ideal. Existing bridge piers should be removed completely if possible, and if they cannot be completely removed, should be cut off well below the level of the substrate, to avoid becoming an obstacle to navigation or a debris trap.	Comment noted. Thank you for your input.

APPENDIX B: Comment Period Materials

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U.S. ARMY GARRISON ALASKA
NOTICE OF AVAILABILITY

Bailey Bridge Replacement Environmental Assessment and Draft Finding of No Significant Impact

The U.S. Army Garrison Alaska (USAG Alaska) announces the availability of an Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) in accordance with the National Environmental Policy Act (NEPA). The EA and Draft FNSI analyze the potential environmental impacts associated with the proposed Fort Wainwright Bailey Bridge Replacement project. The current condition of the Bailey Bridge, which crosses the Chena River at Fort Wainwright, warrants a decision on a replacement to provide a safe means for crossing the Chena River.

Two alternatives were analyzed in the EA: (1) Preferred Alternative (replace bridge at current location), and (2) the No Action Alternative (leave existing bridge in its current state). The Preferred Alternative would demolish the existing bridge and construct a new bridge in the same location. The new single-lane bridge would have higher vehicle weight limits to provide passage across the Chena River for passenger, military, and emergency vehicles. The current route across the Bailey Bridge would be closed from the time of demolition until construction of the new bridge is complete, with detours available via the River Road bridge.

This EA demonstrates that the Proposed Action would not significantly impact the environment and supports a FNSI. Consequently, an environmental impact statement is not needed.

The EA and Draft FNSI are available for review during a 30-day public comment period beginning on **July 26, 2019**. The EA and Draft FNSI can be reviewed at the Noel Wien Library, 1215 Cowles Street, Fairbanks, AK and the Fort Wainwright Library, 3700 Santiago Avenue, Fort Wainwright, AK, or online at: https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa

Written comments on the EA and Draft FNSI must be received no later than **August 24, 2019.** Please submit comments to Ms. Laura Sample, Directorate of Public Works, Attn: IMFW-PWE (L. Sample), 1046 Marks Road #6000, Fort Wainwright, AK, 99703-6000, fax: (907) 361-9867; or by email: **laura.a.sample.civ@mail.mil**.

Additional information can be obtained by contacting Mr. Alan (Grant) Sattler, Public Affairs Office, 1060 Gaffney Road, 5900, Fort Wainwright, Alaska 99703; telephone (907) 353-6701, email: **alan.g.sattler.civ@mail.mil**.

Affidavit of Publication

UNITED STATES OF AMERICA
STATE OF ALASKA
FOURTH DISTRICT } SS.

Before me, the undersigned, a notary public, this day personally appeared Linda Ness, who, being first duly sworn, according to law, says that he/she is an Advertising Clerk of the Fairbanks Daily News-Miner, a newspaper (i) published in newspaper format, (ii) distributed daily more than 50 weeks per year, (iii) with a total circulation of more than 500 and more than 10% of the population of the Fourth Judicial District, (iv) holding, a second class mailing permit from the United States Postal Service, (v) not published primarily to distribute advertising, (vi) not intended for a particular professional or occupational group. The advertisement which is attached is a true copy of the advertisement published in said paper on the following day(s):

07/26/2019, 08/19/2019

and that the rate charged thereon is not excess of the rate charged private individuals, with the usual discounts.

Linda Ness
Advertising Clerk
Subscribed to and sworn to me this 20th day of August, 2019

M. Burnell
Marena Burnell, Notary Public in and for the State Alaska.
My commission expires: December 07, 2021

102079 543468 (907) 384-3046
DPW ENVIRONMENTAL RESOURCES
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FORT RICHARDSON, AK 99505-6300

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

543468

U.S. ARMY GARRISON ALASKA
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Pub: July 26, 2019 and August 19, 2019

Affidavit of Publication

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STATE OF ALASKA
FOURTH DISTRICT } SS.

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600 RICHARDSON DR. STE 6300
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STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

543468

U.S. ARMY GARRISON ALASKA
NOTICE OF AVAILABILITY

Bailey Bridge Replacement
Environmental Assessment and
Draft Finding of No Significant Impact

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Pub: July 26, 2019 and August 19, 2019

To Current Resident:

The U.S. Army Garrison Alaska announces the availability of the Bailey Bridge Replacement Final Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) for public comment from:

July 26, 2019 to August 24 2019

The EA reviews the environmental and socioeconomic impacts of replacing the Bailey Bridge. The EA and Draft FNSI can be viewed at the Fort Wainwright Library, Noel Wien Library, and online at https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa.

We welcome your questions and comments on this project, the EA, and the decision to be made. Written comments may be submitted via mail or email to:

Ms. Laura Sample, USAG Alaska NEPA Program Manager, ATTN: IMFW-PWE (Sample), 1046 Marks Road #6000, Fort Wainwright, Alaska 99703-6000, or email: laura.a.sample.civ@mail.mil.

Message side of postcard

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Current Resident of 715 Cyclone Dr.
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Current Resident of 710 Nautilus Dr.
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APPENDIX C: List of Preparers and Contributors

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Table C-1 lists the individuals responsible for preparing the EA and FNSI and their roles.

Table C-1: List of Preparers and Contributors			
Name	**Title**	**Education**	**Experience/Role**
United States Army Garrison Alaska			
Tracy Carter	Environmental Law Attorney	JD, Law	25 years Contributed to document review
Elizabeth Cook	Cultural Resources Manager/Native Liaison	MA, Anthropology	11 years Developed MOA for Section 106 compliance, contributed to document review
Eric Dick	Compliance Branch Chief	MS, Chemistry	20 years Contributed to document review
Kathleen Gannon	RCRA Program Manager	MS, Environmental Chemistry	16 years Contributed to document review
Vicki Madick	Program Analyst	Occupational License	12 years Contributed to document review
Ida Petersen	Water Program Manager	BS, Civil Engineering; PE, Environmental Engineering	8 years Contributed to document review
Daniel Rees	Natural Resources Manager	MS, Forestry	20 years Contributed to document review
Laura Sample	NEPA Program Manager	MNRS, Natural Resource Stewardship in Sustainable Military Lands Management	6 years Responsible for overall document review and project management
Tamara Scholten	Engineer Liason	MS, Civil and Environmental Engineering, PE	1 year Contributed to document review
Kristina Smith	Air Program Manager	MCE, Environmental Engineering	15 years Contributed to document review
Matthew Sprau	Resource Planning Branch Chief	BS, Natural Resources Management/Forest Sciences	10 years Contributed to document review
Colorado State University			
Cassandra Woster	Cultural Resources Consultant	MS, Historic Preservation and Planning	6 years Contributed to document review

AECOM			
Emma Rawnsley	Senior Environmental Planner	MS, Geography	11 years Responsible for document preparation
Patience Stuart	Architectural Historian	MS, Historic Preservation	6 years Responsible for document preparation
Brice Environmental Services			
William Favitta	GIS Consultant	MS, Environmental Science & Management	5 years Responsible for map preparation
Jerry Guo	NEPA Consultant	MS, Natural Resources & Environment	1 year Contributed to document preparation and review

U.S. ARMY GARRISON ALASKA

FORT WAINWRIGHT BAILEY BRIDGE REPLACEMENT

ENVIRONMENTAL ASSESSMENT

July 2019

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U.S. ARMY GARRISON ALASKA

FORT WAINWRIGHT BAILEY BRIDGE REPLACEMENT

ENVIRONMENTAL ASSESSMENT

APPROVED BY:

Christopher Ruga
Colonel, U.S. Army
Commanding

23 JUL 19

Date

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

The National Environmental Policy Act of 1969 (NEPA) (42 United States Code 4321 et seq.) requires federal agencies to consider the potential environmental impacts prior to undertaking a course of action. Within the United States (U.S.) Department of the Army (Army), NEPA is implemented through regulations promulgated by the Council on Environmental Quality (CEQ; 40 Code of Federal Regulations (CFR) 1500–1508) with supplemental requirements provided under 32 CFR 651, Environmental Analysis of Army Actions, and Army regulations. In adherence with NEPA, 40 CFR 1500–1508, and 32 CFR 651, the U.S. Army Garrison Alaska (USAG Alaska) prepared an environmental assessment (EA) to assess the potential environmental impacts from the replacement of the Bailey Bridge in Fort Wainwright, Alaska.

Description of Proposed Action

The USAG Alaska proposes to replace the existing Bailey Bridge with a new precast-concrete, bulb-tee bridge structure in its place. The new single-lane bridge would provide access across the Chena River for passenger, military, and emergency services vehicles. Bridge removal would occur during the winter when the river is frozen. In-river construction would commence during the summer of 2020. The current route through the Bailey Bridge would be closed to passenger vehicles from the time of demolition until construction of the new bridge is complete. Specific construction activities, schedule, and equipment for implementing the proposed action would be developed through the design-build process.

Alternatives Considered

The Army used several screening criteria to determine which alternatives would be analyzed in greater detail in the EA. These screening criteria were based on the needs identified for replacing the bridge balanced against anticipated impacts to the natural and human environment. The screening criteria for alternatives were to provide military access across the Chena River, provide an additional route for emergency services access north of the Chena River, minimize environmental impacts from construction activities, and minimize impact to the Chena Bend Golf Course during construction. Of the potential alternatives that were screened, only the alternative to replace the existing Bailey Bridge with a new bridge in its place met all the screening criteria. Thus, the following alternative was carried forward for analysis in the EA.

- Alternative 1: Replace the Bailey Bridge at current location

In addition, per CEQ regulations 40 CFR 1502.14, the USAG Alaska considered the No Action Alternative where the decision-maker would elect to not replace the Bailey Bridge and leave the existing bridge in its current state. Under this alternative, the existing bridge would be closed for all use in January 2019 due to structural degradation.

Preferred Alternative

The Army's preferred alternative is implementing Alternative 1: Replace Bailey Bridge at current location.

Discussion of Anticipated Environmental Impacts

The EA, which is attached and incorporated by reference into this Finding of No Significant Impact (FNSI), fully analyzed the potential effects from implementing the Proposed Action under Preferred Alternative and the No Action Alternative for the following twelve resources: land use, air quality, noise, geological and soil resources, water resources, biological resources, cultural resources, recreational resources, socioeconomics and environmental justice, transportation and traffic, solid waste and hazardous and toxic materials and waste, and human health and safety. Table FNSI-1 summarizes the environmental impacts associated with each alternative for each resource evaluated in the EA. A summary of proposed mitigation and best management practices (BMPs) is provided after the table.

Table FNSI-1. Summary of Environmental Impacts

Resource Area	**Preferred Alternative**	**No Action Alternative**
Land Use	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: no impacts.
Air Quality	*Short-term*: minor. *Long Term*: beneficial.	*Short- and Long-term*: minor.
Noise	*Short-term*: minor. *Long-term*: minor.	*Short- and Long-term*: no impacts.
Geological and Soil Resources	*Short-term*: minor. *Long-term*: minor.	*Short- and Long-term*: no impacts.
Water Resources	*Short-term*: minor to moderate. *Long-term*: no impacts.	*Short- and Long-term*: moderate to surface water quality.
Biological Resources	*Short-term*: wetland impacts minor to moderate; invasive species impacts minor; fish and fish habitats impacts minor; minor to no impacts on vegetation communities and special status plant and wildlife habitat. *Long-term*: minor to no impacts to wildlife habitat.	*Short- and Long-term*: moderate to aquatic species.
Cultural Resources	*Short- and Long-term*: adverse impact mitigated through National Historic Preservation Act Section 106 consultation and Memorandum of Agreement.	*Short- and Long-term*: potential significant adverse effect from bridge deterioration and possible collapse.
Recreational Resources	*Short-term*: minor. *Long-term*: no impacts.	*Short- and Long-term*: no impacts.

Resource Area	**Preferred Alternative**	**No Action Alternative**
Socioeconomics	*Short-term*: beneficial impacts through contract award; no impacts to regional demographics or environmental justice populations; minor construction impacts to Chena Bend Golf Course. *Long-term*: beneficial.	*Short- and Long-term*: no impacts.
Transportation and Traffic	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: minor.
Solid Wastes and Hazardous and Toxic Materials and Waste	*Short-term*: moderate. *Long-term*: beneficial.	*Short- and Long-term*: moderate.
Human Health and Safety	*Short-term*: minor. *Long-term*: beneficial.	*Short- and Long-term*: moderate.

Mitigation and Best Management Practices

The Proposed Action incorporates mitigation and a number of BMPs where appropriate, to reduce and/or eliminate potential impacts. With mitigations and BMPs incorporated, the proposed action is not expected to result in significant impacts to any of the resource areas. In addition, and if required, specific mitigation measures will be determined during the project's permitting process to avoid, minimize, or mitigate impacts to resource areas.

USAG Alaska has consulted with the Alaska State Historic Preservation Officer (SHPO) for compliance with National Historic Preservation Act Section 106. A Memorandum of Agreement (MOA) has been developed that contains mitigations to offset adverse effects on historic properties from the demolition of the Bailey Bridge.

Mitigations are to:

- Undertake documentation of the Bailey Bridge following Historic American Engineering Record Phase II guidelines
- Report on the history, prevalence, and continued usage of Bailey Bridges in Alaska
- Produce a monograph on the Fort Wainwright Bailey Bridge.

The MOA will be signed in July 2019 and will be available at: https://home.army.mil/wainwright/index.php/about/environmental/cultural-resources/section-106-consultation.

Permit stipulations may require additional specific actions to minimize impacts to biological, fish, and water resources.

The USAG Alaska and U.S. Army Alaska have produced a variety of analyses in subject areas such as installation-wide planning, cultural resources management, and natural resources management. The BMPs and mitigation measures discussed in the following documents are ongoing and will continue as part of the baseline management employed by the USAG Alaska and the U.S. Army Alaska on Army-owned and controlled lands, including the replacement of the Bailey Bridge as a part of the current Proposed Action:

- Fort Wainwright Environmental Stewardship Guidelines, 2017
- Army Low Impact Development Technical User Guide, 2013
- Fort Wainwright Chena North District Area Development Plan and Fort Wainwright South Post District Area Development Plan, 2016
- Installation Compatible Use Zone Study, 2017
- Integrated Cultural Resources Management Plan (ICRMP), 2013; 2000 ICRMP EA, and 2012 ICRMP Update Record of Environmental Consideration
- Integrated Natural Resources Management Plan (INRMP), 2013; 2007 INRMP EA; and 2013 INRMP Update Record of Environmental Consideration
- Municipal Separate Storm Sewer System (MS4), Storm Water Management Plan, 2016
- Real Property Master Plan Programmatic Environmental Assessment, 2017
- U.S. Army Garrison Alaska Environmental Concerns for Construction, Demolition, and Renovation projects with Appendices, 2018
- U.S. Army Garrison Alaska Outdoor Recreation Regulation Supplement, 2018.

Cumulative Effects Analysis

The Army conducted a cumulative impact assessment to determine whether the combined effects of each alternative along with other projects in the region might be significant. After review of past, present, and reasonably foreseeable future actions occurring in the same region of influence as the Proposed Action, the Army determined that none of the alternatives would result in cumulative impacts that were significant for any resource areas.

Public/Agency Involvement

The EA and draft FNSI are available for review and comment from 26 July 2019 to 24 August 2019.

Conclusion

Based on the review of the information contained in the EA, the USAG Alaska has determined through this FNSI that implementing the preferred alternative would not significantly affect the quality of the environment within the meaning of NEPA Section 102(2)(C). The preparation of an environmental impact statement for the Proposed Action is not required.

Point of Contact

For further information, please direct requests to:

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The EA and FNSI will be made available at:
https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa.

APPROVED BY:

_____ _____

Christopher Ruga
Colonel, U.S. Army
Commanding

Date

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ACRONYMS

ACM	asbestos-containing materials
ADEC	Alaska Department of Environmental Conservations
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADP	Area Development Plan
AHRS	Alaska Heritage Resources Survey
APDES	Alaska Pollutant Discharge Elimination System
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
dB	decibel
dB/DD	decibel per doubling of distance
dBA	A-weighted decibel
DoD	Department of Defense
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FNSB	Fairbanks North Star Borough
FNSI	Finding of No Significant Impact
FTA	Federal Transportation Administration
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
LBP	lead-based paint
LID	low impact development
L_{max}	estimated maximum noise level
mg/kg	milligrams per kilogram
MLC	Military Load Classification
MOA	memorandum of agreement
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHL	National Historic Landmark

NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PCB	polychlorinated biphenyl
PM10	particulate matter less than 10 microns in particle diameter
PM2.5	particulate matter less than 2.5 microns in particle diameter
RCRA	Resource Conservation Recovery Act
RPMP	Real Property Management Plan
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedures
SSP	special status plants
SSW	special status wildlife
SWPPP	Storm Water Pollution Prevention Plan
U.S.C.	United States Code
USAG Alaska	U.S. Army Garrison Alaska[1]
USARAK	U.S. Army Alaska
USARTRAK	U.S. Army Recreation Tracking
USFWS	U.S. Fish and Wildlife Service

[1] The U.S. Army Garrison Alaska (USAG Alaska) was previously referred to as the U.S. Army Garrison Fort Wainwright (USAG FWA). For clarity, this document uses the term USAG Alaska, even when discussing previous actions undertaken or documents prepared under the USAG FWA name.

1. PURPOSE, NEED, AND SCOPE

1.1. Introduction

The U.S. Army Garrison Alaska (USAG Alaska) proposes to replace the Bailey Bridge, which crosses the Chena River from River Road within the Fort Wainwright Main Post. The new bridge would provide safe transportation access for passenger, military, and emergency services vehicles crossing the Chena River.

Fort Wainwright is in central Alaska, north of the Alaska Range in the Tanana River Valley (Figure 1). The Fort Wainwright Main Post is approximately 15,369 acres in area and is within the Fairbanks North Star Borough (FNSB). The FNSB population is approximately 98,971 (U.S. Census Bureau 2018a). The City of Fairbanks is the largest city in FNSB, with a population of approximately 31,516 (U.S. Census 2018a). Fort Wainwright is on the eastern edge of the urbanized portions of the city.

A majority of the land surrounding Fort Wainwright is State of Alaska-owned land. Principal land use management categories include fish and wildlife habitat, public recreation, forestry, agricultural sale, and settlement. The Tanana Valley State Forest lies north of Fort Wainwright, with private and FNSB-owned land parcels to the south. Alaska Native corporation-owned and Native allotment parcels also border Fort Wainwright.

The Bailey Bridge is located at the eastern edge of the Fort Wainwright Main Post, adjacent to the Chena Bend golf course (Figure 2). The Chena River is a predominantly single-channel river that meanders westwards before flowing into the Tanana River approximately 10 miles east of the Bailey Bridge. In the immediate vicinity of the Bailey Bridge, the river is approximately 200 feet wide and flows from southeast to northwest. For the purposes of this document, however, the river is described as flowing east to west and with a northern and southern bank. The southern bank is landscaped in keeping with its use as a golf course, with a paved bridge approach that connects to Kinney Road, which leads west to connect with the Main Post roading network. The northern bank is predominantly forested, with a gravel bridge approach that connects to River Road, which leads north to access the Chena North training area, and Nautilus Road, which leads east to a private off-installation housing development approximately 2,500 feet east of the bridge. This housing development, known as Secluded Acres, is only accessible through Fort Wainwright at both the Bailey Bridge and River Road routes.

Built in 1949 as part of the expansion of the Ladd Air Force Base, the Bailey Bridge is a prefabricated pony truss bridge with vertical and diagonal supports, measuring 260 feet from end to end and approximately 20 feet across (Figure 3). The Bailey Bridge has one lane and sits on two piers, both located within the ordinary high-water mark of the river. The bridge has been determined eligible for listing in the National Register of Historic Places (NRHP).

1.2 Purpose and Need for Proposed Action

The USAG Alaska proposes to replace the Bailey Bridge, which spans the Chena River on the Main Post of Fort Wainwright, Alaska. The bridge has served the purpose for which is was constructed but is exhibiting signs of structural degradation. The condition of the bridge is beyond repair and requires replacement to provide a safe means for crossing the river. The bridge will be closed in the winter of 2020 due to its structural degradation.

The Bailey Bridge is one of two bridges currently providing access from the Main Post to U.S. Army facilities and training areas north of the Chena River. The River Road Bridge is east of the air field and crosses the Chena River from Meridian Road. Current bridge infrastructure at Fort Wainwright, due to the condition of the Bailey Bridge, limits troop movement and emergency services capabilities from the Main Post to local training areas and residential areas north of the Chena River.

In response to structural concerns, Fort Wainwright has limited the vehicle weight ratings on the Bailey Bridge to passenger vehicles and only one at a time. This limitation results in military vehicles having to travel through more populated areas of the Main Post to access the River Road Bridge and local training areas north of the Chena River. This also results in military vehicles transporting ammunition and ordnance through populated areas. Replacing the Bailey Bridge with a new structure would restore the route for military vehicles and minimize safety risks by transporting ammunition and ordnance through a less populated area of the Main Post.

The limitations on the existing Bailey Bridge also restrict emergency service vehicles. Emergency vehicles responding to events north of the Chena River must use the River Road Bridge, which increases the response time to reach the eastern side of the local training area and Secluded Acres. A new bridge at the Bailey Bridge location would allow emergency vehicles to use this route to reach the local training area and the Secluded Acres residential area.

Figure 1. Regional Map of Alaska showing Fort Wainwright (USAG Alaska 2017a)

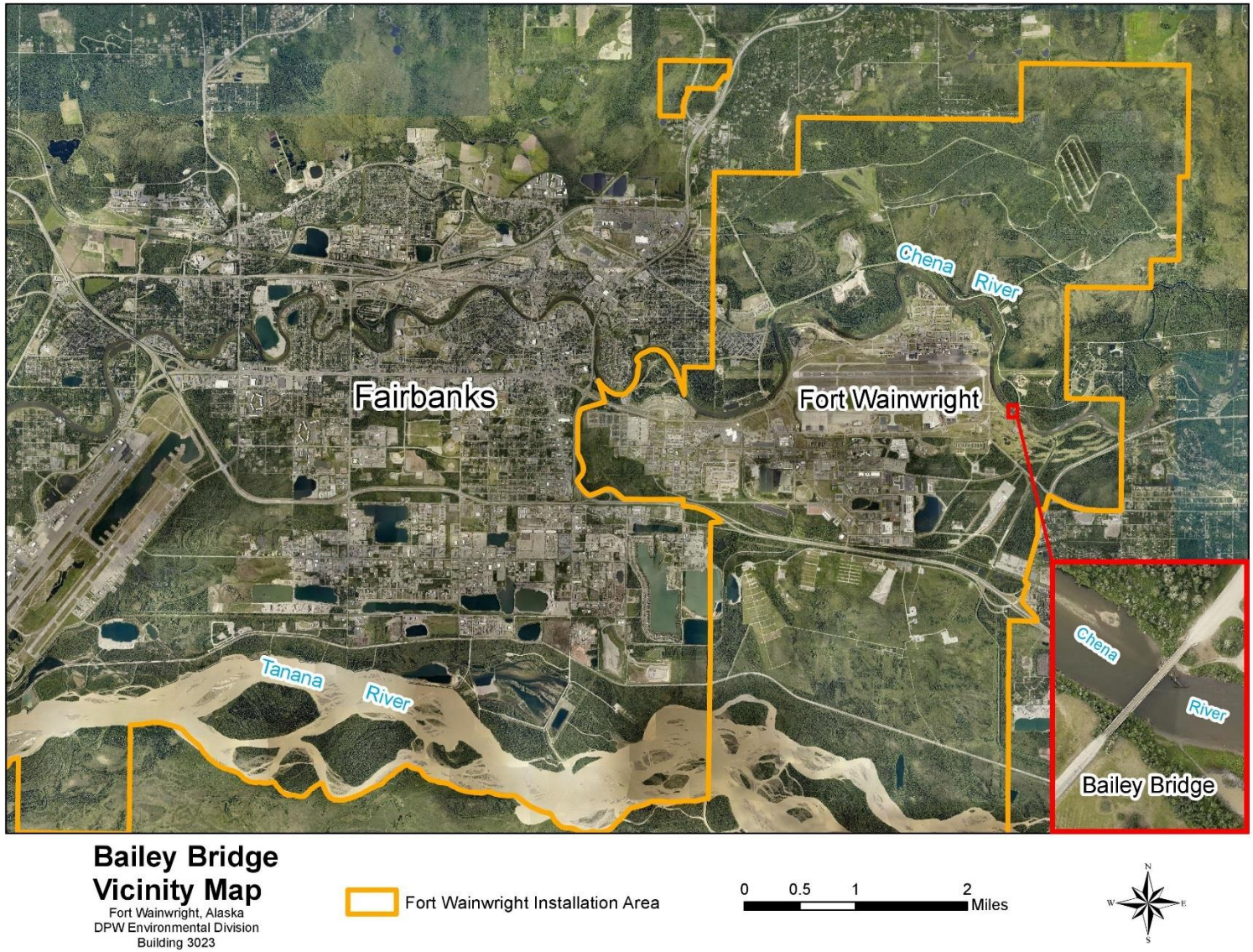

Figure 2. Bailey Bridge Vicinity Map

Figure 3. Photograph of Existing Bailey Bridge (2019)

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1.3. Scope of Environmental Analysis

The USAG Alaska has prepared this environmental assessment (EA) to assess the potential direct, indirect, and cumulative impacts associated with implementation of the Proposed Action and the No Action alternatives. To understand the environmental consequences of the decision to be made, the EA evaluates the environmental impacts of the alternatives. This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code (U.S.C.) Section 4321 et seq.), Council on Environmental Quality (CEQ) Regulations 40 Code of Federal Regulations (CFR) Parts 1500-1508, and 32 CFR Part 651 (*Environmental Analysis of Army Actions*). A requirement for an EA is the appraisal of impacts of the proposed project, including a determination of a Finding of No Significant Impact (FNSI) or a Notice of Intent to prepare an environmental impact statement.

Under NEPA, the analysis of environmental conditions mainly addresses those areas and environmental resources in the project area with the potential to be affected by the Proposed Action and No Action alternatives. The U.S. Army's NEPA regulation 32 CFR Part 651 calls for the environmental analysis to be proportionate to the nature and scope of the action, the complexity and level of anticipated effects on important resources, and the capacity of U.S. Army decisions to influence those effects in a productive, meaningful way from the standpoint of environmental quality.

This EA incorporates by reference the documents listed below. Specific references to applicable portions of the documents are provided, as appropriate and where relevant, in the analysis portion of this EA.

- Programmatic Environmental Assessment for the Fort Wainwright Real Property Management Plan (USAG Alaska 2017a)
- USAG Alaska Integrated Natural Resources Management Plan (INRMP) (USAG Alaska 2013a)
- USAG Alaska Integrated Cultural Resources Management Plan (ICRMP) (USAG Alaska 2013b)
- USAG Alaska Fort Wainwright Ecosystem Management Program (USAG Alaska 2013a)
- USAG Alaska Fort Wainwright Post-Wide Work Plan Spills and Historic Releases (USAG Alaska 2018)
- USAG Alaska Municipal Separate Storm Sewer System (MS4), Storm Water Management Plan. December. (USAG Alaska. 2016a)
- USACE Alaska District Request for Proposal (draft) FTW422 Repair Bailey Bridge, Fort Wainwright, Alaska. Solicitation W911KB19R0015. (USACE 2019a)

1.4. Public and Agency Involvement

In accordance with 32 CFR Part 651, the USAG Alaska provides opportunities for the public to participate in the NEPA process to promote open communication and to improve the decision-making process. Persons and organizations having potential interest in the Proposed Action are encouraged to participate in the environmental analysis process.

The USAG Alaska invited federal, state, and local agencies to provide feedback on the Proposed Action and permit requirements during the scoping process. The agency responses are provided in Appendix A.

The following agencies were contacted:

- U.S. Army Corps of Engineers, Regulatory Division (USACE)
- U.S. Coast Guard (USCG)
- Alaska Department of Fish and Game (ADF&G)
- Alaska State Historic Preservation Office (SHPO)
- Alaska Department of Natural Resources (ADNR)
- Fairbanks North Star Borough (FNSB)

1.5. Public Comment Period

In accordance with 32 CFR §651, the U.S. Army provides opportunities for the public to participate in the NEPA process to promote open communication and to improve the decision-making process. All persons and organizations having potential interest in the Proposed Action are encouraged to participate in the environmental analysis process. A Notice of Availability for the EA and draft FNSI will be published in the *Fairbanks Daily News-Miner*. The publication of the Notice of Availability initiates a 30-day comment period, during which the USAG invites the general public, local governments, state agencies, and other federal agencies to submit comments or suggestions concerning the analyses and alternatives addressed in the EA and draft FNSI. Copies of the EA and draft FNSI will be made available for public review at local libraries, and for agencies, organizations, and individuals who express interest in the project. The EA and draft FNSI will be made available on the USAG Alaska NEPA website at: https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa. Additionally, the USAG Alaska has offered consultation to Alaska Native tribes in accordance with the requirements of Department of Defense (DoD) Instruction 4710.02, *DoD Interactions with Federally-recognized Tribes* (DoD, 2006); Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*; the DoD American Indian and Alaska Native Policy (DoD, 1998) and Alaska Native Policy (U.S. Army, 2012). No tribes have requested consultation.

The USAG Alaska will review and consider all comments received during the public comment period, once comments have been considered and resolved if necessary, the USAG Alaska may execute the FNSI and proceed with the Proposed Action.

1.6. Cooperating Agencies

NEPA mandates that federal agencies responsible for preparing NEPA analyses and documentation do so “in cooperation with state and local governments” and other agencies with jurisdiction by law or special expertise (42 U.S.C. Sections 4331(a), 4332(2)). There are no cooperating agencies for the Proposed Action.

The CEQ regulations addressing cooperating agency status (40 CFR Sections 1501.6 and 1508.5) allow federal agencies (as lead agencies) to invite tribal, state, and local governments, as well as other federal agencies, to serve as cooperating agencies in the preparation of EAs. Because this EA addresses potential impacts of implementing the Proposed Action in the Fort Wainwright Main Post, the USAG Alaska exercises sole discretion regarding the management of training lands under its purview. The Proposed Action does not represent significant impacts to resources under the jurisdiction of any federal or state agencies; therefore, no agencies were invited to be cooperating agencies, and no agencies requested that status after being invited to participate in the scoping process.

1.7. Decision to be Made

This EA provides public officials, citizens, and USAG Alaska leadership with the information necessary to evaluate the potential extent of environmental, cultural, and socioeconomic impacts associated with the Proposed Action and whether those impacts (direct, indirect, and cumulative) are significant. This EA will help the USAG Alaska's leadership make a decision that is based on an understanding of the environmental consequences and take action to protect, restore, and enhance the environment. It also provides a record of public, tribal, and agency comments received on the Proposed Action and the environmental analysis presented in the EA and draft FNSI.

The decision to be made is to select an alternative for implementation that supports USAG Alaska's need to replace the Bailey Bridge with a safe means for crossing the Chena River. If no significant environmental impacts are determined based on the evaluation of impacts in this EA, a FNSI will be signed by the USAG Alaska Garrison Commander no earlier than 30 days from public notification of the availability of the EA/draft FNSI. The draft FNSI will explain the decision and identify any mitigation measures that the USAG may include to lessen environmental, cultural, and socioeconomic impacts. If it is determined that the Proposed Action will have significant environmental impacts that cannot be mitigated to less than significant, a notice of intent to prepare an environmental impact statement will be published in the *Federal Register.* As part of the decision-making process, the USAG Alaska Garrison Commander will consider all relevant environmental information and stakeholder issues of concern raised as part of the EA process.

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2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1. Proposed Action

The USAG Alaska proposes to demolish the existing Bailey Bridge and construct a new precast-concrete, bulb-tee bridge structure in its place. The single-lane bridge would provide access across the Chena River for passenger, military, and emergency services vehicles.

2.2. Alternatives Screening Criteria

In compliance with the U.S. Army and CEQ regulations implementing NEPA, the USAG Alaska must consider reasonable alternatives to the Proposed Action. Only those alternatives determined to be reasonable relative to their ability to fulfill the purpose and need for the Proposed Action warrant detailed analysis. To be considered reasonable, an alternative must fulfill the purpose and need for the action, as well as be technically and fiscally feasible. This section presents the criteria used to determine whether alternatives were considered to be reasonable and, therefore, should be carried forward for analysis.

The established four screening criteria to identify appropriate alternatives for replacing the Bailey Bridge. These four screening criteria were based on the needs identified for replacing the bridge balanced against anticipated impacts to the cultural, natural, and socioeconomic environment. The alternatives considered in this EA were screened to meet the following criteria:

- **Provide military access across the Chena River.** USAG Alaska needs to transport ammunitions, ordnance, and freight to storage facilities north of the Chena River without traveling through heavily populated areas at the Main Post. Bridge design must accommodate a minimum of Military Load Classification[2] (MLC)-70 vehicles to achieve this criterion. Tactical vehicles would have access to training areas north of the Chena River without interfering with civilian and regular Main Post traffic.
- **Provide emergency services access to the local training areas and housing areas north of the Chena River**. USAG Alaska needs to preserve two suitable crossing points on the Chena

[2] The U.S. military uses the vehicle and bridge classification system established by the nations of the North Atlantic Treaty Organization. Within this system, vehicles are assigned MLC numbers that represent the size of the vehicle and the loading effects that it has on a bridge. The MLC of a vehicle depends on a combination of factors, including gross weight, number of axles, axle spacing, axle width, and weight distribution to the axles. Similarly, bridges are assigned MLC numbers that represent the largest vehicle classification that the bridge can safety support as part of an occasional convoy with vehicles spaced 100 feet apart and traveling at a maximum speed of 25 miles per hour. The MLC of a bridge is the MLC of its weakest span and depends on such factors as the length of the span, type of construction, quantity and size of structural members, strength of materials, and width of roadway. Standard tracked vehicles are designated by MLC numbers ranging from 4 to 150, which correspond to the gross vehicle weight in short tons. Each standard tracked vehicle is also defined in terms of track width, length, and spacing. Standard wheeled vehicles are designated by the same MLC numbers (4 through 150), which correspond to about 85 percent of the gross weight in short tons. Each standard wheeled vehicle is defined in terms of gross weight, number of axles, axle spacing, and axle load (U.S. Department of Energy 1997).

River for all vehicles in case of an emergency and ensures emergency vehicle backup access if one crossing were to be compromised. Meeting MLC-70 design requirements ensures appropriate vehicle weight allowances for emergency services vehicles.

- **Minimize environmental impacts from construction activities as well as to construction activities.** The project needs to incorporate environmental best management practices (BMPs), including considerations to construction activity impacts from soil and lead paint contaminants and project scheduling.
- **Minimize impact to the Chena Bend Golf Course during construction.** USAG Alaska needs to allow the golf course to remain open during construction with minimal impacts to operation.

2.3. Alternatives Considered

2.3.1. No Action Alternative: Leave Existing Bridge in its Current State

Under the No Action Alternative, the existing Bailey Bridge would not be demolished, and a replacement bridge would not be constructed. The No Action Alternative would leave the existing bridge in its current state. No pile driving, earthwork, or major construction activities would occur.

Use of the bridge under the No Action Alternative in the short term would be identical to existing use, with limitations on the weight and number of vehicles allowed to use the bridge, requiring all vehicles more than five tons (including military trucks and emergency vehicles) to use the River Road Bridge on the northwestern edge of the Main Post to access all areas north of the river. Under the No Action Alternative, the bridge would be permanently closed in 2020, requiring all vehicles (including pedestrians and non-motorized vehicles) to use the River Road Bridge.

2.3.2. Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative is to demolish the existing 260-foot-long, single-lane Bailey Bridge and construct a new precast-concrete, bulb-tee bridge structure in its place. The following description is based on the general requirements and technical provisions included in the solicitation for the design-build contract. Specific design components would be developed through the design-build process.

The proposed replacement bridge would include the following:

- One 15-foot-wide travel lane, with 5.5-foot-wide shoulders on each side, guardrails on each side, and a 6-foot pier cap extension to support future expansion. Key features of the proposed bridge are described in Table 1, and a typical bridge section is shown in Figure 4.
- The new bridge would be supported on pile- concrete abutments at the ends and elevated concrete piers over the river.

- New roadway approaches on both ends of the bridge (approximately 60 to 70 feet in length) to accommodate the new height and width of the bridge. The maximum roadway grade of the approaches would be three percent. The northern approach would be gravel, and the southern approach would be asphalt.
- Realignment of the roadway between the bridge and Kinney Road to accommodate vehicle turns (if required).
- Modification of tee boxes, greens, or other golf course features (if required). Such permanent modifications would be minimized to the extent practical.

Table 1. Comparison of Existing and Proposed Bridges

Bridge Feature/Specification	Proposed Bridge	Existing Bridge
Ordinary High-Water Elevation	Approx. 445 feet NAVD88	Approx. 445 feet NAVD88
Depth of Water	27 feet	27 feet
Thalweg Elevation	Approx. 418 feet NAVD88	Approx. 418 feet NAVD88
Width of Waterway	150 feet	150 feet
Girder Elevation	Minimum low chord elevation of approx. 454 feet NAVD88 for navigation. Minimum low chord elevation of 452 feet NAVD88 for flood clearance.	Estimated 455 feet NAVD88, does not account for apparent bridge sag, which could lower low chord to 453 or 454 feet NAVD88.
Vertical Clearance	Minimum 10.4 feet at low chord	11.4 – 13.4 feet
Horizontal Clearance	Minimum 120-foot clearance between the faces of bridge piers and/or abutments over the navigable span	120 ft. between piers
Length of Bridge	260 feet	260 feet
Overall Width of Bridge	Approx. 28 feet	Approx. 20 feet
Clear Width between railing	26 feet	12 feet
Travel Lane Width (and number)	1 x 15 feet	1 x 12 feet
Shoulder Width	5.5 feet on each side	Wooden deck with wheel track panels, no shoulders.
Military Load Classification	Design would allow for at least MLC-70, possibly up to MLC-120	Currently restricted to vehicles five tons or less

Source: Michelle Bakner, USACE Project Manager. Personal Communication. 2019.

Notes: MLC = Military Load Classification (refer Footnote 1 within this document).

NAVD88 = North American Vertical Datum of 1988

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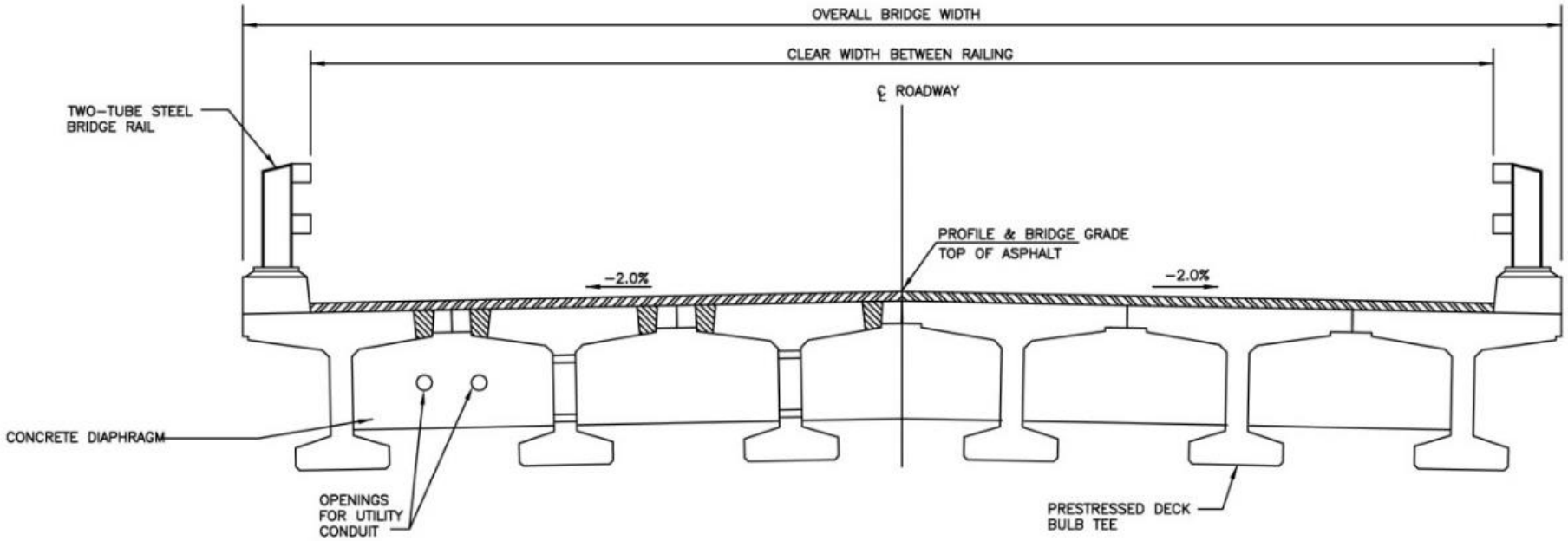

Figure 4. Section Drawing of a Typical Precast-Concrete Bulb-Tee Bridge

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Construction Activities

Specific construction activities and equipment for implementing the Preferred Alternative would be developed through the design-build process and have, therefore, not yet been determined in detail. However, it is anticipated that the following construction activities would be required:

- Establishment of construction zones and staging areas within the project area[3], as follows:
  - The main construction zone (the Bailey Bridge site) would be centered on the site of the existing Bailey Bridge. The temporary construction footprint at the Bailey Bridge site would be approximately 2.09 acres (Figure 5).
  - An approximately 1.07-acre construction staging/laydown area would be established within the Chena Bend Golf Course property, to the south of the Bailey Bridge (Figure 5). Temporary power connections for construction would be provided from the Chena Bend Golf Course.
  - A clean soil disposal site just south of the existing landfill on River Road north of Chena River would be established, along with a contaminated soil stockpile site on the northwest corner of Alder Avenue and Meridian Road (Figure 6). Proposed haul routes are also shown on this figure. Any fill material required for construction would be sourced from an off-site location and trucked to the Bailey Bridge site.
- Establishment of a traffic reroute and communication plan for vehicles accessing the areas north of the Chena River from the Fort Wainwright Main Post Via River Road.
- Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with Alaska Pollutant Discharge Elimination System permit requirements, USAG Alaska low impact development (LID) storm water guidance (USAG Alaska 2013a), and the Fort Wainwright Storm Water Management Plan (USAG Alaska 2016a). The SWPPP would include LID BMPs for erosion and sediment control and spill prevention.
- Demolition of the existing Bailey Bridge, piles, ice deflector structures, utility conduits along the bridge, and paved road approaches. Existing piles would be removed or cut off to a minimum of two feet below existing adjacent river bed, or as directed by permitting stipulations for in-water work. Existing abutments would be removed to a minimum of three feet below grade and backfilled with compacted structural fill. Site clearing would be minimized to the extent necessary for construction and would not extend beyond the construction footprint shown in Figure 5. It is anticipated that demolition would occur during winter, when the river is frozen.
- Construction of pile-supported concrete abutments at each end, with pile-supported elevated concrete piers over the river. In-river construction would occur in accordance with any seasonal timing stipulations included within the fish habitat permit that will be obtained for the Preferred Alternative from the ADF&G.

[3] Within this document, the term “project area” is used to refer to the combined area of the Bailey Bridge site, staging/laydown area, clean soil disposal site, contaminated soil stockpile site, and associated construction haul routes.

- Installation of a pre-stressed concrete bulb-tee bridge superstructure on top of the abutments and piers.
- Construction of a new asphalt bridge approach on southern side (with potential realignment of the road between Kinney Road and the bridge, if required), and regrading of the gravel bridge approach on the northern side.
- Installation of pavement markings and signage, in accordance with Alaska Department of Transportation requirements.
- Reinstatement of landscaping/vegetation, including potential modifications to golf course layout, if required. Replacement vegetation would be installed within 10 days after final grading activities are complete to re-establish permanent vegetative cover. Should seasonal constraints preclude establishment of permanent vegetation, temporary measures would be implemented.

Construction Schedule

The construction schedule for the Preferred Alternative would be developed through the design-build process and has, therefore, not yet been determined in detail and is subject to change. It is anticipated that demolition of the existing bridge would commence in the winter of early 2020, with in-water construction commencing in the summer of 2020. Project completion is anticipated by fall of 2021.

Long Term Use and Maintenance

The proposed bridge would be open to military and civilian traffic and would be designed to accommodate at least MLC-70 vehicles, possibly up to MLC-120 vehicles, allowing military and emergency vehicles to access areas north and east of the river directly, rather than the current diversion via the River Road Bridge. Passenger vehicles, including those accessing residential areas north of Chena River, would continue to use the bridge following construction. The bridge would have a speed limit of 35 miles per hour (mph).

The bridge design would include access allowance for routine inspections and maintenance of bridge superstructure, joints, and bearings.

The bridge design specifications require a minimum 120-foot clearance between the faces of bridge piers and/or abutments over the navigable span and a minimum elevation to comply with U.S. Coast Guard requirements for navigation (454 feet NAVD88) and flood passage (452 feet NAVD88).

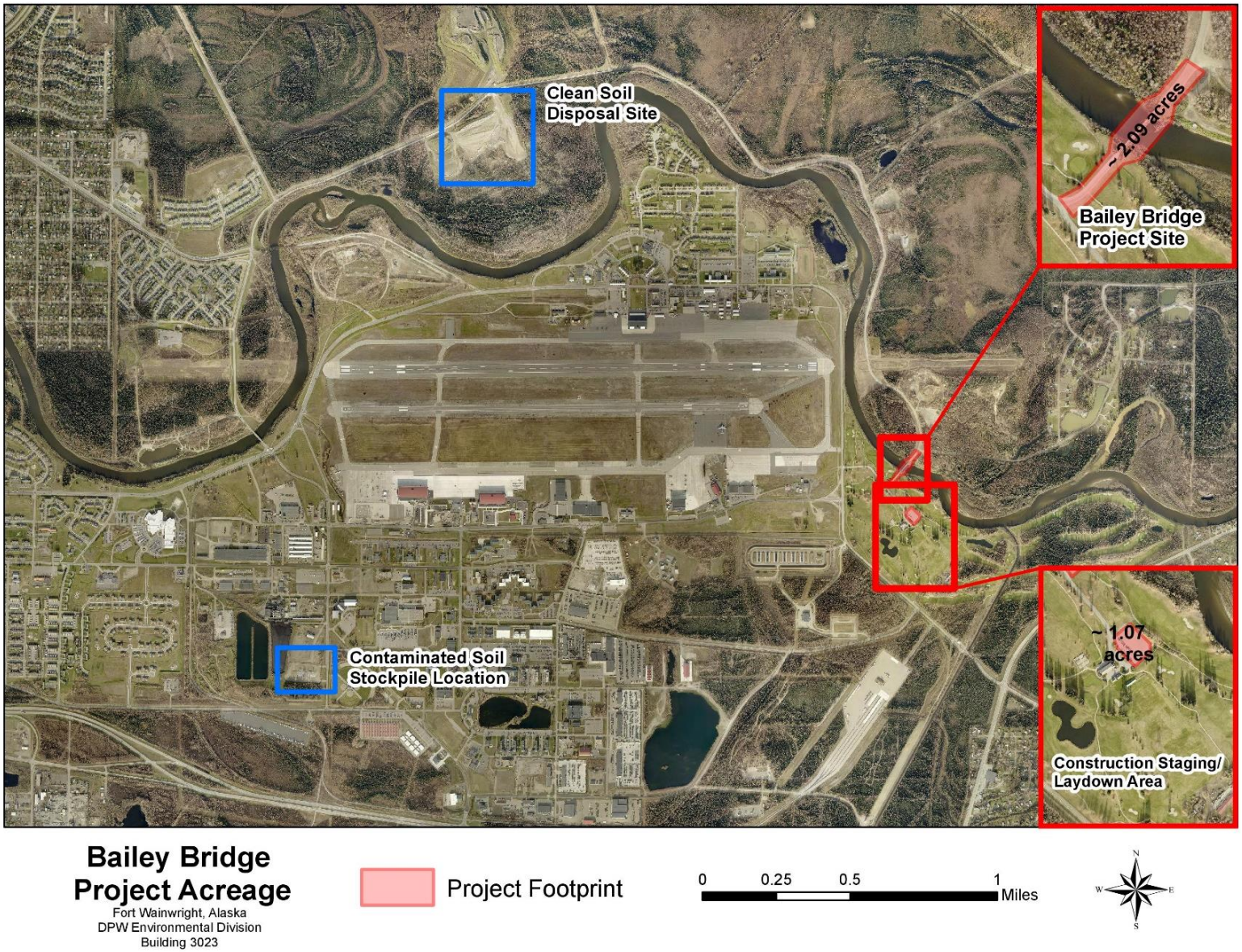

Figure 5. Aerial Photograph Showing Project Area and Anticipated Construction Footprint

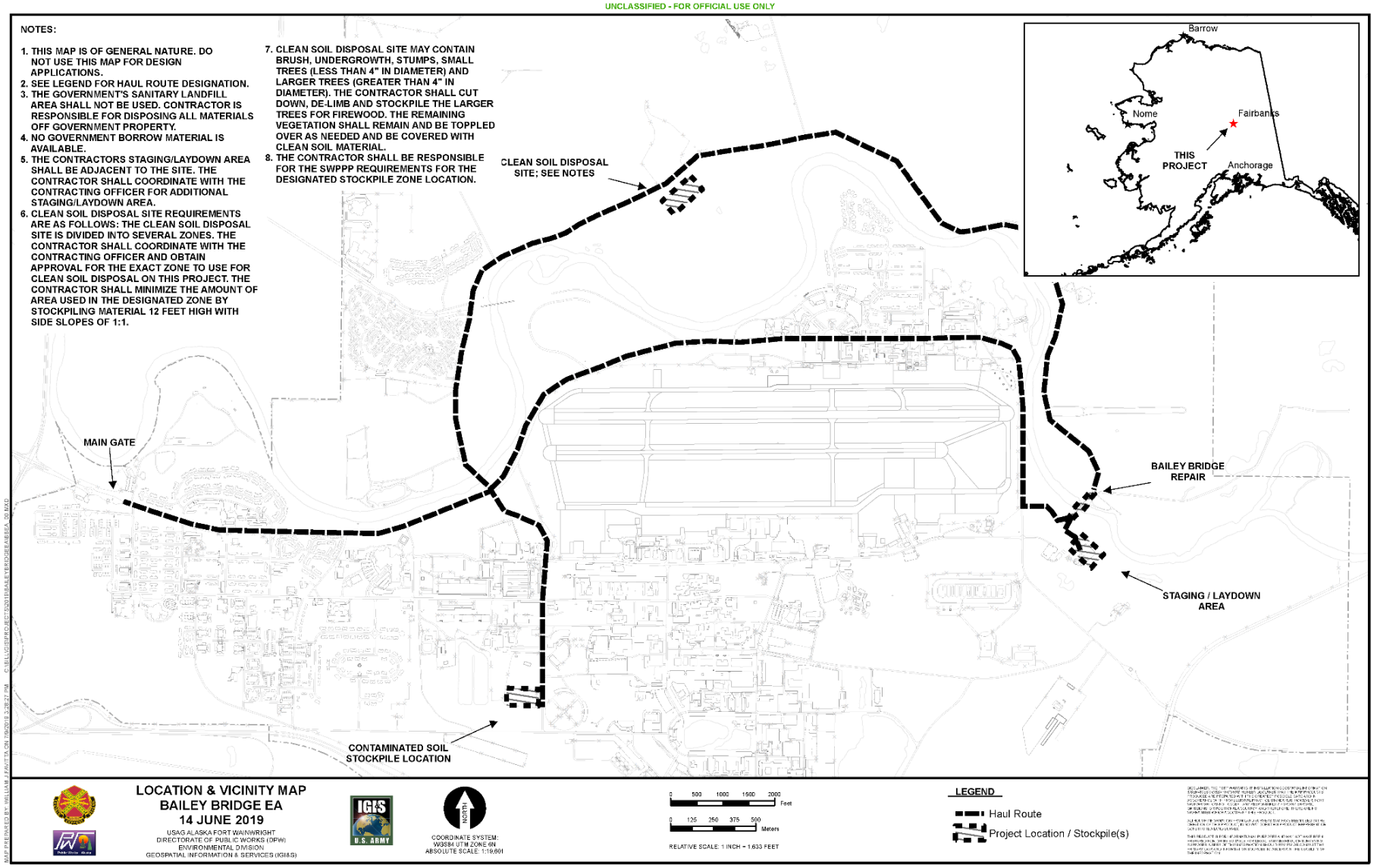

Figure 6. Location and Vicinity Map Showing Project Area and Construction Haul Routes

Evaluation of Alternative against Screening Criteria

The Preferred Alternative supports the purpose and need of the Proposed Action and meets the four screening criteria established by the USAG Alaska for replacing the Bailey Bridge. The new bridge would provide another route for military vehicles to reach areas north of the Chena River, and would allow ammunitions, ordnance, and freight to be transported to storage facilities without traveling through heavily populated areas in the Fort Wainwright Main Post. The increased vehicle weight allowance of the new bridge would allow emergency vehicles to access this route and create two suitable crossing points across the Chena River in case of an emergency. The Preferred Alternative would follow permit requirements and standard operating procedures (SOPs) and would implement BMPs to minimize environmental impacts from demolition and construction in areas such as cultural resources, water resources, biological resources, hazardous materials, and health and safety. The location of this alternative was chosen in large part to minimize both temporary and permanent construction impacts to the Chena Bend Golf Course.

2.3.3. Alternatives Considered but Eliminated from this Study

Two alternatives were considered but ultimately eliminated from this study because they did not meet the alternatives screening criteria.

Replace bridge at another location and remove current bridge. This alternative would use an adjacent bridge location northeast of the existing bridge. A new bridge at this adjacent location would require a longer span, more approach work, a more complicated permitting process than the Preferred Alternative, and a greater potential to impact the environment. In addition, the adjacent location overlaps an area of asphalt and soil contamination to a greater extent than the Preferred Alternative, increasing the likelihood of such contamination being encountered during construction. The alternative location would also cause permanent impacts on the Chena Bend Golf Course through use of the property as road right-of-way.

Remove existing bridge and do not replace. This alternative would be similar to the No Action Alternative, except that the existing bridge would be demolished and removed from the site. This alternative would not eliminate the long-term safety risks associated with the current situation, whereby the River Road Bridge is the only bridge currently providing access for military and emergency vehicles to areas north of the Chena River.

2.4. Applicable Regulations

The following regulations are applicable to the EA:

- Alaska Department of Environmental Conservation (ADEC) Air Quality Control Regulations (18 AAC 50)
- ADF&G Anadromous Fish Act (AS 16.05.871-901)
- ADEC Alaska Pollutant Discharge Elimination System (APDES), in compliance with CWA Section 402)

- Asbestos Hazard Emergency Response Act (Public Law [P.L.] 99- 519 and P.L. 101-637)
- ADEC, Hazardous Waste (18 AAC 62)
- ADEC, Oil and Other Hazardous Substances Pollution Control (18 AAC 75)
- ADEC, Solid Waste Management (18 AAC 60)
- ADEC Water Quality Standards (18 AAC 80)
- Bald and Golden Eagle Protection Act (16 U.S.C. 703-712)
- Carlson Foley Act (43 U.S.C. 1241)
- Clean Air Act (CAA; 40 CFR Part 50)
- Clean Water Act (CWA; 33 U.S.C. 1251 et seq)
- Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508)
- DoD Directive 6055.9–STD, DoD Ammunition and Explosives Safety Standards
- Environmental Analysis of Army Actions (32 CFR Part 651)
- Environmental Protection and Enhancement (10 U.S.C. 3012) and its implementing regulations (Army Regulation 200-1, 32 CFR 560)
- Endangered Species Act (ESA) (16 U.S.C. 35 1531 et seq. 1988)
- Executive Order 11514, Protection and Enhancement of Environmental Quality
- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 11988, Floodplain Management
- Executive Order 11990, Protection of Wetlands
- Executive Order 11991, Relating to Protection and Enhancement of Environmental Quality (amends Executive Order 11514)
- Executive Order 12898, Environmental Justice for Low Income and Minority Populations
- Executive Order 13045 Protection of Children from Environmental Health and Safety Risk
- Executive Order 13175, Consultation and Coordination with Indian Tribal Governments
- Executive Order 13186, Responsibility of Federal Agencies to Protect Migratory Birds
- Federal Noxious Weed Act (P.L. 93-629) (76 U.S.C. 2801 et seq.)
- Fish Passage Act (AS 16.05.841)
- Migratory Bird Treaty Act (16 U.S.C. 703-712)
- National Emissions Standards for Hazardous Air Pollutants (NESHAP; 40 CFR Part 61)
- National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. Section 4321 et seq.)
- National Flood Insurance Program (44 CFR Part 60)

- National Historic Preservation Act (NHPA) (54 U.S.C. Section 300101 et seq.) and its implementing regulations (36 CFR Part 800)
- Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (40 CFR Part 761)
- Rivers and Harbors Act (RHA) of 1899, as Amended (33 U.S.C. 403), Navigable Waters (33 CFR 329.4)
- USACE General Regulatory Policies statutory authorities and general and special policies and procedures applicable to the review of applications for USACE permits (33 CFR 320-330)

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3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Introduction

This chapter describes the affected environment, which includes the resources that one or more of the alternatives could affect. The environment described here serves as the baseline for the analysis of consequences stemming from the Proposed Action and No Action alternatives. This chapter also describes the potential effects the alternatives would have on each resource. Where appropriate, the discussion identifies BMPs. No supporting studies were required to complete this analysis.

After consideration of the anticipated impacts, the following resources were identified as having potential impacts in association with implementation of the Proposed Action and are carried forward for detailed analysis in this EA:

- Land Use
- Air Quality
- Noise
- Geological and Soil Resources
- Water Resources
- Biological and Fish Resources
- Cultural Resources
- Recreation Resources
- Socioeconomics
- Traffic and Transportation
- Solid Waste and Hazardous and Toxic Materials and Waste
- Human Health and Safety

More detail can be found in the Chapter 3 subsections pertaining to each resource area.

3.1.1. Presentation of Resource Areas

Analysis of the environmental consequences of the Proposed Action focuses on those areas of concern identified during scoping. Environmental consequences associated with the Proposed Action include direct, indirect, short-term, and long-term impacts; cumulative impacts; and any irreversible or irretrievable commitments of resources.

In accordance with NEPA and the CEQ regulations implementing NEPA, the analysis of environmental conditions only addresses those areas and environmental resources with the potential to be affected by the alternatives. More specifically, this EA examines the potential for direct, indirect, adverse, or beneficial impacts.

The CEQ defines direct effects as those caused by the Proposed Action and those that occur at the same time and place, whereas indirect effects are caused by the Proposed Action and are

later in time or farther removed in distance but are still reasonably foreseeable (40 CFR Section 1508.8). Beneficial impacts are those that would result in a positive change in the condition or appearance of the resource or a change that would move the resource toward a desired condition. Adverse impacts are those that would result in a negative change to the appearance or condition of the resource. Short-term impacts are those that would be temporary and associated with the construction phase, but they would no longer be perceptible once construction is completed or shortly thereafter. Long-term impacts are those that would be permanent or would persist for the operational life of the project.

The qualitative terms used to assess the anticipated impacts associated with each of the alternatives are generally defined as:

None—No measurable impacts are expected to occur.

Minor—Adverse impacts are expected to occur; impacts would be measurable and may have a slight effect on the resource.

Moderate—Adverse impacts are expected to occur; impacts would be noticeable and would have a measurable effect on the resource.

Severe—Adverse impacts are expected to occur; impacts would be obvious, would be significant, and would have serious consequences on the resource.

Beneficial—Only beneficial impacts are expected to occur.

The CEQ guidelines indicate the significance of an impact is determined by the intensity and the context of the impact. Intensity refers to the severity or extent of an impact (i.e., none, minor, moderate, or severe) and context relates to the environmental circumstances at the location of the impact. Significance criteria were developed in consideration of CEQ's guidance for determining significance (40 CFR 1508.27). For this analysis, the first three qualitative impact categories (none, minor, and moderate) are considered not significant. The next category (severe) is considered significant. The "none, minor, and moderate" qualitative impact categories could be a result of avoidance, minimization, or mitigation of adverse impacts.

3.1.2. Resource Areas Dismissed from Further Analysis

After consideration of the anticipated impacts of the alternatives, the following resource areas were identified as not having potential for impacts and were dismissed from further consideration:

- **Airspace.** Implementation of the Proposed Action would not change airspace designation within or adjacent to the Main Post. Therefore, airspace was dismissed from further consideration.
- **Electromagnetic Spectrum.** Implementation of the Proposed Action is not expected to have electromagnetic spectrum impacts and therefore was dismissed from further consideration.

- **Climate Change and Greenhouse Gas.** Implementation of the Proposed Action is not expected to result in a measurable impact to climate change or greenhouse gas emissions. Temporary construction impacts would be minimal and would be reduced through SOPs and BMPs requiring regular maintenance of combustive equipment. Temporary detours during construction would have negligible impacts on greenhouse gas emissions due to low existing traffic volumes and the current bridge limitations that only allow passenger vehicle use of the bridge. No permanent sources of greenhouse gas emissions would be created, and the removal of existing bridge restrictions would reduce vehicle miles travelled (and associated greenhouse gas emissions) for military and emergency vehicles accessing areas north of the river. Therefore, climate change and greenhouse gas are dismissed from further consideration.
- **Subsistence.** Fort Wainwright is a developed, non-rural, non-subsistence area. It has no areas of subsistence use as defined by the Alaska National Interest Lands Conservation Act or Alaska State law, and there are no current subsistence uses within Fort Wainwright (USAG Alaska 2017a). Implementation of the Proposed Action would not impact access to Fort Wainwright for subsistence use, since the River Road bridge could be used during construction. Therefore, subsistence is dismissed from further consideration.
- **Utilities.** Implementation of the Proposed Action would not increase the demand on existing utilities and public services, including Fort Wainwright's electrical, central heating, water, wastewater, storm water, or communications systems, nor would it create a new demand for utilities and public services. Utility conduits present on the existing Bailey Bridge would be replaced during construction of the new bridge; this utility work is not anticipated to have an impact on existing utilities systems. Therefore, utilities are dismissed from further consideration. Note that solid waste is discussed in Section 3.12, Solid Waste and Hazardous and Toxic Materials and Waste.

3.2. Land Use

3.2.1. Affected Environment

Fort Wainwright is located in central Alaska, north of the Alaska Range in the Tanana River Valley. The Fort Wainwright Main Post is approximately 15,369 acres in area and is within the Fairbanks North Star Borough (FNSB). The installation is on the eastern edge of the urbanized portions of the city. Alaska Highway 2 runs along the southern border of the Main Post and connects to Alaska Highway 4.

The city of Fairbanks is on the western boundary of Fort Wainwright. Residential development has expanded eastward from the city and now abuts the Fort Wainwright boundary along the Chena North District and the western and eastern sides of the Small Arms Complex. A majority of the land surrounding Fort Wainwright is State of Alaska-owned land. Principal land use management categories include fish and wildlife habitat, public recreation, forestry, agricultural sale, and settlement. The Tanana Valley State Forest lies north of Fort Wainwright, with private and FNSB-owned land parcels to the south. Alaska Native corporation-owned and Native allotment parcels also border Fort Wainwright.

Fort Wainwright Real Property Master Plan

The Fort Wainwright Real Property Management Plan (RPMP) and associated Programmatic Environmental Assessment (PEA), approved May 19, 2017, was developed using a collaborative approach to identify and incorporate stakeholder preferences, identify and consider site limitations and benefits, and provide a community that maximizes mission readiness and environmental stewardship (USAG Alaska 2017a). The RPMP establishes long-term strategies to guide the physical development of Fort Wainwright. It provides areas to accommodate new mission growth; provides additional administrative, storage, and parking facilities; and incorporates known design requirements that were identified during the planning process. The RPMP maintains the installation's design vision in creating an energy-efficient installation with compact districts, versatile buildings, and interconnected transportation networks. The RPMP PEA incorporates BMPs and SOPs that, when applied, further reduce potential environment impacts resulting from implementation of future proposed actions under the RPMP. The RPMP covers a 25-year planning horizon and is reviewed on an annual basis to address necessary mission changes.

The RPMP divides Fort Wainwright into five identifiable and connected districts based on geographical features, land use patterns, building types, and/or transportation networks. Focusing on districts allows for the identification of needs due to mission, requirements, or command priority changes. The Area Development Plans (ADPs) for each district adopt the planning goals and principles of the RPMP. The project area spans the boundary between the Chena North District and South Post ADPs (Figure 7).

The Chena North District ADP is largely rural and undeveloped. It is primarily range and training land used for maneuver and bivouac training. Industrial uses include the ammunition supply point and the former Canadian Oil tank farm. Recreational uses in the Chena North Area District are allowed in Training Area 114, which is an open use area with access to camping, fishing, off-road recreational vehicle use, big and small game hunting, and skiing (see Section 3.9 Recreational Resources). Residential uses are in the far southwestern portion of the Chena North Area (USAG Alaska 2017a). The ADP identifies the following goals to guide future development (USAG Alaska 2016b):

- **Goal 1: Leverage the Natural Landscape** – Incorporate the natural topography and natural resources to enhance training capabilities and provide safe recreational spaces for a variety of users across each season.
- **Goal 2: Multifaceted Training** – Improve and expand local training areas that enhance broad-mission training capabilities by increasing access to critical mission assets to improve efficiency.
- **Goal 3: Compatible Installation Services** – Improve access to the post and increase the capacity of the local transportation network by expanding mission support facilities and installation support services along key transportation corridors.
- **Goal 4: Recreational Opportunities** – Improve access to recreational areas by expanding recreational opportunities at Birch Hill and along the Chena River and through improving local Morale, Welfare, and Recreation facilities.

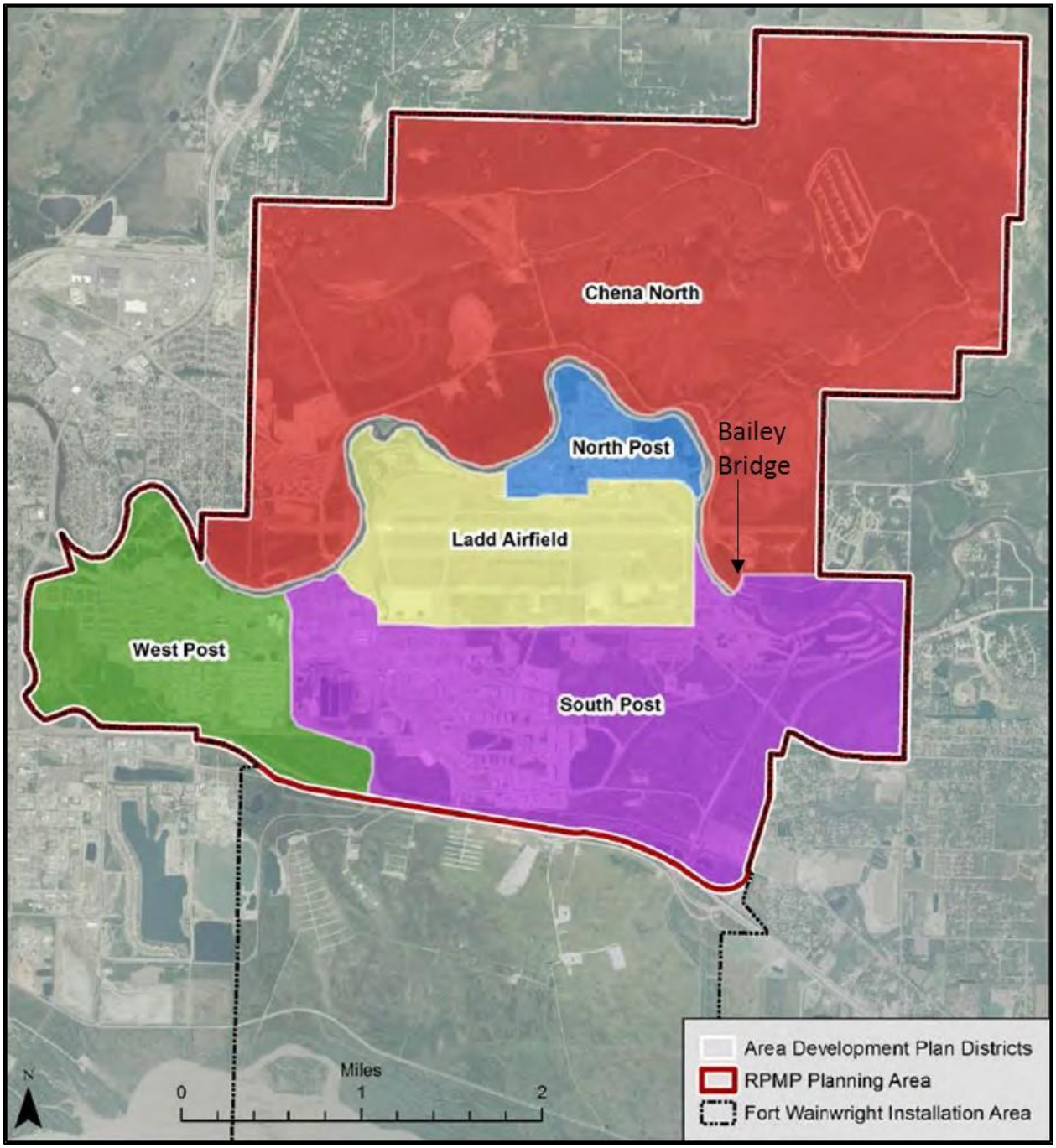

Figure 7. Fort Wainwright Area Development Plan Districts from Real Property Master Plan (USAG Alaska 2017a)

The South Post consists of soldier barracks and support facilities, professional/institutional facilities, and community facilities. The South Post's industrial areas include the central heating and generating plant and associated structures; railway spurs; and other storage, supply, and maintenance facilities. East and south of the industrial area are the Post Center and Monterey Lakes area (a.k.a. the Brigade Area), containing troop quarters, maintenance, supply, and storage facilities, administration, operations, a sports/fitness complex, a visitor housing facility, a public exchange, a commissary, and other community and recreation facilities (USAG Alaska 2017a). The ADP identifies the following goals to guide future development (USAG Alaska 2016c):

- **Goal 1:** Pedestrian Friendly by providing a network of complete street strategies that create safe pedestrian environments with separated sidewalks and lighted, connected pathways.
- **Goal 2:** Support Center by providing all required functions for the Soldier within walkable areas that are safe, convenient, and comfortable.
- **Goal 3:** Colocation of Compatible Functions by determining optimum land use and locations of facilities to consolidate multiple functions for operations, training, and support.

The replacement of the Bailey Bridge is recognized in both the Chena North District and South Post District ADPs as a future project that would be developed within a 6- to 15-year timeframe. The Chena North District ADP identifies the Bailey Bridge site as Buffer Zone/Open Space, and the South Post District ADP identifies the Bailey Bridge site as Open Space. These designations are intended to preserve existing vegetation along the Chena River bank and provide for open green buffer zones to maintain a healthy distance between military operations and the outside community (USAG Alaska 2016b, 2016c, 2017a). The clean soil disposal site is within the Chena North District ADP, while the contaminated soil stockpile site and staging/laydown area are within the South Post District ADP.

Fairbanks North Star Borough Comprehensive Plan and Joint Land Use Study

The Secluded Acres residential development, approximately 2,500 feet east of the Bailey Bridge, is outside of the Fort Wainwright boundaries and is within the FNSB Comprehensive Plan area (FNSB 2005). Parts of the development are zoned as Single Family Residential 10 (SF-10), while other parts are zoned as General Use 1 (GU-1). Portions of both zones are also within the Military Noise Overlay (FNSB 2019a). In 2006, a Joint Land Use Study was developed between the FNSB, the USAG Alaska, and Eielson Air Force Base (FNSB 2006). The Joint Land Use Study concluded the most likely future land use conflict associated with Fort Wainwright will occur in the Secluded Acres area.

3.2.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities and no changes in land use. Following closure of the Bailey Bridge in 2020, the River Road Bridge would be the

only access point to military training areas, recreational areas, and the Secluded Acres residential area north of the river, requiring longer travel routes for passenger vehicles (military and emergency vehicle travel routes would be unchanged from existing conditions). Residents of Secluded Acres and recreational users would be inconvenienced; however, the No Action Alternative would have no adverse impact to existing land uses.

Preferred Alternative: Replace Bridge at Current Location

Because the Bailey Bridge site overlaps with areas of subsurface rights held by ADNR, a land use easement from ADNR would be required for temporary construction activities, as well as permanent occupation by the replacement bridge.

During construction, a staging/laydown area would be located within the Chena Bend Golf Course property on an overflow parking lot near the golf course maintenance area northwest of the driving range. The construction footprint could encroach on the green adjacent to the south bank of the Chena River (see Figure 6), thereby temporarily precluding existing land uses in the immediate vicinity of the project.

The Chena Bend Golf Course would remain open during construction. USAG Alaska would ensure continued access and use of the golf course and clubhouse during construction. Reinstatement of landscaping and vegetation, including potential modifications to the golf course layout, if needed, would occur following construction. If permanent alterations to the tee boxes, greens, or other structures of the golf course are required, these alterations would not degrade the current certification of the course.

Execution of the Preferred Alternative would not result in land use conflicts or changes in existing land uses in the vicinity of the Bailey Bridge. The Preferred Alternative would provide secondary access for all vehicles across the Chena River. The replacement bridge would allow military vehicles more direct access the northern training areas and allow more direct access to the Secluded Acres private residential area north of Chena River for heavy vehicles, thereby reducing potential land use conflicts associated with transporting munitions through built-up areas of Fort Wainwright. The Preferred Alternative is not anticipated to induce future growth or development within the Secluded Acres area, as such areas would still be subject to the zoning and land use provisions of the FNSB Comprehensive Plan and zoning ordinance, including Military Noise Overlays where applicable. Further, it is noted that the current bridge restrictions do not apply to passenger vehicles; therefore, the majority of civilian traffic accessing the Secluded Acres residential area would not be impacted by long term use of the new bridge.

The replacement of the Bailey Bridge is recognized by the Chena North District ADP as a future project. The Preferred Alternative would be consistent with the goals of the Chena North District ADP, South Post District ADP, and overall goals of the RPMP. In addition, the Preferred Alternative would be compatible with the Chena North District ADP's Buffer Zone/Open Area designation and South Post District ADP's Open Space designation for the Bailey Bridge site. The north and south banks of the Chena River would continue to be maintained as an open area and a buffer zone between the river and surrounding land uses.

Land use impacts would be confined to the project area and adjacent properties; therefore, the Preferred Alternative would not conflict with land use plans, policies, and zoning that govern land uses outside of Fort Wainwright, including the FNSB Comprehensive Plan and zoning ordinances for Secluded Acres residential area.

Overall, only short-term, minor adverse effects on land uses in the vicinity of the Bailey Bridge are expected to occur from the Preferred Alternative. Once construction is complete, there would be no permanent adverse impacts related to land use and there would be minor beneficial impacts.

3.3. Air Quality

3.3.1. Affected Environment

Air quality can be affected by air pollutants produced by two categories of sources: mobile sources, such as vehicular traffic, trucks, or non-road equipment such as those used for construction activities; and stationary sources (fixed or non-mobile facilities), such as combustion and industrial source stacks and exhaust vents from power-generating and other industrial facilities.

The U.S. Environmental Protection Agency (EPA), under the requirements of the 1970 Clean Air Act (CAA), as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 CFR Part 50):

- Carbon monoxide (CO)
- Nitrogen dioxide
- Ozone (with nitrogen oxides and volatile organic compounds as precursors)
- Particulate matter (PM_{10} [less than 10 microns in particle diameter]);
- Very fine particulate matter ($PM_{2.5}$ [less than 2.5 microns in particle diameter])
- Lead
- Sulfur dioxide

Areas that meet the NAAQS standard for a criteria pollutant are designated as being “in attainment.” Areas where a criteria pollutant level exceeds the NAAQS are designated as “nonattainment areas.”

The Main Post is located within the EPA-established $PM_{2.5}$ nonattainment area boundary and within the Fairbanks Portion of the FNSB’s Air Quality Control Zone (FNSB 2019b; Figure 8). The $PM_{2.5}$ nonattainment areas exceed the health-based 24-hour $PM_{2.5}$ NAAQS of 35 micrograms/cubic meter. $PM_{2.5}$ within the nonattainment area consists mainly of organic carbon, sulfate, nitrate, and ammonia. In summer, wildfires can also contribute to $PM_{2.5}$ exceedances (FNSB 2016). The ADEC states that:

> Local emissions from wood stoves, burning distillate oil, industrial sources, and mobile emissions contribute to particulate pollution. For planning purposes, $PM_{2.5}$ is primarily a concern during winter months (October through March) when extremely strong temperature inversions are frequent and human-caused air pollution impacts increase.

Summertime wildland fire smoke is also a health concern but is considered natural and uncontrollable (ADEC 2019a).

EPA designated the urban portion of FNSB (including portions of Fort Wainwright Main Post) as a nonattainment area for CO in 1991. The FNSB has not violated the NAAQS for CO since 1999. EPA approved the FNSB's CO attainment plan and the FNSB officially became a CO maintenance area on September 27, 2004 (ADEC 2019b; Figure 8). The proposed clean soil disposal area, and portions of the proposed haul routes and contaminated soil stockpile site are within the maintenance area. The Bailey Bridge site and proposed staging/laydown area are outside of the CO maintenance area.

Air quality conditions around the Fort Wainwright Main Post where the Preferred Alternative would occur are also affected by emissions from existing stationary combustion sources, on-road vehicles, and aircraft and their ground support equipment. Other background sources such as highway vehicles, off-base stationary facilities, and construction activities in neighborhoods also affect ambient air quality conditions (USAG Alaska 2017a).

3.3.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities. The No Action Alternative would result in a slight, long-term increase of emissions from passenger vehicles permanently using the River Road Bridge and from increasing travel durations following bridge closure. The increased emissions would be minimal due to the limited population north of the Chena River. Therefore, the No Action Alternative would not result in any significant changes to air pollutant emissions and would have a minor impact on air quality.

Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative could cause minor short-term construction impacts on air quality. Temporary impacts would be minimized through SOPs and BMPs requiring dust control and regular maintenance of combustive equipment to reduce tailpipe emissions. Temporary detours during construction would have limited impacts on air pollutant emissions due to low existing traffic volumes and the current limitations that only allow passenger vehicle use of the bridge.

Implementation of the Preferred Alternative would not result in the installation of any permanent stationary sources of air pollutant emissions. In addition, removal of existing bridge restrictions would reduce vehicle miles traveled (and associated tailpipe emissions) for military and emergency vehicles accessing areas north of the river. No air quality permitting would be required.

Therefore, due to the relatively small scale of the project and implementation of BMPs, the Preferred Alternative would have no significant adverse impacts on air quality.

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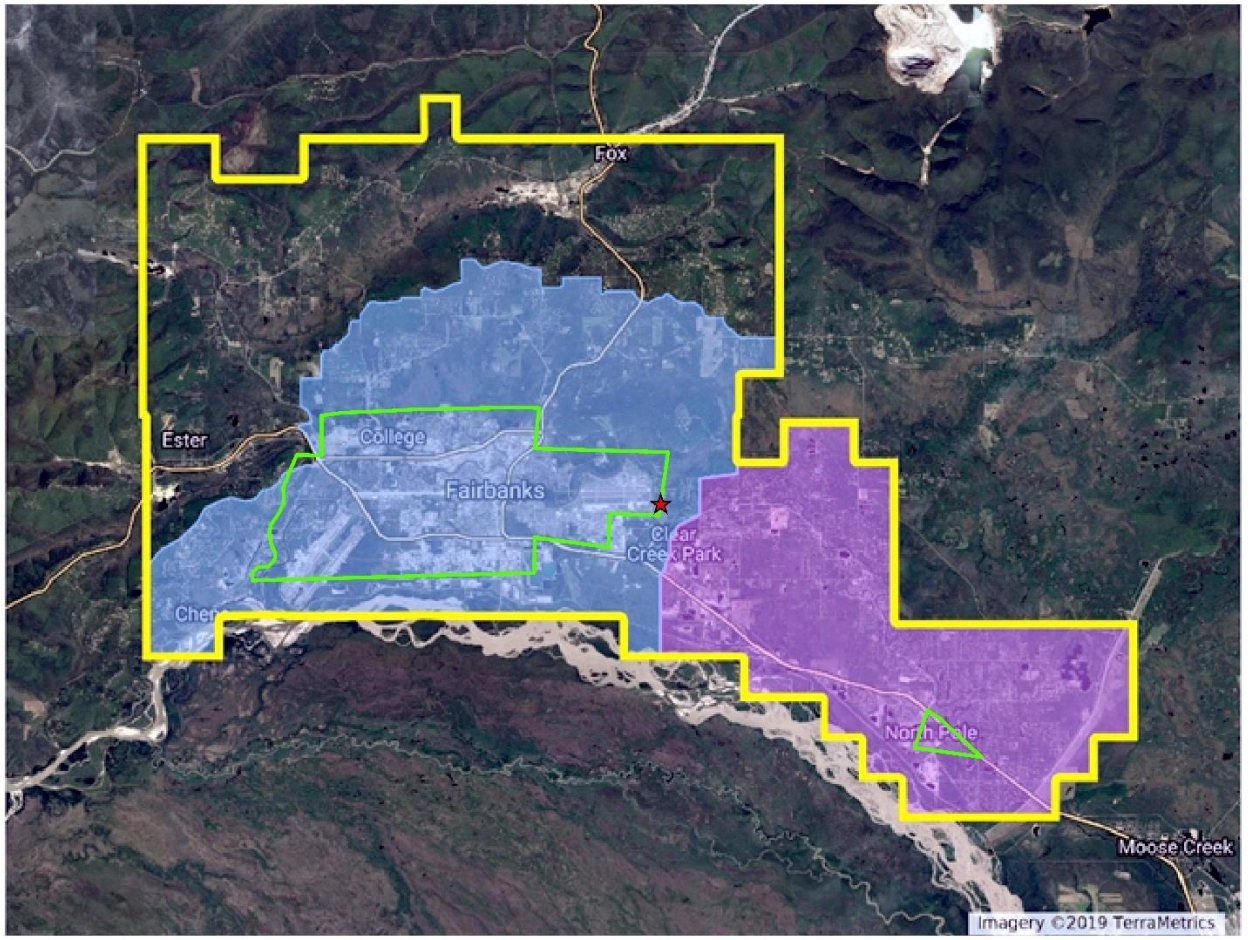

Figure 8. FNSB Air Quality Boundaries (FNSB 2019a; 2019b)

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3.4. Noise

3.4.1. Affected Environment

Fundamentals of Noise and Acoustics

For the purposes of this EA, noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to elevated environmental noise exposure levels is annoyance. The responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, its appropriateness to the setting, the time of day, the type of activity during which the noise occurs, and noise sensitivity of the individual.

Decibels (dB) are the standard unit of measurement of the sound pressure generated by noise sources and are measured on a logarithmic scale that quantifies sound amplitude in a manner similar to the Richter scale for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise energy would result in a 3-dB decrease (Caltrans 2013). When measured or predicted noise levels are discussed in terms of human perception, they are typically described in terms of A-weighted decibels, or dBA. The A-weighting scale adds an adjustment to the sound level to account for the frequency response of the human ear (de-emphasizing the higher and lower frequency portions of the sound that the human ear does not hear well).

The range of audible sound levels for humans is generally considered from 0 to 130 dBA. It is widely accepted that most people can just barely perceive changes of 3 dBA (increase or decrease) and that a change of 5 dBA is readily perceptible (Caltrans 2013). A noise level that increases by 10 dBA is typically perceived as being twice as loud as what was previously heard, and a noise level that decreases by 10 dBA is perceived as being half as loud.

For a stationary point source of sound (such as a piece of construction equipment operating in a single spot), sound typically attenuates at a rate of 6 dB per doubling of distance (dB/DD) (i.e., 6 dB at 50 feet, 12 dB at 100 feet, 18 dB at 200 feet). For a line source of sound such as free-flowing traffic along a road, sound attenuates at a rate of approximately 3 dB/DD (i.e., 3 dB at 50 feet, 6 dB at 100 feet, 9 dB at 200 feet) (Caltrans 2013). Atmospheric conditions such as wind, temperature gradients, and humidity can change how sound propagates over larger distances and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound traveling over an acoustically absorptive surface such as grass or fresh snow attenuates at a greater rate than sound traveling over a hard surface such as pavement or ice. The increased attenuation caused by acoustical air and ground absorption is typically in the range of 1–2 dB/DD. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

Existing Noise Environment

Noise sources around the Fort Wainwright Main Post are mostly associated with neighborhood vehicular traffic along major arterial roadways, large and small caliber weapon firing from live-fire training ranges, and aircraft from Ladd Airfield (USAG Alaska 2017a).

Helicopters such as UH-60 Blackhawks, AH-64 Apache, and CH-47 Chinooks from the U.S. Army Alaska (USARAK) Aviation Task Force, particularly from 52d Aviation Regiment and the 1-25th Attack Reconnaissance Battalion based at Fort Wainwright, the MQ-IC Gray Eagle from the 25th Aviation Regiment Company D, and Bureau of Land Management (BLM) Alaska Fires Service aircraft during the summer months, are the main aircraft noise sources at the installation. Large transient aircraft such as C-5 and C-17 use the airfield infrequently (USAG Alaska 2017a). Generally, aircraft activity occurs Monday–Friday between 8 am and 11:30 pm. Aircraft activity can and does occur on the weekends and after 11:30 pm; however, these activities are infrequent. Based on the traffic control tower logs, from July 2015 to June 2016 there were 30,770 flights at Ladd Airfield (USAG Alaska 2017a).

Sensitive receptors are facilities or land-use areas that are the most sensitive to noise, such as residence, school, church, hospital, community center, etc., both on and off installation. The closest noise-sensitive receptor to the Bailey Bridge site is the residential housing development approximately 2,500 feet to the east (Figure 9). This is a civilian residential neighborhood and not part of Fort Wainwright.

The USAG has developed land use planning guidelines with respect to military noise in terms of noise zones through its Installation Compatible Land Use Zone Study (USAG Alaska 2017b). These guidelines are only applicable to aircraft and large and small caliber weapon firing activities and are primarily focused on preventing noise-sensitive uses in areas that might be subject to substantial levels of military-generated noise. The Bailey Bridge site is within the Land Use Planning Zone for Ladd Airfield (Figure 9), which represents areas that are anticipated to receive 60 to 65 dBA Annualized Day-Night Noise Level. The Bailey Bridge site is outside of the identified Land Use Planning Zone for demolition and large caliber testing under ordinary circumstances (Figure 9), which includes areas anticipated to receive 57 to 62 dBA C-weighted Day-Night Noise Level. However, the Bailey Bridge site is within an area where large caliber testing may create “noticeable, distinct” peak noise levels up to 115-130 dBA from single events under unfavorable weather conditions (USAG Alaska 2017b). USAG Alaska occasionally receives noise complaints in relation to Ladd Airfield or other military operations at Fort Wainwright, which are managed through Public Affairs Office.

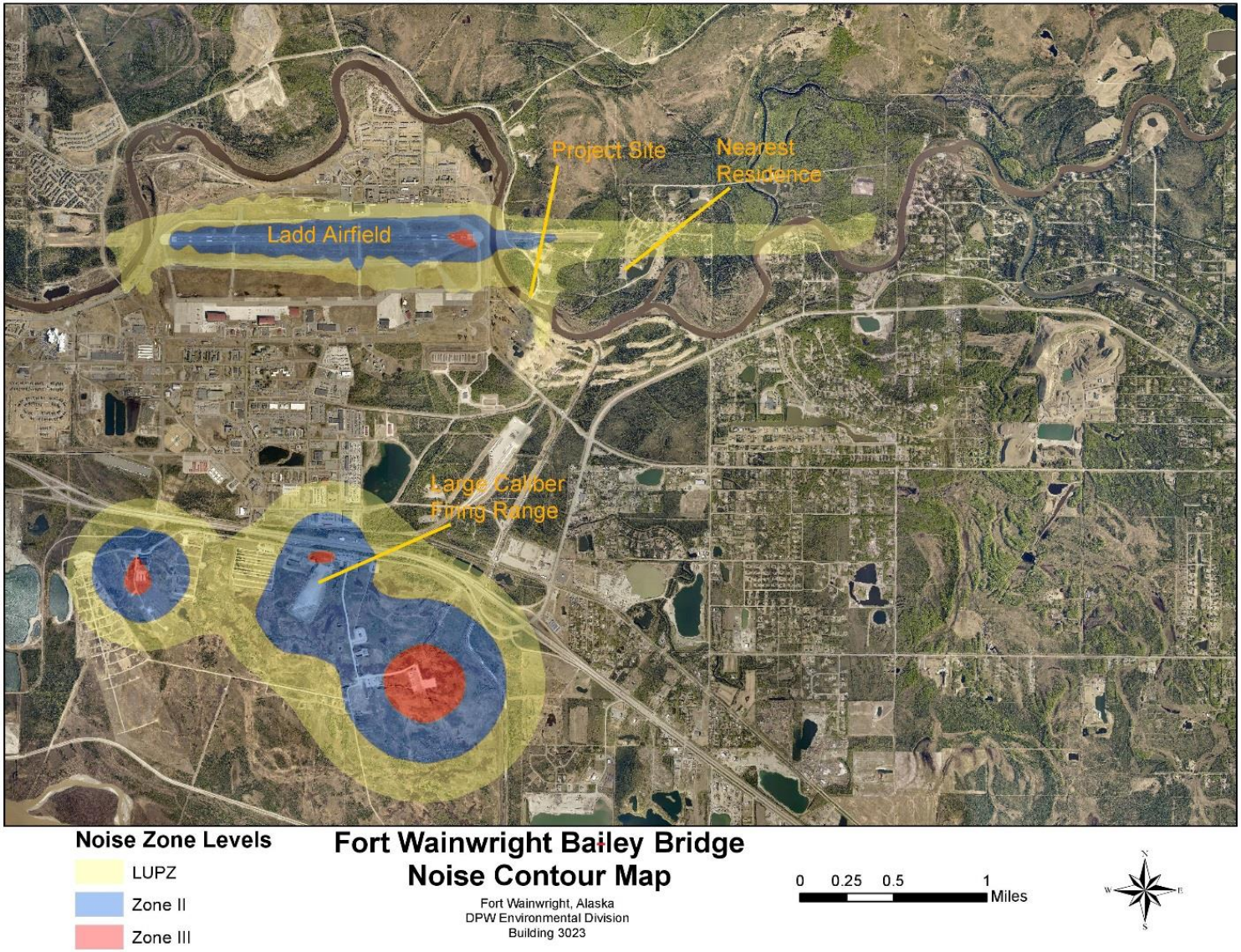

Figure 9. Noise Sources and Sensitive Receptors

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The project area is within the City of Fairbanks limits. The City does not have a specific noise regulation or noise ordinance that sets quantitative noise standards. However, construction noise is addressed in a qualitative manner under Fairbanks General Code Chapter 46, Section 46.42, Disturbing the Peace, subsection (a):

> A person commits the offense of disturbing the peace if he: (3) Between the hours of 11:00 p.m. and 7:00 a.m., operates or uses a pile driver, pneumatic hammer, bulldozer, road grader, loader, power shovel, derrick, backhoe, power saw manual hammer, motorcycle, snow machine, or other instrument, appliance or vehicle which generate load sounds, after having been informed by another that such operation or use is disturbing the peace and privacy of others.

3.4.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities. Use of the bridge would cease following closure. The rerouting of passenger vehicles following bridge closure would result in a minor increase in traffic along River Road, however due to the lack of sensitive receptors in proximity to River Road there would be no impact related to noise.

Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative would generate construction-related noise from equipment used within the project area during demolition and construction activities, as well as from truck and construction worker traffic along haul routes. Construction noise would be temporary in nature, lasting only during the construction phase of the Preferred Alternative, which is anticipated to occur over two seasons at the maximum.

The construction equipment most likely to be used during the construction phase, along with estimated maximum noise level (L_{max}) at 50 feet, are summarized in Table 2.

Table 2. Construction Equipment to be Used on Project

Equipment	Level at 50 feet, L_{max}, dBA
Pile Driver (impact)	101
Jack Hammer	88
Drill Rig	84
Bull Dozer	85
Crane	83

Source: Federal Transportation Administration 2018

Notes: dBA = A-weighted decibel; L_{max} = estimated maximum noise level

The Federal Transportation Administration (FTA) provides guidance on construction noise impact assessment in its Transit Noise and Vibration Impact Assessment Manual (FTA 2018). There are two different sets of impact criteria presented by the FTA for construction noise analysis based upon the level of detail available: a General Assessment Construction Criteria

and a Detailed Analysis Construction Noise Criteria. Given that little detail is currently known regarding construction equipment rosters and phasing, the General Assessment Criteria is used for this project (Table 3). For a general assessment, the construction noise impacts are assessed according to the criteria in Table 3, assuming that the two noisiest pieces of construction equipment are operating at the same time.

Table 3. General Assessment Construction Noise Criteria

Land Use	$L_{eq.\ equip(1hr)}$ dBA	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA 2018

Notes: dBA = A=weighted decibel; $L_{eq,\ equip\ (1\ hr)}$ = equivalent continuous sound level

Using the FTA's general assessment criteria, the combined noise level for the two loudest pieces of equipment anticipated to be used during construction (pile driver and jack hammer) working simultaneously at a distance of 2,500 feet (the distance of the Bailey Bridge site from the nearest noise-sensitive receptor), and assuming a simple 6 dB/DD spherical attenuation, with no additional attenuation assumed for shielding or soft ground conditions, would conservatively be approximately equal to 67 dBA. This level is well below the residential daytime impact criteria of 90 dBA or nighttime impact criteria of 80 dBA shown in Table 3.

As such, construction-related noise impacts on nearby sensitive receptors would be minor.

Note: Discussion of impacts of pile-driving and other noise/vibration impacts to fish within the Chena River is discussed in Section 3.7, Biological Resources.

Long-term use of the replacement bridge would result in increased use of roads leading to the bridge, including increased use by heavy vehicles. The replacement bridge would be one lane, similar to the existing bridge, but would not have a 5-ton limit or one-vehicle-at-a-time restrictions that are currently in place. Projected traffic volumes following construction are unknown, but it is anticipated that the majority of military vehicles accessing the northern training areas would use the replacement bridge, rather than using the River Road Bridge farther east.

In general, a doubling of traffic volumes equates to an approximately 3 dBA increase in traffic noise, which is typically imperceptible to the human ear (Caltrans 2013). An increase in the ratio of passenger vehicles to heavy vehicles would also increase the level of noise generated. Despite the increased use of the bridge and nearby roads following completion of the replacement bridge, noise generated from ongoing bridge use would have negligible to minor adverse impacts due to the distance from sensitive receptors and the presence of other noise-generating activities in the project area (e.g., Ladd Airfield and other arterial roadways). The Preferred Alternative would also have minor beneficial impacts by reducing traffic noise at and near the River Road bridge, as many military and emergency vehicles currently using that bridge would use the replacement Bailey Bridge instead.

Overall, the Preferred Alternative would have minor temporary noise impacts during construction. In the long term, negligible to minor adverse noise impacts near the Bailey Bridge would be offset by minor beneficial noise impacts near the River Road bridge.

3.5. Geological and Soil Resources

3.5.1. Affected Environment

The discussion of geology and soils covers features of the physical environment that may be affected by, or have an impact upon, the proposed activities. These include physiography, geology (surface and bedrock), mineral resources, seismicity, and soils (types and properties).

Topography

The Fort Wainwright area lies at the northern edge of the Tanana Lowlands physiographic province, which forms a large arcuate band of alluvial sediments between the Alaska Range and the Yukon-Tanana Uplands. The lowlands consist of vegetated floodplains and low benches cut by the Tanana River, and sloughs and oxbow lakes representing former channel positions of the Tanana or Chena Rivers. The Chena floodplain is relatively flat, with an elevation of approximately 450 feet above mean sea level.

Approximately one mile north of the river, the land rises steeply to approximately 700 to 1,000 feet above mean sea level at Birch Hill and is part of the physiographic region known as the Yukon-Tanana Uplands. The uplands consist of rounded, northeast-trending ridges and hills between the Yukon and Tanana Rivers that rise to elevations of 1,500 to 3,000 feet.

In the immediate vicinity of the Bailey Bridge site, a several-foot-high approach embankment is present on the southwest bank. The topography on the northeast side of the bridge is defined by benches of the Chena River, which rise approximately 80 to 100 feet above the surrounding floodplain toward Approach Hill, approximately 2,000 feet northeast of the bridge. The approach embankment on the north east end of the bridge appears to be 12 to 15 feet higher than the deepest point of the surrounding grade (Shannon and Wilson, Inc. 2014).

Soils

Soils in the Tanana Lowlands typically consist of interbedded alluvial sand and gravel covered by silty overbank deposits. Cobbles may be observed in alluvial sand and gravel. Wood in the form of roots, sticks, and logs is often encountered in the alluvium. Former channels are commonly filled with organic silt and wood. These deposits are laterally discontinuous and vary in thickness. The density of the alluvial soils generally ranges from loose to medium dense (Shannon and Wilson 2014).

Windblown silt (loess) mantles portions of the middle and upper slopes and lower ridgetops. The loess is generally absent on the highest ridges and hills and thickens downslope. The lower slopes of the ridges and hills and the valley bottoms are generally covered with reworked silt containing varying amounts of organics and rock fragments. The silt on north-facing slopes and in the valley bottoms is typically perennially frozen. In valley bottoms, the silt often contains

moderate to very high amounts of ice in addition to high amounts of organics. Localized peat deposits occur in valley bottoms in historical lake basins (Shannon and Wilson, Inc. 2014).

The soils of Fort Wainwright are generally weakly developed because of the extreme cold climate and the relatively young parent materials. Unless disturbed by human activity or periodic flooding, most of the soils have an insulating organic mat that has formed at the soil surface (USAG Alaska 2017a).

According to the U.S. Department of Agriculture's Web Soil Survey, soils on the northern bank of the river within the Bailey Bridge site are of the Jarvis-Salchaket complex, a well-drained alluvium with low shrink-swell potential. Soils on the southern bank are of the Salchaket-Typic Cryorthents complex, a well-drained gravelly fill over alluvium with low shrink-swell potential (U.S. Department of Agriculture 2019).

Permafrost

The Fort Wainwright area is in a subarctic zone underlain by discontinuous permafrost. Permafrost is defined as ground that has remained at a temperature of 32° Fahrenheit or less for two or more years. The maximum depth of permafrost measured in the Fairbanks area is in excess of 200 feet. The permafrost decreases in thickness and becomes sporadic higher on the hill slopes. The thickness of the "active layer," the portion of the ground at or near the surface that undergoes an annual freeze-thaw cycle, is largely dependent upon the type of ground cover and the snow depth, as well as other factors. Seasonal frost penetration commonly exceeds 10 feet beneath roads or parking areas that are kept free of snow during winter. Shallow permafrost (generally within 40 inches of the soil surface) is common in finer-textured sediments, particularly on north-facing slopes and lower landscape positions but is generally absent on steeper south-facing slopes and active floodplains in the area (USAG Alaska 2017a). Thermokarst features are sometimes observed on the lower slopes of the uplands, and pingos may occur in the valley bottoms.

Geology

The Tanana Lowlands are dominated by unconsolidated Quaternary surficial deposits (Wilson et al. 2015). The thickness of the sediments overlying bedrock in the project area is unknown but has been established to be as great as 400 to 500 feet in the Fairbanks area and at depths of near 110 feet 0.3 mile upstream of the Bailey Bridge (USAG Alaska 2017a). Outcrops of bedrock are evident on Approach Hill approximately 0.3 mile north and northeast of the Bailey Bridge. The portion of the Tanana Lowland in which the project area is located has not been glaciated (Shannon and Wilson, Inc. 2014).

Deformed sedimentary and volcanic rocks underlie the northern portion of the uplands; whereas, the southern portion is underlain primarily by Precambrian schist bedrock. Granitic rocks have intruded the schists and underlie or form prominent upland "domes," such as Ester Dome to the west of the project area (Shannon and Wilson, Inc. 2014).

Seismicity and Seismic Hazards

The project area is within the Interior Alaska seismic source region (Koehler and Carver 2018). Fort Wainwright lies between two, right-lateral shear systems: the Denali Fault System approximately 60 to 80 miles to the south of Fairbanks and the Kaltag and Tintina Fault Systems approximately 80 miles to the north. The shear along these systems is believed to be the result of crustal adjustments in the North American Plate due to the convergence with the Pacific Plate along the Gulf of Alaska. The Fort Wainwright area has a high seismic hazard risk, with between 100 and 250 occurrences of damaging earthquake shaking expected over a 10,000-year period according to probabilistic hazard maps (USGS 2019).

Earthquake-induced geologic hazards that may affect the project area include soil densification and resulting settlement, and liquefaction and associated effects (e.g., loss of shear strength, bearing capacity failures, loss of lateral support, ground oscillation, and lateral spreading). Within the Fairbanks-Nenana area, sediments in and near active river channels were assessed as having a very high liquefaction susceptibility, while adjacent floodplain deposits have moderate to high susceptibility when thawed (ADNR 1984). Site-specific geotechnical investigations have confirmed a significant risk of liquefaction and lateral spreading at the Bailey Bridge site (Shannon and Wilson, Inc. 2014).

Mineral Resources and Naturally Occurring Asbestos

Sand and gravel deposits are known to occur beneath the Fort Wainwright area and may have value as construction material, although the economic viability of extracting these resources is unknown (USAG Alaska 2017a). Most of the historical gold mining activity occurred outside the current property boundaries (Neely 2001). The Bailey Bridge site is not within an area of known naturally occurring asbestos (Solie and Athey 2015).

3.5.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities. Because there would be no construction activities or ground disturbance, no changes in impacts related to geological or soil resources would occur under the No Action Alternative.

Preferred Alternative: Replace Bridge at Current Location

Moderate changes to the topography would be necessary to complete construction of the proposed bridge, including final grading and completion of bridge approaches and abutments. The disturbance and relocation of soils during grading and excavation would make them more susceptible to erosion, and potential weak layers of soil could cause safety issues during excavation. Impacts from execution of the Preferred Alternative would consist of the potential for scour around bridge abutments and foundations and impacts from seismic hazards, such as ground shaking and liquefaction.

Potential for erosion during construction would be minimized by the incorporation of erosion control measures, in accordance with the Alaska Pollutant Discharge Elimination System (APDES) permit requirements and BMPs and SOPs that will be contained within project construction specifications, as discussed in more detail in Section 3.6, Water Resources. Project construction specifications will also require the use of a "competent person" for excavation/trenching, who would be responsible for supervising, implementing and monitoring any excavations during construction to prevent excavation wall collapse or other adverse impacts related to potential soil weakness (USACE 2019a).

Geology and soils characteristics would be considered during bridge design, based on the preliminary geotechnical report (Shannon and Wilson, Inc. 2014) and on more detailed geotechnical investigations undertaken as part of the design process. Project construction specifications will require that a licensed geotechnical engineer interpret existing site-specific geotechnical information and develop foundation recommendations and design parameters, which may require additional subsurface investigations or laboratory analysis. Geotechnical recommendations and bridge design would also account for potential scour and erosion.

Although the project area is within a high seismic hazard zone, the Preferred Alternative would be designed in accordance with applicable building codes, which include measures to ensure that structures can withstand the maximum expected ground shaking without catastrophic failure and resist the forces of seismic-induced hazards such as liquefaction and lateral spreading. While complete avoidance of any damage may not be feasible during a large seismic event, adherence to industry-standard seismic design measures in accordance with current building codes and recommendations of site-specific geotechnical investigations would mean that potential impacts from strong seismic ground shaking would be less than significant.

Overall, because of the limited nature of land disturbance, the use of appropriate bridge and foundation design standards, the consideration of site soils and geology in bridge design, and the incorporation of appropriate erosion control measures, the Preferred Alternative would have minor impacts relating to geological and soil resources.

3.6. Water Resources

3.6.1. Affected Environment

This water resources described in this section include surface waters, groundwater, hydrology and storm water, floodplains, and navigation. Note that wetlands are discussed in Section 3.7, Biological Resources.

Surface Waters and Waters of the United States

The FNSB is in central interior Alaska, encompassing the area near the confluence of the Chena River and Tanana River. The Tanana and Chena Rivers are the principal water courses in the FNSB. The Chena River is located north of the Tanana River and flows from east to west in a meandering course through a broad floodplain. The Bailey Bridge spans the Chena River in Fort Wainwright, Alaska. The river bifurcates approximately seven miles downstream of the bridge,

creating Noyes Slough, which rejoins the main channel on the western side of Fairbanks, Alaska. The Chena River drains to the Tanana River. The Tanana River is a tributary to the Yukon River which flows to the Bering Sea.

Section 404 of the Clean Water Act (CWA) establishes a permit system for the discharge of dredged or fill material into waters of the U.S., including wetlands and lakes, rivers, streams, and their tributaries. Wetlands are defined for regulatory purposes as areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Nationwide Permit 15 for Coast Guard Approved Bridges would likely be obtained to authorize the placement of fill material below the ordinary high-water mark (OHWM) of the Chena River.

CWA Section 401 requires applicants for a Federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S to obtain certification for the discharge. The certification is obtained from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. The ADEC would review project materials submitted for the CWA Section 404 nationwide permit.

Designated uses for the Chena River under CWA Section 303 include water supply for agriculture (including irrigation and stock watering) and industrial use, as well as water supply for drinking water, culinary use, food processing and aquaculture; fresh water for growth and propagation of fish, shellfish, other aquatic life and wildlife; and water recreation (contact recreation and secondary recreation) (EPA 2019a).

Chena River and Noyes Slough were previously listed as impaired for sediment under CWA Section 303(d) but are now meeting the objective. Noyes Slough continues to be listed as impaired for petroleum hydrocarbons, oil, and grease (ADEC 2018).

Groundwater

Groundwater levels are highly influenced by the Tanana and Chena Rivers and can vary from two to five feet throughout the year. Levels are highest in the late spring and early summer and drop throughout the late fall and winter with the lowest levels reached just before the spring melt (FNSB 2019). Groundwater quality is influenced by naturally occurring metals. Arsenic and antimony have been found to exceed primary drinking water standards in groundwater, while iron levels have been found to exceed secondary drinking water standards (USGS 2001). There are also localized areas of shallow groundwater contamination from industrial/military activities. A prior tar disposal area used during the 1950s and 1960s is located within the vicinity of the bridge crossing near the northeastern approach to the bridge (Installation Restoration Program Site FTWW-078). Prior testing has found no potential for groundwater contamination from leachate from the disposal area (USAG Alaska, 2017c).

Hydrology and Storm Water

Upland areas of the Chena River basin are comprised of rounded ridges and hills consisting of weathered bedrock covered by varying depths of windblown silt. Lowland areas are generally

level floodplains and low benches consisting of sand and gravel deposits covered by varying depths of silts and peat (FNSB 2019). Soils consist of unconsolidated deposits of sand and gravel near the river which overlie rock to a depth of several hundred feet. The sand and gravel deposits can also be overlain by a layer of fine silt to sandy silt ranging from 3 to 20 feet in thickness (FEMA 2014).

The climate of the area is continental and is characterized by cold, dry winters and warm, relatively moist summers. Average temperatures range from 75°F in the summer to below -33°F in the winter. Average annual precipitation at Fairbanks is 10.4 inches, with the highest monthly precipitation occurring in August. Even though most of the annual precipitation occurs as rain during the months of June through September, significant snowfall does occur in the area. Mean annual snowfall is 67.5 inches and measurable snowfall may occur as early as September or as late as May (FEMA 2014).

The Construction General Permit (CGP) for storm water discharges from large and small construction activities (ADEC 2015; Permit AKR100000) applies to construction projects that disturb one of more acres of land which have storm water and/or non-storm water discharges to waters of the U.S. For coverage under the CGP, the operator of a construction site must develop a Storm Water Pollution Prevention Plan (SWPPP) and submit the SWPPP along with a Notice of Intent to the APDES permitting program of the ADEC. The APDES program manages discharge criteria to water for compliance with CWA Section 402. Concerns include, but are not limited to, dredged soil, rock, sand, dirt, and runoff from construction and support activities. The SWPPP addresses various aspects of storm water pollution discharge from disturbed surfaces (soil) and other project components and details applicable control measures, inspection, reclamation, and mitigation measures.

SWPPPs are required to regulate soil erosion during construction and site operations as part of the APDES permitting program regulated by ADEC. The APDES program manages discharge criteria to water for compliance with CWA Section 402. Concerns include, but are not limited to, dredged soil, rock, sand, dirt, and runoff from construction activities. Permits establish allowable discharge limits and other conditions (monitoring and compliance) to ensure that water quality is protected. Multiple plans addressing various aspects of storm water pollution discharge from disturbed surfaces (soil) and other project components would detail applicable erosion control measures, monitoring, reclamation, and mitigation measures.

The ADEC has issued a permit for storm water discharges from the small MS4 at Fort Wainwright (ADEC 2016; Permit AKS055859). Consistent with conditions in this permit, Fort Wainwright's storm water management plan (USAG Alaska 2016) provides for minimum control measures for construction site storm water runoff control and post-construction storm water drainage systems in the urbanized area of Fort Wainwright, which includes the Chena Bend golf course and southwestern bridge approach from Kinney Road. Project-specific SWPPP are required to address additional project concerns and mitigation considerations for individual construction projects, which must be reviewed by the MS4 manager prior to the start of ground disturbing activities.

Floodplains and Navigable Waters

Executive Order 11988, *Floodplain Management,* requires Federal agencies to reduce the risk of flood loss; restore and preserve the natural and beneficial values served by floodplains; and minimize the impacts of floods on human safety, health, and welfare. Federal agencies are to avoid construction or management practices that would adversely affect floodplains, unless an agency finds that no practical alternative exists, and the proposed action has been designed or modified to minimize harm or risk to structures or facilities located within the floodplain. The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations, floodplain boundaries, and distributing Flood Insurance Rate Maps that identify the locations of special flood hazard areas. Federal regulations governing development in a 100-year floodplain are set forth in 44 CFR Part 60, which enables FEMA to require municipalities that participate in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development within floodplains.

FEMA has mapped the Chena River floodway and floodplain at the bridge crossing. The floodway and the "AE" flood zone are confined within the existing channel at the bridge crossing. The base flood elevation is 447 feet NAVD88 during the 100-year flood event and the water surface elevation during the 500-year event is 450.5 feet NAVD88 (FEMA 2014).

FNSB's Title 15 ordinance describes construction requirements for new development occurring in flood hazard areas as mapped and defined by FEMA. The principal focus of Title 15 is to ensure structures built in the floodplain meet minimum constructions standards related to foundation systems and adequate elevation of a building. Title 15 is also concerned with alteration of watercourses identified as being flood prone such that the watercourse's ability to carry flood waters is not diminished. A building and construction permit from the FNSB is required to build structures in the regulated floodway.

Flood flows on the Chena River are regulated by a flood control project approximately 17 miles east of Fairbanks. The Chena River Lakes Flood Control Project consists of Moose Creek Dam on the Chena River, Moose Creek Floodway, Tanana River Levee and an interior drainage network between the Chena and Tanana Rivers (USACE 2017). The Tanana River levee system protects southern Fairbanks from floods from the Tanana River. The Moose Creek Floodway conveys major flood flows from the Chena River over to the Tanana River east of Fairbanks. The Moose Creek Dam forms the eastern boundary of the floodway, forcing flow down the floodway towards the Tanana River. These features allow for flows to be regulated in downtown Fairbanks to no more than the Congressionally-authorized maximum of 12,000 cubic feet per second (FEMA 2014).

The Chena River is a navigable water of the U.S. (USACE 2019). Under the Rivers and Harbors Act (RHA) Section 10 (33 USC 403), the USACE regulates work in, over, or under; excavation of material from; or deposition of material into navigable waters. Structures or work outside the limits defined for navigable waters (above the ordinary high-water mark) would also require a RHA Section 10 permit if the structure or work affects the course, location, condition, or capacity of the water body.

3.6.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities. Continued degradation of the bridge over time could lead to increased sloughing of lead- and PCB-containing paint chips into the river or onto soil, which could have moderate adverse impacts on surface water quality.

Preferred Alternative: Replace Bridge at Current Location

Surface Water, Groundwater and Storm Water

Construction activities would include demolishing the existing bridge, piles, ice deflector structures, utility conduits, and paved road approaches; constructing a new bridge at the same location with pile foundations, concrete abutments, wing walls, a bridge superstructure, and utility pipeline saddles and braces; constructing an asphalt or reinforced concrete bridge approach on the south side of the bridge; constructing a gravel bridge approach on the north side of the bridge; and potentially realigning the road leading from Kinney Road on the south side of the bridge. Bridge removal would occur during the winter when the river is frozen. Existing piles would be removed or cut off to a minimum of two feet below existing adjacent river bed, or as directed by permitting stipulations for in-water work. Existing abutments would be removed to a minimum of three feet below grade and backfilled with compacted structural fill. In-water work would be undertaken in accordance with any potential seasonal timing restrictions determined and stipulated through the ADF&G fish habitat permitting process. No temporary damming or diversion of the river is anticipated to be required during construction.

Construction activities could result in disturbed soils being temporarily exposed to the erosive forces of wind, rain, and storm water, potentially causing the release of construction-generated sediment and contaminants to the Chena River. Storm water runoff could be contaminated with chemicals typically used during construction (e.g., fuels, oils, and solvents) through the daily use, transportation, and storage of these materials if they are not properly controlled. However, the contractor would implement avoidance and minimization measures consistent with ADEC permit requirements during construction to reduce the potential for silt laden or other environmental degrading materials discharging into the river. The construction contractor would prepare an Environmental Protection Plan, prepare and submit a SWPPP to ADEC, and conduct all construction activities in accordance with the approved plans. The SWPPP, at a minimum, would include methods for clearing, grubbing, excavation, and embankment construction; implementing temporary erosion and sediment control measures and BMPs; would designate temporary and permanent drainage features, haul roads and material stockpile sites, existing drainage features and containment control, and cleanup and disposal methods for petroleum products or other hazardous substances generated by construction equipment or activities. The plan would address BMPs for post-construction activities until stabilization occurs.

As discussed in 3.12, Solid Waste and Hazardous and Toxic Materials and Wastes, the northern bank of the Chena River at the existing Bailey Bridge area is within Tar Site FTWW-078 (USAG

FWA 2017c), however the tar was found to have no potential to leach hazardous chemicals to groundwater (USAG Alaska 2017d). Tar is managed as a solid waste pursuant to the requirements of 18 AAC 60, Solid Waste Management. Solid waste generated during construction and demolition would be managed and disposed of in accordance with applicable federal, state, and local regulations and guidance pertaining to solid waste disposal. Waste segregation measures would be employed during construction and demolition so that no hazardous or toxic waste will become co-mingled with solid waste. Although it is not anticipated, it is possible that previously unknown localized soil contamination may be encountered during construction activities. Garrison Policy #38, Land Use Controls/Institutional Controls, requires projects including excavation in areas of known or suspected contamination to adhere to a Work Plan approved by ADEC and EPA, coordinated through the USAG Alaska Environmental Division prior to the start of work. USAG Alaska's Environmental Stewardship Guidelines (see Appendix B) requires field screening for petroleum products and/or other identified contaminants of concern. If contaminated soils as indicated by field screening results or visual/olfactory cues are encountered, such soils would require segregation, stockpiling, and characterization in accordance with State of Alaska regulations. If surface runoff enters excavations with contaminated soils, the dewatering of those excavations would require sampling, testing, and treatment as needed to prevent potential contamination from migrating off-site.

The potential for surface water and groundwater contamination would be managed in construction areas in accordance with the approved Environmental Protection Plan, Work Plan, and SWPPP for the project. Demolition materials and disturbed soils would be screened for contaminants and contaminated materials and other solid waste would be managed in accordance with State of Alaska regulations, as discussed further in Section 3.12, Solid Waste and Hazardous and Toxic Materials and Wastes. As such, construction activities would not provide additional and substantial sources of polluted runoff or otherwise substantially degrade water quality. Impacts to water quality from construction activities would be, as a whole, minor to moderate and temporary in duration.

The post-construction storm water system would be compliant with Fort Wainwright's municipal permit issued by ADEC (2016) and its storm water management plan (USAG Alaska 2016). The site drainage system for the roadway realignment and bridge approach would consist of overland flow and open grass-lined ditches to direct rain and snowmelt runoff to existing drainage systems and/or new catch basins and culverts if needed. The bridge deck would drain to the river though deck drains and downspouts onto riprap or flowing water. These measures incorporate low impact development (LID) BMPs consistent with the U.S. Army LID guidance (USACE 2013). As such, adverse effects to surface water and groundwater quality would be would be minimized and substantially avoided.

Long-term groundwater availability would remain unaffected by the bridge. As discussed in the affected environment section, groundwater levels are highly influenced by the Tanana and Chena Rivers and fluctuate seasonally based on river height. There would be only a minimal change in impervious surface area where the paved bridge approach is potentially realigned. As such the amount of change in surface water runoff and groundwater infiltration is expected to be negligible.

Overall, the Preferred Alternative would have minor to moderate impacts to surface and groundwater quality.

Floodplains and Navigation

The new bridge would be supported on concrete abutments and concrete-filled steel pilings and piers. The design of the piers and foundations would account for debris and ice loadings. Riprap revetments and aprons would be used to reduce scour as needed. The navigable span over the deepest part of the river would have a minimum 120-foot clear distance between the bridge piers and/or abutments. The minimum low chord of the bridge, i.e., the top of the opening for the waterway beneath the bridge, would be at least 452 feet NAVD88 to pass flood flows. This minimum low chord elevation is greater than the water surface elevation associated with the 500-year event at the existing bridge (FEMA 2014) and is intended to provide an adequate waterway opening to convey the 500-year flood under the new bridge without raising the flood water elevation, as compared to the existing conditions, by more than one foot.

The USAG Alaska's recommended minimum low chord elevation for navigation is 454 feet NAVD88, but a slightly lower low chord elevation could be used if sufficient hydraulic analyses determines that the lower elevation can be justified. Issues regarding the low chord elevation and potential navigation clearance would be coordinated with the 17th District of the U.S. Coast Guard. Hydraulic modeling would be used to confirm that adequate navigational clearance and flood flow capacity is incorporated into the design. As such, impacts to floodplains and navigation would be minor.

3.7. Biological Resources

3.7.1. Affected Environment

The biological resources described in this section include vegetation communities, special status plants (SSP), fish resources, terrestrial wildlife resources, special status wildlife (SSW), invasive species, and wetlands.

Biological resources at Fort Wainwright are managed under the Integrated Natural Resources Management Plan (INRMP; USAG Alaska 2013a) and the Fort Wainwright Ecosystem Management Program (USAG Alaska 2013a, Appendix G). The overall goal of the ecosystem management program is to maintain an environment in which soldiers can train to a high-level of military readiness and to maintain natural landscape features and ecosystem integrity at a broad landscape scale.

Fish Resources

The analysis area for fish resources includes the Chena River watershed approximately 21 miles upstream from the confluence of the Tanana River to the confluence of the Chena Slough. In this area, the Chena is a single-thread, meandering channel confined in a narrow floodplain by urban and industrial land use. Off-channel habitat is scarce, with the exception of Noyes Slough 7.5 river miles downstream and Chena Slough 4.0 river miles upstream of the Bailey Bridge. The Chena River at the Bailey Bridge site is a single channel shallowing from mid-channel to the

north bank. The south bank abuts an existing golf course. Both banks are vegetated as described below under Vegetation Communities.

Anadromous Fish

Chinook (*Oncorhynchus tshawytscha*) and chum salmon (*Oncorhynchus keta*) are important fish species in Alaska for commercial, recreational, and subsistence fishing activities. The Chena River is identified in the ADF&G Anadromous Waters Catalog (Johnson and Blossom 2018) as providing habitat for Chinook and chum salmon, as shown in Figure 10 and Figure 11. Chinook and chum salmon have been documented as present at the Chena-Tanana River confluence. Chinook have been documented at the Noyes Slough confluences. Chinook and chum salmon have been documented spawning and rearing at the Chena Slough confluence approximately four miles upstream of the Bailey Bridge. Spawning or rearing of anadromous fish has not been documented at the Bailey Bridge site, suggesting that the Chena River in this area is a migration corridor providing access to suitable spawning, rearing, and overwintering habitat farther upstream.

Resident Fish

The 2010 BLM Trans-Alaska Pipeline Fish Stream List describes the following resident species: Arctic lamprey, burbot, broad whitefish, round whitefish, humpback whitefish, slimy sculpin, northern pike, longnose sucker, Arctic grayling, sheefish, and least cisco, approximately 6.5 river miles upstream of the Bailey Bridge (BLM 2010). The ADF&G identified Alaskan brook lamprey (*Lampetra alaskensis*) and lake chub (*Couesius plumbeus*) from investigations of fish populations in the Chena River in their 1967-1968 annual report (ADF&G 1968). No sensitive habitats for resident fish have been documented in the project area.

Vegetation Communities

The project area is within the Upper Yukon Highlands ecoregion section (USFS 1994). This ecoregion mainly consists of rounded, low mountains and hills, interspersed frequently by valleys. The growing season in this ecoregion lasts approximately from May 15 to September 10. Average annual precipitation ranges from 6 to 14 inches.

The vegetation pattern of the Upper Yukon Highlands ecoregion section is complex (USFS 1994). Forests of white spruce (*Picea glauca*), birch (*Betula* spp.), and aspen (*Populus tremuloides*) dominate most lower slopes in the south and south-facing slopes in the north. Black spruce (*Picea mariana*) forests typically grow at higher elevations, on all north-facing slopes in the south, and on all but steep south-facing slopes in the north. Black spruce forests also occur at lower elevations where drainage is impeded. Highest elevations are either barren or have tundra vegetation, with sedge (*Carex* spp.) and mosses dominating poorly drained sites and low-growing shrubs on drier sites (e.g., scrub birch [*Betula glandulosa*] and willow [*Salix* spp.]).

Native vegetation in Fort Wainwright was removed from much of the project area during original construction in the 1940s. Due to landscaping and other human activities, vegetation in the project area generally does not reflect natural vegetation patterns of the area (Nakata Planning Group 1987).

Vegetation classification maps for the project area are shown in Figure 12. Near the Bailey Bridge site, areas along the banks of the Chena river are classified as shrubland/grassland, while upslope areas to the northeast of the bridge are classified as forest woodland. The other sites within the project area do not contain any areas of classified vegetation, although areas of forest woodland are present adjacent to the clean soil disposal site and contaminated soil stockpile site. Proposed construction haul routes pass through various areas classified as forest woodland or shrubland/grassland (not depicted on Figure 12).

Special Status Plants

SSP species are managed under the Endangered Species Act (ESA) of 1973, as amended, and the INRMP (USAG Alaska 2013a, Appendix F: Rare, Threatened and Endangered Species Management).

Only two ESA-listed threatened or endangered plant species are known to occur in Alaska, and neither species' current or historical ranges include Fort Wainwright. A query of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Database (2019) confirmed that no ESA-listed threatened or endangered plant species or species that are candidates or proposed for listing under the ESA occur in the project area.

The Fort Wainwright Ecosystem Management Program also identifies rare, uncommon priority management species, species of concern, and species at risk. Seven vascular plant species of concern are known to occur on the Fort Wainwright Main Post (Table 4). These plants are being tracked by the Alaska Natural Heritage Program because they are thought to be uncommon or rare in Alaska and/or uncommon or rare globally (Alaska Natural Heritage Program 2013). There are no legal ramifications from these listings, rather they are generated by the Alaska Natural Heritage Program to help track the occurrence of these taxa across the state as more botanical work is conducted. The categories listed do not indicate known threats to these species, but they do represent the few collections known for each taxa in Alaska and the geographic distribution of those collections. The species listed in Table 4 occur in the greater Fort Wainwright Main Post area but were determined to not occur during a 1 July 2019 survey of the project area (Rees pers. comm. 2019).

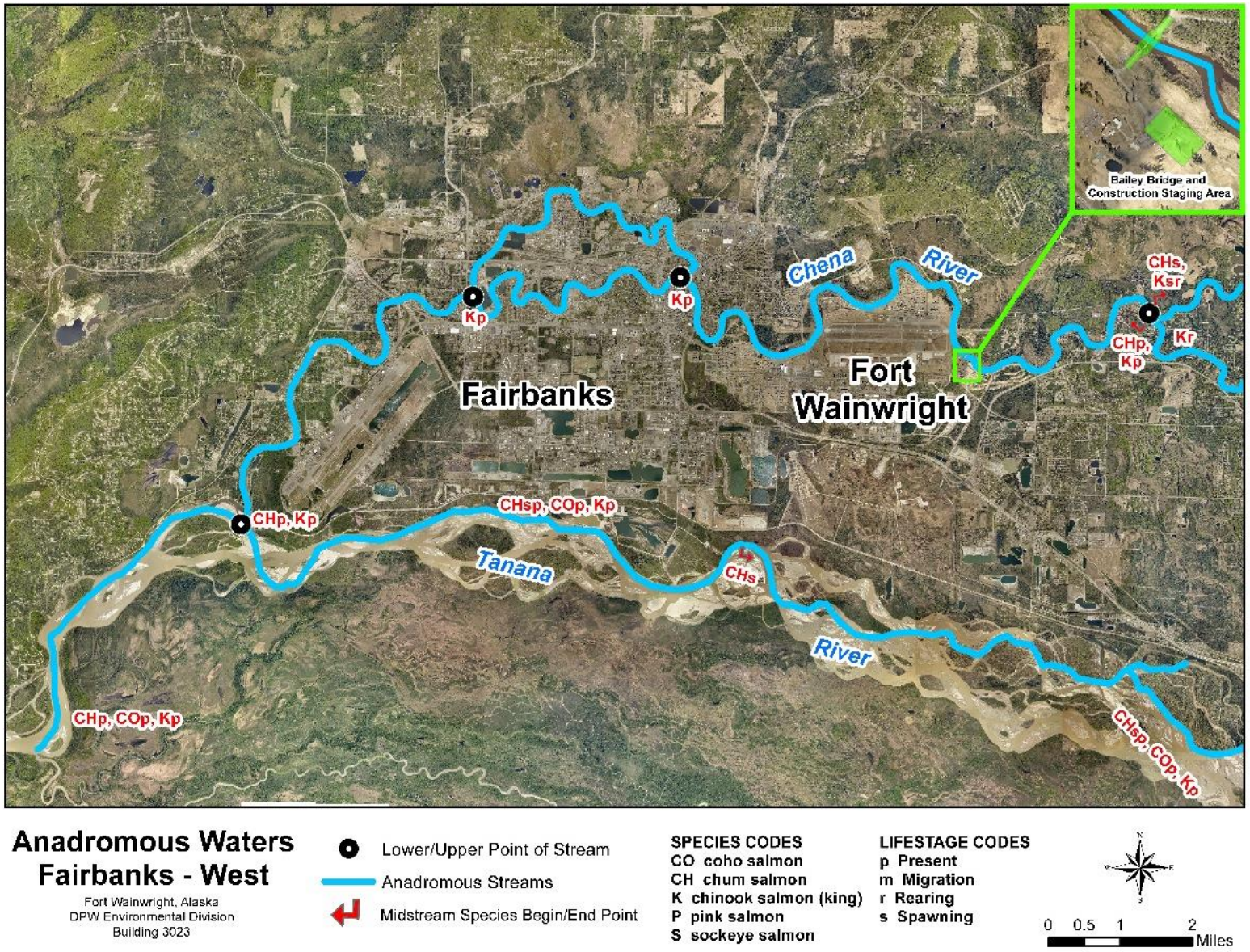

Figure 10. Anadromous Waters, Fairbanks – West (Johnson and Blossom 2018)

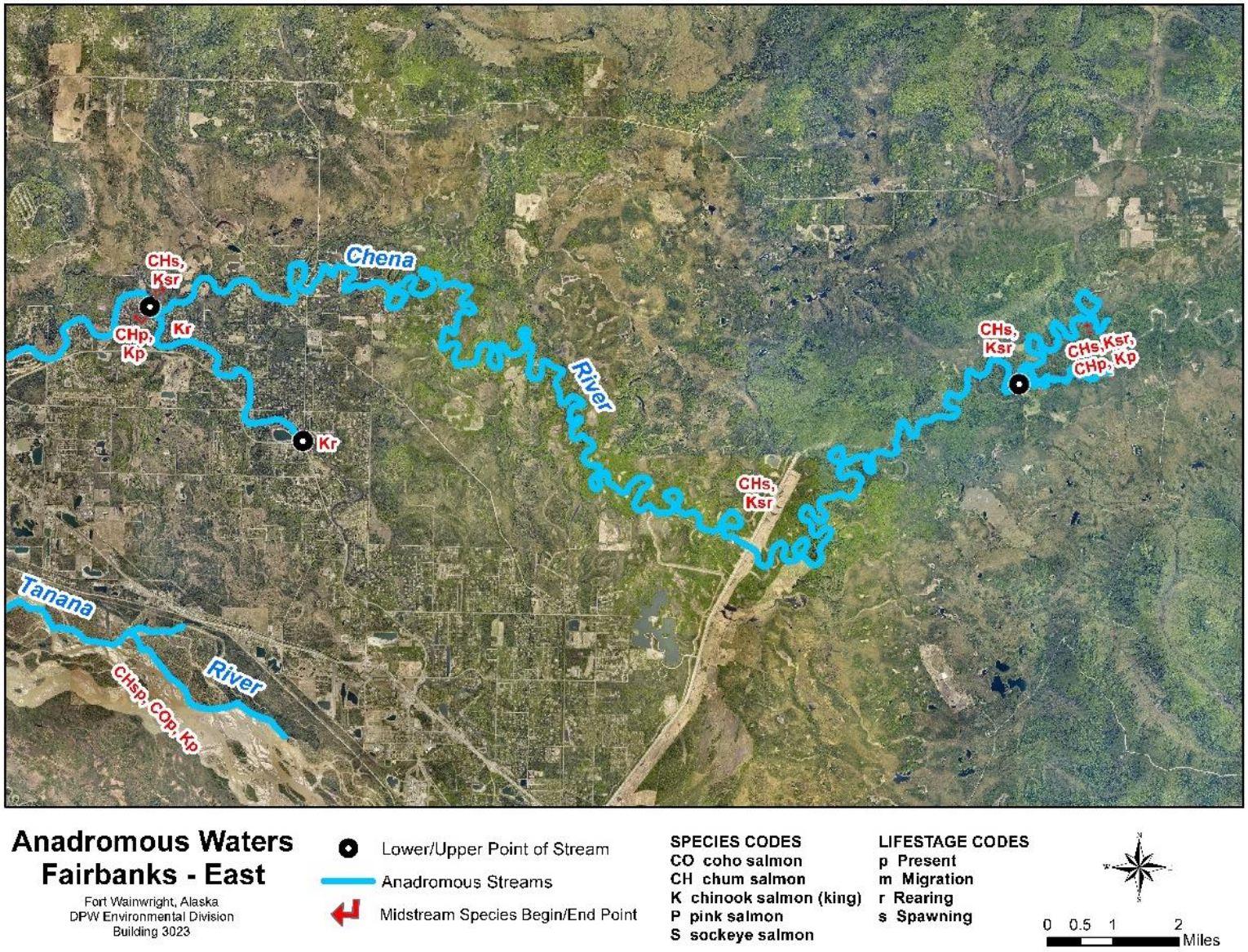

Figure 11. Anadromous Waters, Fairbanks – East (Johnson and Blossom 2018)

Figure 12. Vegetation Classification Map

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Table 4. Vascular Plant Species of Concern known to occur on the Fort Wainwright Main Post

Species	Common Name	Global Ranking*	Alaska State Ranking**
Apocynum androsaemifolium	Spreading dogbane	G5	S3
Artemisia laciniate	Siberian wormwood	G4?	S3
Ceratophyllum demersum	Coon's tail	G5	S3S4
Cicuta bulbifera	Bulblet-bearing water hemlock	G5	S3
Cryptogramma stelleri	Fragile rockbrake	G5	S3S4
Glyceria pulchella	MacKenzie Valley mannagrass	G4G5	S3S4
Oxytropis campestris var. *varians* (formerly *Oxytropis tananensis*)	Field locoweed	G5T5	SNR

Source: USAG Alaska INRMP Ecosystem Management Program (USAG Alaska 2013a)

Notes:

* Alaska Natural Heritage Program Rare Species Global Rankings
  - G3: Either very rare and local throughout its range or found locally in a restricted range (typically 21-100 occurrences)
  - G4: Apparently secure globally
  - G5: Demonstrably secure globally
  - G#G#: Global rank of species uncertain; best described as a range between the two ranks
  - G#T#: Global rank of species and global rank of the described variety or subspecies of the species
  - Q: Taxonomically questionable
  - ?: Inexact

** Alaska Natural Heritage Program Rare Species State Rankings
  - S1: Critically imperiled in state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state (typically five or fewer occurrences, or very few remaining individuals or acres)
  - S2: Imperiled in state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences, or few remaining individuals or acres)
  - S3: Rare or uncommon in the state (typically 21-100 occurrences)
  - S4: Apparently secure in state, with many occurrences
  - S#S#: State rank of species uncertain; best described as a range between the two ranks
  - SE: possibly introduced

Wildlife Resources

The open, mixed deciduous-conifer forests of the Upper Yukon Highlands ecoregion section support a large variety of wildlife species (USFS 1994). Commonly occurring breeding birds include gray jays (*Perisoreus canadensis*), boreal chickadees (*Poecile hudsonicus*), northern flickers (*Colaptes auratus*), red-tailed hawks (*Buteo jamaicensis*), and boreal owls (*Aegolius funereus*). Sharp-tailed grouse (*Tympanuchus phasianellus*) and upland sandpipers (*Bartramia longicauda*), although considered uncommon, are also characteristic of this area. Hoary marmots (*Marmota caligata*) occur in the mountainous areas, while woodchucks (*Marmota monax*) are found in the lower, open woodlands. This ecoregion section provides prime habitat for Arctic ground squirrels (*Spermophilus parryii*) and northern flying squirrels (*Glaucomys sabrinus*). The range of long-tailed voles (*Microtus longicaudus*) and yellow-cheeked voles (*Microtus xanthognathus*) in interior Alaska corresponds closely with this ecoregion section. Upland furbearers, such as American marten (*Martes americana*), American mink (*Neovison vison*), short-tailed weasels (*Mustela erminea*), and least weasels (*Mustela nivalis*), are common. Wood frogs (*Rana sylvestris*) are also known to occur in this ecoregion section.

Most vertebrate species indigenous to central Alaska can be found on Fort Wainwright Main Post. Game species found on Fort Wainwright are managed by the ADF&G, which monitors these species to determine population status, reproductive success, harvest, and home ranges. The Fort Wainwright Main Post falls within the State of Alaska Game Management Unit 20B and within the special management area entitled "Fairbanks Management Area."

Wildlife game species found on Fort Wainwright lands include black (*Ursus americanus*) and grizzly (*Ursus arctos*) bears, moose (*Alces alces*), beaver (*Castor canadensis*), muskrat (*Ondontra zibithicus*), ruffed grouse (*Bonasus umbellus*), spruce grouse (*Falcipennis canadensis*), sharp-tailed grouse. Wood frogs are the only amphibians on Fort Wainwright Main Post. The bald eagle (*Haliaeetus leucocephalus*) is locally common on Fort Wainwright but a 1 July 2019 site visit determined that no bald or golden eagle nests are currently located in the vicinity of the project area.

The Bald and Golden Eagle Protection Act (16 USC 668-668d) provides protection for bald and golden eagles. The Migratory Bird Treaty Act (16 USC 703–712), which incorporates Executive Order 13186, *Responsibility of Federal Agencies to Protect Migratory Birds*, provides protection for all migratory bird species, including their nests. The ADF&G is responsible for managing wildlife populations that are not otherwise protected under federal regulations.

Special Status Wildlife

SSW species are managed under the ESA, the INRMP (Appendix F: Rare, Threatened and Endangered Species Management; USAG Alaska 2013a), and the Fort Wainwright Ecosystem Management Plan.

The IPaC Database (2019) shows that no ESA-listed wildlife species occur in the project area.

To be included for management as an SSW species in the Fort Wainwright Ecosystem Management Plan, a species must occur in at least one of four categories. All rare, threatened, and endangered species fall under the below categories:

1. the species is of conservation concern, as determined largely by population declines noted broadly throughout the species range (not necessarily in Alaska) or from conservation priority species lists produced by the USFWS, ADF&G, and specialist working groups (for birds, the national Partners-in-Flight Watch List, the Alaska Audubon Watch List, Boreal Partners-in-Flight Working Group, Alaska Shorebird Working Group, and Alaska Loon Working Group),
2. the species has socioeconomic importance as a locally hunted game animal,
3. the species is ecologically important in ecosystems as a predator, or
4. the species is ecologically important in ecosystems as prey.

There are sixteen SSW species on the Fort Wainwright Ecosystem Management Plan list for Main Post: olive-sided flycatcher (*Contopus cooperi*); lesser yellowlegs (*Tringa flavipes*); Wilson's snipe (*Gallinago delicata*); rusty blackbird (*Euphagus carolinus*); solitary sandpiper (*Tringa solitaria*); varied thrush (*Ixoreus naevius*); little brown bat (*Myotis lucifugus*); blackpoll warbler

(*Dendroica striata*); Wilson's warbler (*Wilsonia pusilla*); greater scaup (*Aythya marila*); lesser scaup (*Aythya affinis*); northern waterthrush (*Seiurus noveboracensis*); Townsend's warbler (*Dendroica townsendi*); western wood-peewee (*Contopus sordidulus*); great gray owl (*Strix nebulosa*); and white-winged crossbill (*Loxia leucoptera*).

The riparian and wooded habitat along the Chena river is suitable for many of the special status bird species, such as: olive-sided flycatcher, Wilson's snipe, rusty blackbird, solitary sandpiper, blackpoll warbler, Wilson's warbler, northern waterthrush, Townsend's warbler, western wood-peewee, great gray owl, and white-winged crossbill. Little brown bats are not known to roost under the bridge, and there are no roosting sites or hibernacula habitat for little brown bats near the Bailey Bridge site, staging/laydown area, clean soil disposal area, or contaminated soil stockpile area.

Wetlands

Executive Order 11990, *Protection of Wetlands,* requires that federal agencies minimize any significant action that contributes to the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies' responsibilities. It is U.S. Army policy to avoid adverse impacts to existing aquatic resources and to offset those adverse impacts that are unavoidable. Additionally, the U.S. Army strives to achieve a goal of no net loss of values and functions to existing wetlands and permit no overall net loss of wetlands on U.S. Army-controlled lands. Furthermore, the U.S. Army takes a progressive approach toward protecting existing wetlands, rehabilitating degraded wetlands, restoring former wetlands, and creating wetlands in an effort to increase the quality and quantity of the nation's wetland resource base. To meet this requirement, installations identify and maintain a current inventory of their wetland resources. Installations contribute to and reference the National Wetlands Inventory.

Actions impacting wetlands require an environmental analysis in accordance with AR 200-1, 32 CFR Part 560, and applicable federal and state laws and regulations. USACE permits are required under RHA Section 10 prior to commencing any work or structures built in a navigable water of the United States. Such work includes dredging, bulkheads, piers and docks, and bank protection. USACE permits are required under CWA Section 404 for the discharge or dredged of fill material into a water of the United States, including wetlands. The USACE regulations in 33 CFR Parts 320-330 prescribe the statutory authorities and general and special policies and procedures applicable to the review of applications for USACE permits. Before commencing any work in a water of the United States, a district engineer must be contacted, and a permit obtained, as appropriate.

Fort Wainwright's Main Post supports a variety of palustrine freshwater wetlands, most of which are concentrated on the floodplains of the Tanana and Chena Rivers, outskirts of the cantonment area where urbanization activities haven't occurred, and north-facing slopes of Birch Hill. Forest wetlands are dominated by needleleaf trees, such as black spruce, and often have an understory of feather mosses that insulate soils, allowing them to remain frozen for extended periods. Scrub-shrub wetlands, a very common wetland type on Main Post, occur in a variety of landscape positions and are typically composed of stunted needleleaf trees and

broadleaf shrubs. Scrub-shrub wetlands dominated by severely stunted black spruce trees are found on cold north facing slopes and valley bottoms, where saturated soils underlain with permafrost prevent larger trees from growing. Scrub-shrub wetlands composed of shrub birch and willow tend to form in seasonally flooded drainages, on terraces, and in areas disturbed by fire and mowing, such as the Small Arms Complex. Emergent wetlands are dominated by graminoid species such as grasses and sedges and occur in seasonally or permanently flooded flat, low-lying areas. They are found on floodplains, on the margins of ponds and lakes, in sloughs, and in localized depressions. Emergent wetlands also develop in trails established in scrub-shrub wetlands, where they form web-like complexes with the surrounding scrub-shrub communities.

Freshwater emergent wetlands, forested/shrub wetlands, and riverine wetlands (Alaska Vegetation Wetland Composite Wetland Types) have been mapped within the Bailey Bridge site, while freshwater emergent and forested/shrub wetlands have been mapped within the clean soil disposal site (Figure 13). No mapped wetlands are present within the staging/laydown area or contaminated soil stockpile site.

Invasive Species

Executive Order 13112, *Invasive Species,* requires all federal agencies to prevent the introduction of invasive species, to provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species may cause. Invasive species are defined as alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Alien species are further defined as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem. The Federal Noxious Weed Act of 1974 (P.L. 93-629) (76 U.S.C. 2801 et seq.) and Carlson-Foley Act (43 U.S.C. 1241) are also applicable to the management of invasive species and noxious weeds.

Fort Wainwright lands currently have few faunal invasive species. The primary invasive vascular plants are aquatic species such as waterweed (*Elodia* spp.), which is known to occur in the Chena River. Other invasive plant species that occur near the project area are European bird cherry (*Prunus padus*), bird vetch (*Vicia cracca*), white sweetclover (*Melilotus alba*), and foxtail barley (*Hordeum jubatum*) (Figure 14; Alaska Exotic Plants Information Clearinghouse 2019).

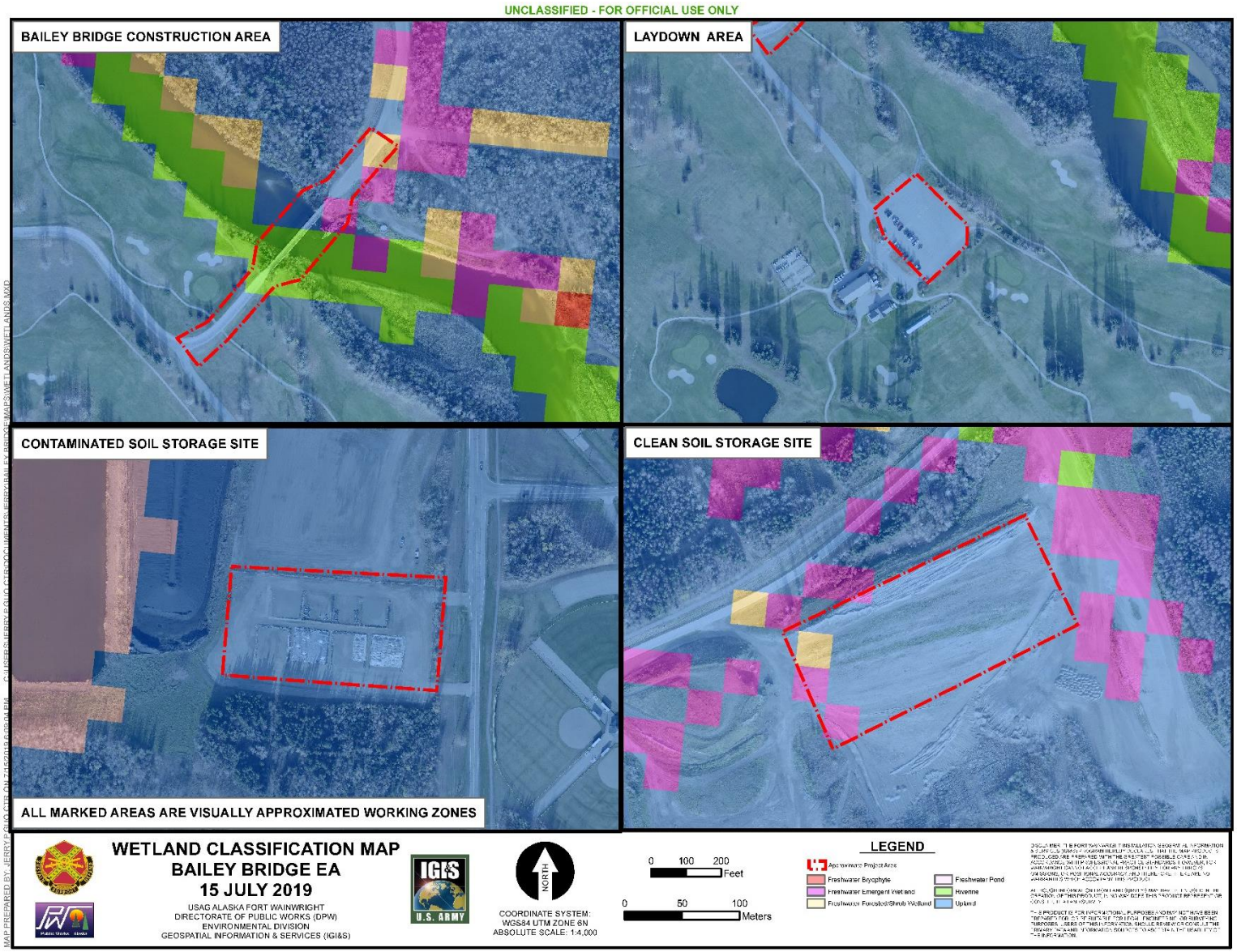

Figure 13. Wetland Areas Map

Figure 14. Invasive Species Map (Alaska Exotic Plants Information Clearinghouse 2019)

3.7.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. Because there would be no construction-related ground disturbance, or disturbance to the Chena River or its banks, no direct impacts would occur to biological resources as fish habitat, vegetation communities, SSP, wildlife, SSW, invasive species, and wetland conditions in the project area would remain unchanged from current conditions. Continued degradation of the bridge over time could lead to increased sloughing of lead- and PCB-containing paint chips into the river or onto soil, which could have moderate adverse impacts to aquatic resources, including Chinook and chum salmon and resident fish species, through degradation of surface water quality.

Preferred Alternative: Replace Bridge at Current Location

Fish Resources

The Preferred Alternative would install new bridge piers within the general footprint of the existing piers and will result in no net loss of streambed habitat. Habitat at the immediate location of the bridge piers would be altered, but fish would continue to use the river. The duration of habitat disturbance from construction effects would be short term and temporary.

The Preferred Alternative could cause temporary turbidity and sedimentation impacts during construction. Accumulations of fine sediments in streams have been associated with decreased fry emergence, reductions in winter carrying capacity and benthic production, and changes in species composition in benthic invertebrate communities (NMFS 2011). The extent of sedimentation impacts would be limited to the immediate location of the bridge. Project construction specifications will include BMPs for erosion and sediment control that would minimize sedimentation impacts.

Potential impacts on fish passage could occur temporarily during bridge construction. The duration of migration disturbance would be short term, lasting only during the construction phase. Free passage of fish may be temporarily interrupted but would continue unimpeded after construction is complete. The magnitude and extent of impacts would be such that fish may be disturbed or displaced but would return to their prior behavior after the activity ceases.

Driving of piles for bridge supports could temporarily displace noise-sensitive fish and aquatic organisms to adjacent habitats. Pile driving techniques have been documented to have potential to cause injury to nearby fishes (Caltrans 2015), as noise travels much farther in water than in air, and structures such as bridge structures, pier, or pilings can conduct sound into the water and the substrate. Airborne noise is also “heard” underwater through the air-water interface. The substrate of the underwater location as well as the natural or anthropogenic noises of the area affect the distance and level sounds travel under water. During ice-free periods, noise from pile-driving and other in-water construction activities could temporarily displace sensitive fish and aquatic organisms to adjacent habitats. Installation of piles during winter months through bottom-fast ice into the substrate would substantially reduce in-water

noise. The duration of impact would be temporary: fish may be disturbed or displaced, but mortalities would not be expected, and fish behavior would be expected to return to prior behavior after the activity ceases.

The installation of instream piers or other in-water construction activities would require a fish habitat permit from the ADF&G, which would include stipulations to minimize impacts to fish species. An appropriate in-water work window will be determined and stipulated during the permitting process to minimize habitat impacts during species critical life stages (e.g., resident fish spawning and egg development. Permit stipulations would be designed to minimize impacts to all life stages, including eggs, juveniles, and adults. Bridge design, stream flows, and habitat loss would be reviewed and verified by ADF&G during the permitting process. Potential permit stipulations would limit exposure to noise to be consistent with established criteria. If the ADF&G determines that pile driving would occur in a location and during a time frame likely to cause impacts to a managed species, a noise monitoring and mitigation plan would be required to mitigate the potential impacts.

Overall, the Preferred Alternative could result in short-term moderate adverse impacts to fish and aquatic organisms within the area of affect, however overall impacts are expected to be minor within the context of the Chena River watershed.

Vegetation Communities

Approximately 0.17 acre of shrubland/grassland vegetation along the Chena river and less than 0.01 acre of forest and woodland vegetation would be removed for the construction of the bridge (Figure 15). No vegetation removal would occur at the construction laydown or stockpile locations as these areas are currently unvegetated. Due to the small area of proposed shrubland/grassland and woodland forest removal within the wider context of such vegetation communities within the Fort Wainwright area, the Preferred Alternative would have a minor impact.

Special Status Plants

Habitat for riparian and wetland SSPs may occur in the shrub/grassland vegetation in the vicinity of the bridge. However, no SSPs were located in the project area during a survey on 1 July, 2019 (Rees pers. comm. 2019). The Preferred Alternative would therefore have no impact on SSPs.

Wildlife

Removal of vegetation for the Preferred Alternative would have minor impacts on wildlife habitat and nesting birds, due to the small acreage of vegetation that would require removal. Human activity in the area is likely to discourage terrestrial mammals from occupying this area during construction; therefore, direct impacts to these species are not likely to occur. Crushing of dens or burrows of small mammals and direct mortality of these species may occur during construction activities. Overall, impacts to wildlife would be minor.

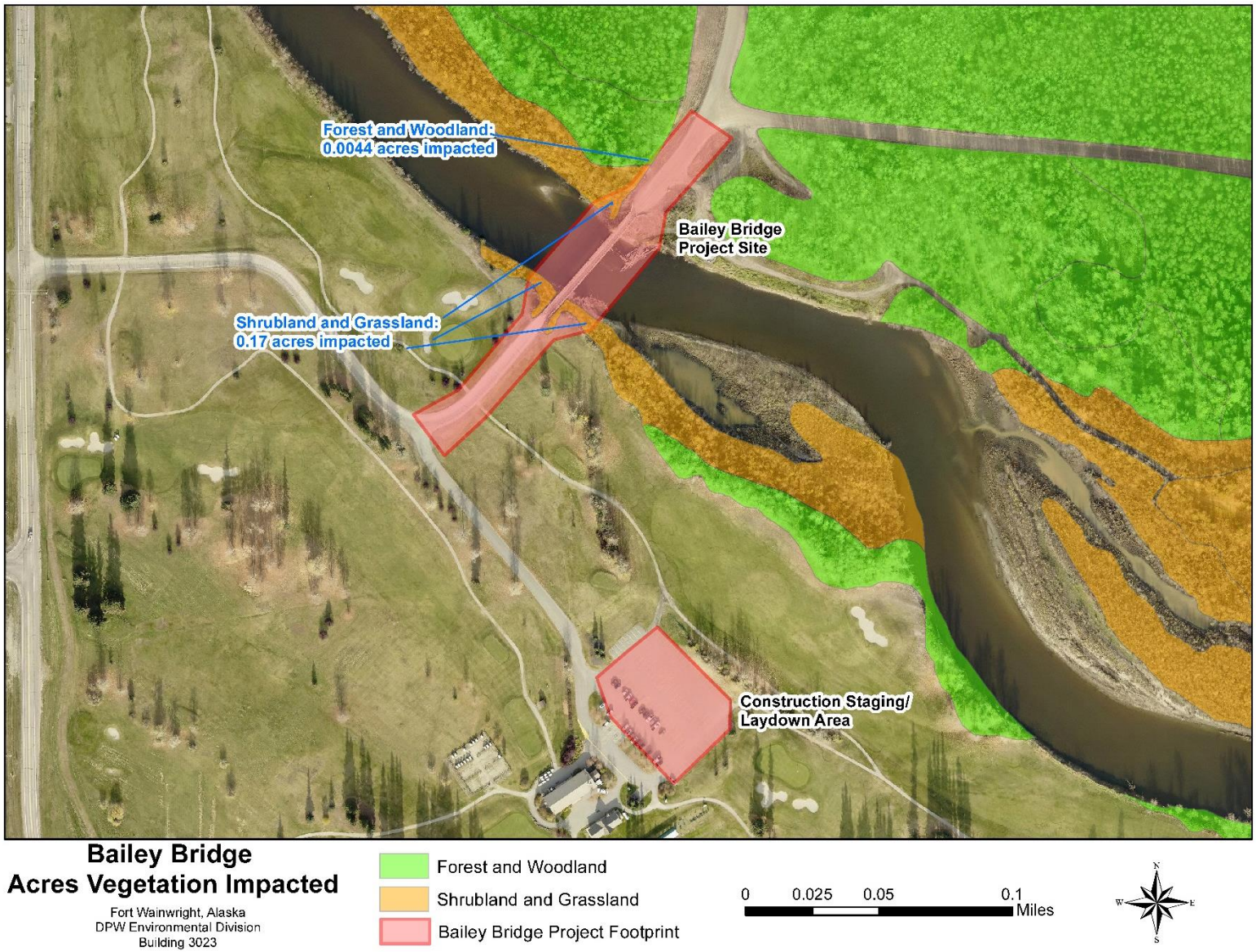

Figure 15. Impacted Vegetation Areas

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Special Status Wildlife

As with general wildlife species, removal of vegetation in the vicinity of the bridge may result in a negligible reduction in habitat for SSW, though direct impacts to these species are unlikely as vegetation removal and bridge replacement would occur outside the breeding/nesting season. Overall, impacts to SSW would be minor.

Wetlands

Wetlands have been mapped within the Bailey Bridge site and clean soil disposal site (Figure 13), therefore construction of the Preferred Alternative has the potential to impact wetlands. The extent to which construction activities would impact wetlands in the project area cannot be determined with accuracy until the details of project design are known, however direct impacts to wetlands in the bridge construction area may include temporary fill removal associated with demolition of the bridge abutments, permanent fill placement associated with construction of new bridge abutments and approaches, and temporary fill placement associated with construction access. Indirect impacts to wetlands may include changes in function due to wetland vegetation crushing in construction areas, water quality changes, or accidental exposure to hazardous materials. Direct impacts to wetlands at the clean soil disposal site are anticipated to include temporary fill placement due to stockpiling of clean soil.

USAG Alaska's Environmental Stewardship Guidelines (see Appendix B) requires BMPs and SOPs relating to the protection of wetlands at Fort Wainwright, including compliance with CWA Section 404, RHA Section 10, and other environmental regulations regarding wetland impacts. Project construction specifications will require adherence to the Environmental Stewardship Guidelines.

Moderate impacts to wetlands could be possible, depending on the details of bridge design. Bridge design and impacts to wetlands would be reviewed and accounted for during the CWA Section 404 permitting process, and mitigation, if required, would be under the direction of the USACE.

Invasive Species

Construction activities and soil disturbance typically increase the potential for invasive plant species colonization. Increased colonization of waterweed may occur due to the Preferred Alternative if construction materials transport this species from other areas. Invasive weed management would continue to be performed as directed under the INRMP (USAG Alaska 2013a), which requires invasive species surveys and monitoring, as well as management using biological control (using organisms to reduce populations), manually pulling, mowing, and herbicides.

Project construction specifications will require previously used construction equipment to be cleaned prior to bringing it into the project area to ensure equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds, and to consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements. Permitting stipulations in the ADF&G fish habitat permit may also address waterweed management. With

these controls in place, it is unlikely that invasive plant species would increase in the project area as a result of the Preferred Alternative. Impacts related to invasive species would be minor.

3.8. Cultural Resources

3.8.1. Affected Environment

Cultural resources are defined as sites, buildings, structures, objects, and districts (which may include historic/cultural landscapes) that are listed or eligible for listing in the National Register of Historic Places (NRHP). Cultural resources are evaluated for inclusion in the NRHP based on established criteria listed in 36 CFR Part 60. Under the National Historic Preservation Act (NHPA) Section 106 (54 U.S.C. Section 300101 et seq.) and its implementing regulations (36 CFR Part 800), federal agencies are required to consider the effects of their actions on historic properties. Further, Executive Order 11593, *Protection and Enhancement of the Cultural Environment* requires federal agencies to initiate measures to assure that federal plans, policies, and programs contribute to the preservation and enhancement of cultural resources.

USAG Alaska prepared the Fort Wainwright Integrated Cultural Resources Management Plan (ICRMP) in 2013 for the historic properties contained within the limits of USAG Alaska-managed lands at Fort Wainwright. The ICRMP provides the information necessary to make decisions regarding the treatment of cultural resources managed by USAG Alaska. The ICRMP includes management procedures for NHPA Section 106 consultation as well as for unanticipated discoveries (USAG Alaska 2013b).

Four previously recorded cultural resources exist in the project area (Table 5). The Bailey Bridge was determined eligible for inclusion on the NRHP in 2018 through consultation between the USAG Alaska and the State Historic Preservation Office (SHPO; Cook 2018). Ladd Field is a National Historic Landmark (NHL) and subject to special requirements for its protection under NHPA Section 110(f) (54 U.S.C. Section 306107; see also 36 CFR Section 800.10). Ladd Field Air Force Base is a Cold War Historic District (HD) and subject to NHPA Section 110(b). The Chena Bend Golf Course, built in 1964, was previously determined not eligible for the NRHP (AHRS 2019).

Table 5. Previously Recorded Cultural Resources in the Project Area

Name	Eligibility
Bailey Bridge	Determined eligible by SHPO and agency
Ladd Field	NHL
Ladd Field Air Force Base Cold War Historic District	Determined eligible by SHPO and agency
Chena Bend Golf Course	Determined not eligible by SHPO and agency

Source: Alaska Heritage Resources Survey

Notes: AHRS = Alaska Heritage Resources Survey; NHL = National Historic Landmark; SHPO = State Historic Preservation Office

The Bailey Bridge is locally significant under Criterion A for its local significance in connection to the Ladd Air Force Base Cold War Historic District and under Criterion C as a distinct type of architecture. Built in 1949, the prefabricated pony truss bridge with vertical and diagonal

supports is Alaska's oldest example of the Bailey bridge design, which experienced widespread implementation during World War II. The structures were designed to be produced, transported, and installed with great expediency. Though intended for temporary use, thousands of Bailey bridges were constructed during World War II and continued to be constructed following the war for civilian use around the world. At Fort Wainwright, the bridge's construction reflects the overall building trend of the early Cold War-era for rapid expansion to meet new strategic missions. The Bailey Bridge aided in the expansion of the Ladd Air Force Base by providing efficient access to building materials and the gravel pit on the north side of the Chena River (Cook 2018).

The project area includes a haul route that follows Ketcham Road as it passes through the Ladd Field NHL and the NRHP-eligible Ladd Field Air Force Base Cold War Historic District.

The Ladd Field NHL is designated as an NHL for its significance under Criterion A from 1939 to 1945. The construction on the airfield began in 1939 to fulfill missions of cold weather experiments. With the onset of the U.S. entry to World War II Ladd Field became the center of Lend-Lease operations with the former USSR, with a total of 7,926 aircraft transferring from American to Soviet control at Hangar 1. Ladd Field also operated at the principle base in Alaska for the Air Transportation Command, serving as the primary air depot for repair and testing during the initial phase of the Japanese invasion of the Aleutian Islands in 1942 (Price 2004). In 1947, Ladd Army Air Field was transferred to the newly-created U.S. Air Force and renamed Ladd Air Force Base. Ladd Air Force Base oversaw many defensive operations during the Cold War, including missile defense systems and ongoing cold weather testing in preparation for potential war with the USSR. In 1961, the U.S. Air Force transferred Ladd Air Force Base to the U.S. Army, which renamed it Fort Wainwright (Price 2001).

The Ladd Field Air Force Base Cold War Historic District consists of an airfield and associated buildings on Fort Wainwright. The NRHP-eligible district overlaps with a portion of the Ladd Field NHL. The district is significant locally and nationally in the area of defense for its association with events of the Cold War from 1947 to 1961 (AHRS 2019).

3.8.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities, therefore the No Action Alternative would have no short-term impacts on cultural resources. In the long-term, the condition of the bridge would continue to deteriorate and could eventually collapse, resulting in an adverse effect caused by the neglect and loss of the historic bridge.

Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative would demolish the NRHP-eligible Bailey Bridge and construct a new precast-concrete bulb-tee bridge structure in its place, resulting in the permanent loss of this historic resource. The Preferred Alternative would require consultation with the SHPO for compliance with NHPA Section 106. USAG Alaska has entered into NHPA Section 106

consultation with the SHPO to develop a memorandum of agreement (MOA) with stipulations to mitigate adverse effects to historic properties from the demolition of the historic bridge. The MOA would resolve the adverse effect consistent with 36 CFR Section 800.6(c).

The Preferred Alternative would require temporary use of a haul route along Ketcham Road as it passes through the Ladd Field NHL and Gaffney Road as it passes through the Ladd Field Air Force Base Cold War Historic District. Temporary use would include truck transport of fill material required for construction. The haul route would occur in existing road right-of-way and would not diminish the integrity of the NHL or the NRHP-eligible historic district.

Ground-disturbing activities would occur in previously disturbed areas where archaeological sites have not been identified and that are unlikely to contain cultural resources. The Fort Wainwright ICRMP unanticipated discovery plan would be followed in the event that a previously unidentified archaeological site, which could include human remains, funerary or sacred objects, or other items of cultural patrimony, is discovered during construction (USAG Alaska 2013b).

Therefore, through consultation with the SHPO, completion of an MOA in accordance with NHPA Section 106, and implementation of BMPs, the Preferred Alternative would have moderate adverse impacts and would not result in significant adverse impacts to cultural resources.

3.9. Recreational Resources

3.9.1. Affected Environment

USAG Alaska Regulation 190-13 governs outdoor recreation, conservation, and natural resource policies, and enforcement on USAG Alaska lands and waters. The U.S. Army Recreation Tracking (USARTRAK) system facilitates public recreational access to USAG Alaska military lands through its iSportsman program. Recreation activities are permitted on USAG Alaska training lands, provided they do not conflict with the military mission or training activities (USARTRAK 2019). The program provides users with Recreational Access Permits to access Fort Wainwright's lands and waters and establishes conditions the permittee must adhere to in compliance with the INRMP. Military lands include open use areas (open to all types of recreational activity), modified use areas (off-limits to off-road recreational vehicles, except in the winter), limited use areas (open only to low-impact activities, such as hiking, bird watching, skiing, and berry picking) and off-limit areas (closed to all recreation) (USAG Alaska 2013a).

The project area is not within a training area open for recreation, although the north end of the Bailey Bridge is adjacent to USAG Alaska Main Post Training Area 114. Training Area 114 is an open use area with access to camping, fishing, off-road recreational vehicle use, big and small game hunting, other recreation, and wood cutting. The training area is closed to black bear baiting, Christmas tree cutting, skiing, and trapping (USARTRAK 2019). Special restrictions and closures apply to the Chena River and its tributaries (USARTRAK 2018). Recreational users participate in winter activities on the Chena River when it is frozen, such as cross-country skiing

and dog-sled race events. Off road recreational vehicle use is not allowed on the Main Post. Such vehicles are transported to off road recreational areas from the Main Post on trailers.

The ADF&G allows for year-round recreational fishing on the Chena River and its tributaries for arctic grayling, burbot, king salon, northern pike, and sheefish (ADF&G 2019a). Restrictions exist for equipment, bait, and retention of certain species. Within the project area, no retention is allowed for Arctic grayling (ADF&G 2019b).

The Chena Bend Golf Course features a 6,476-yard, par-72, 18-hole course; 24-hour driving range; putting green and sand bunker; and golf carts. The course is open to military personnel and families, civilians, and guests. The clubhouse, located on the golf course property, provides a restaurant, bar, and pro shop (USAG Alaska MWR 2019). During winter, the course provides recreational opportunities for cross-country skiing and snowshoeing.

3.9.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities, therefore there would be no short-term impacts to recreational resources. In the long-term, following bridge closure, users would be required to use the River Road Bridge to access the training areas north of the Chena River for recreation, however this detour is not anticipated to adversely affect recreational activities or resources. No impacts would occur to permitted recreation use, fishing, winter recreation on the Chena River, or the use of the Chena Bend Golf Course.

Preferred Alternative: Replace Bridge at Current Location

Access to training areas north of the Chena River for recreational use would be temporarily impacted during construction of the Preferred Alternative, due to an increase in travel time from use of the River Road detour. This detour is not anticipated to adversely affect recreational activities or resources. No permanent adverse impacts to training area access would occur as the replacement of the Bailey Bridge would be in the same location as the existing bridge.

Temporary impacts would occur to individuals or organized race events utilizing the frozen Chena River for cross-country skiing and dog-sledding during winter months. Such impacts would be temporary, localized and minor due to the short duration of the winter demolition and construction activities and the ability for detour winter trails to be established. USAG Alaska would communicate any required detours or area closures to recreational users.

In-river construction activities could disrupt catch-and-release fishing or other similar recreational activities in the area immediately surrounding the bridge, which would result in minor, temporary, and localized impacts to recreational fishing.

The Preferred Alternative includes temporary use of the Chena Bend Clubhouse and Golf Course property. The Chena Bend Golf Course would remain open during demolition and construction, but temporary impacts to the clubhouse and golf course would occur during bridge

replacement activities. Construction vehicles would pass through the golf course on Kinney Road and the project would use a portion of the property as a construction staging and laydown area.

It is not anticipated that construction vehicles would cause frequent or extended delays to golf carts or participants crossing Kinney Road on cart paths. The staging and laydown area would be in an overflow parking lot near the golf course maintenance area northwest of the driving range. These impacts would be temporary and would not inhibit access to the golf course or clubhouse. The USAG Alaska will ensure continued access and use of the golf course and clubhouse during bridge replacement activities.

Reinstatement of landscaping and vegetation, including potential modifications to the golf course layout, if needed, would occur following bridge replacement. If permanent alterations to tee boxes, greens, or other structures of the golf course are required, project construction specifications will require that such alterations be minimized to the extent possible, and not degrade the current certification of the course.

3.10. Socioeconomics and Environmental Justice

3.10.1. Affected Environment

Executive Order 12898, *Environmental Justice for Low Income & Minority Populations,* requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations (collectively, the environmental justice populations) in the United States.

Executive Order 13045, *Protection of Children from Environmental Health and Safety Risk* requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. This executive order, dated April 21, 1997, further requires federal agencies to ensure that their policies, programs, activities, and standards address these disproportionate risks. Executive Order 13045 defines environmental health and safety risks as “risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink and use for recreation, the soil we live on and the products we use or are exposed to).”

Demographics and Socioeconomics

Fort Wainwright is located with the City of Fairbanks and within the FNSB. Census Tract 11 encompasses of all of Fort Wainwright, including the project area. Table 6 summarizes the change in population and housing units for the State, the FNSB, the City, and Census Tract 11 from 2010 to 2017. The population of all geographic areas increased between 2010 and 2017, with Census Tract 11 having the largest amount of population growth (13.2 percent) and the City having the least (1.0 percent). The number of housing units increased in Census Tract 11,

the FNSB, and the State over the 2010 to 2017 period, while the number of housing units slightly decreased in the City.

Table 6. Population and Housing Trends by Geographic Area

Geographic Area	Population Trends		Housing Trends (Units)	
	2010	2017 (% Change 2010-2017)	2010	2017 (% Change 2010-2017)
Alaska	710,231	738,565 (3.9)	306,970	313,937 (2.3)
Fairbanks North Star Borough	97,581	100,031 (2.5)	41,783	43,866 (5.0)
City of Fairbanks	31,535	31,853 (1.0)	13,056	13,016 (-0.3)
Census Tract 11	8,143	9,219 (13.2)	2,113	2,331 (10.3)

Source: U.S. Census Bureau 2010, 2017a

Table 7 illustrates the median income for a household, the percentage of the population over 16 years of age in the labor force, the percentage of the population that is unemployed, and the percentage of the population that is living in poverty in the State, the FNSB, the City, and Census Tract 11. Labor force and unemployment in the FNSB and City are higher than the State as a whole. Census Tract 11 has a higher percentage of the population in the labor force and a lower unemployment rate than the City, FNSB, and State. Median household income is substantially less within the Census Tract than in the City, FNSB, or State, however the percentage of the population living in poverty is also less within the Census Tract than within the City, FNSB, or State.

Within the project area, the Chena Bend Golf Course provides employment and generates revenue.

Table 7. Socioeconomics Factors by Geographic Area, 2017

Geographic Area	Median Household Income	Labor Force	Unemployment	Living in Poverty
Alaska	$76,114	70.1%	7.7%	10.2
Fairbanks North Star Borough	$76,250	73.4%	8.0%	7.7
City of Fairbanks	$73,938	71.9%	9.4%	11.9
Census Tract 11	$57,568	82.7%	6.6%	6.7

Source: U.S. Census Bureau 2017b

Environmental Justice

Guidelines provided by the CEQ (1997) and EPA (1998) indicate that a minority community or low-income population may be defined where either (1) the minority population or low-income population comprises more than 50 percent of the total population, or (2) the minority population or low-income population of the affected area is meaningfully greater than the minority population or low-income population in the general population of an appropriate benchmark region used for comparison.

The Environmental Justice and Screening Mapping Tool (EJSCREEN[4]) did not identify any environmental justice populations in the project area (EPA 2019).

Census data did not identify any minority populations in the project area that are greater than 50 percent of the population or are disproportionately higher than the State's minority population of 34.7 percent (Table 8). Census Tract 11 and the FNSB as a whole are not considered low-income communities, while the City of Fairbanks has a higher percent of low-income populations than the FNSB and State (Table 7).

Table 8. Ethnicity and Racial Characteristics 2017 (Percent of Total Population)

Geographic Area	Race/Ethnicity							
	White[2]	Black or African American[3]	Alaska Native and American Indians[4]	Asian[4]	Native Hawaiian and Other Pacific Islander[4]	Some Other Race[4]	Hispanic or Latino[5]	Total Minority
Alaska	65.3	3.2	14.2	6.2	1.2	9.9	6.8	34.7
Fairbanks North Star Borough	76.2	4.2	6.9	3.1	0.5	9.1	7.7	23.8
City of Fairbanks	65.3	8.3	8.7	5.0	1.3	11.4	11.9	34.7
Census Tract 11[1, 2]	70.1	12.0	1.1	4.6	1.0	11.2	18.2	29.9

Source: U.S. Census Bureau 2017a, 2017b

Notes:

Minority population = Total population – (White, non-Hispanic population + Some Other Race Alone, non-Hispanic population).

1 Census Tract 11 encompasses all of Fort Wainwright.

2 Census tract data was used for the environmental justice analysis since census tract data provide the smallest geographic area where U.S. Census data are available and have been applied to assess the effects specific to the populations in the vicinity of the proposed action.

3 Alone, non-Hispanic.

4 Alone or in combination with one or more other races.

5 Of any race.

[4] EJSCREEN provides percentiles using scores based on environmental indicators, which considers air, water, and waste contaminant exposures (i.e., ozone, PM2.5, traffic, lead paint, toxic releases, and hazardous waste generators) and demographic indicators (i.e., low-income households, minority populations, education attainment, linguistics, and age). EJSCREEN provides environmental justice indices that combine each environmental indicator and with each demographic indicator, one at a time, to identify which block groups contribute the most toward low-income/ minority residents having a higher environmental indicator score than the rest of the U.S. population.

Protection of Children

Several facilities on Fort Wainwright are areas in which children gather during an average week (i.e., schools, a daycare facility, and a recreation center); however, none of these facilities are located near the Bailey Bridge site.

Two facilities—the Outdoor Recreation Center, located northwest of the intersection of Glass Drive and Gaffney Road, and the Child Development Center I—are located southeast of the intersection of 600th Street and Gaffney Road near the proposed haul route to the Bailey Bridge site (Figure 6). Additionally, children reside with their families in on-post housing, use sidewalks and other facilities near the haul routes.

3.10.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no demolition or construction activities. The No Action Alternative would not result in any changes to population, housing, or the economy in the local community or affect minority or low-income populations to a greater extent than the general population. Military vehicle use of the River Road Bridge would remain the same as current conditions, involving transport of munitions through more heavily populated areas used by greater volumes of civilian, families with children, and regular Main Post traffic. The No Action Alternative would not result in environmental health and safety risks that might disproportionately affect children. Therefore, the No Action Alternative would have no impact with respect to socioeconomics or environmental justice.

Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative would require construction workers to demolish and reconstruct the Bailey Bridge. Construction activities would be short term, occurring over two construction seasons. Temporary workers would come from the borough labor pool and/or would temporarily relocate from elsewhere in Alaska or the contiguous U.S. It is not anticipated that the duration of construction work would be long enough to induce any permanent changes to population. Furthermore, the temporary and short-term nature of the work supports the conclusion that these workers would not typically change residences.

The Preferred Alternative would have a minor to negligible, beneficial impact on the city and borough economy during construction stemming from the project's workforce and incidental purchases.

The Chena Bend Golf Course would remain open during bridge replacement activities, resulting in minor and temporary impacts to the property. Construction vehicles would use Kinney Road, which runs along the northwest side of the property and the Preferred Alternative would also use a portion of the property as a construction staging and laydown area. The staging and laydown area would be in an overflow parking lot near the golf course maintenance area northwest of the driving range (Figure 5). These impacts would be temporary and would not

inhibit access to the golf course or clubhouse or result in economic impacts to these businesses. The USAG Alaska will ensure continued access and use of the golf course and clubhouse. Project construction specifications will require that any permanent modifications to the golf course be minimized, that disturbed areas be rehabilitated following construction, and that the current certification level of the course would not be adversely impacted. Therefore, the Preferred Alternative is not expected to result in a change in revenue at the Chena Bend Golf Course.

Because no minority populations are present in the geographic area considered in this analysis, there would be no potential for disproportionate adverse effects to minority populations from the Preferred Alternative. A low-income population is present in the City of Fairbanks. However, minor construction-related impacts would be temporary and limited to the immediate vicinity of the project area and would not disproportionately affect the low-income population.

Execution of the Preferred Alternative would not result in new employment opportunities or other development that would permanently change regional demographics or result in new housing demand. Since current bridge restrictions do not apply to passenger vehicles, the majority of civilian traffic accessing the Secluded Acres residential area would not be affected by long term use of the new bridge. Overall, execution of the Preferred Alternative would not result in any changes to population, housing, or the economy in the local community or affect minority or low-income populations.

The haul routes would pass near some homes, recreation areas, and sidewalks that children could live in or use. However, trucks would travel past these facilities, homes, recreation areas, and sidewalks only temporarily during the construction period, and these routes are already heavily travelled by trucks. Truck operators would be expected to comply with all laws and regulations that govern the transportation of demolition and hazardous material debris and to follow posted speed limits and other roadway safety measures (see Section 3.12, Solid Waste and Hazardous and Toxic Materials and Waste, for further discussion). As a result, no adverse and disproportionate impacts on children are expected to occur during construction under the Preferred Alternative.

Execution of the Preferred Alternative would allow military vehicles transporting munitions and explosives to access the northern training areas in a more direct manner, avoiding alternative routes through more heavily populated areas and which are used by greater volumes of civilian, families with children, and regular Main Post traffic. This would reduce risks associated with transportation of munitions and explosives.

Overall, execution of the Preferred Alternative would have no adverse impacts relating to environmental justice and socioeconomics, and would have minor beneficial impacts from rerouting of military vehicles away from residential areas following completion.

3.11. Transportation and Traffic

3.11.1. Affected Environment

Fort Wainwright is a controlled access installation with four Access Control Points (ACP). The primary ACP to Fort Wainwright is provided via Airport Way, a four-lane roadway that provides a direct connection to the Main Gate located on Gaffney Road. The remaining three ACPs consist of Trainor Gate, located on Trainor Road; Badger Gate, located on Badger Road; and Richardson Gate, located on Richardson Highway (USAG Alaska 2017a). The Richardson Gate is not regularly used and is generally closed for use except when needed for occasional circumstances.

Traffic levels on Airport Way are generally moderate; however, noticeably heavier traffic during peak hours and the summer tourist season can cause congestion at major arterial intersections. Peak hours for Fairbanks (and Fort Wainwright) are typically 7:00 a.m. to 8:00 a.m., and 4:30 p.m. to 5:30 p.m. (USAG Alaska 2017a).

Within the Fort Wainwright Main Post, 14 primary roadways support the majority of commute traffic (i.e., work and school-related), with the remaining secondary roadways supporting shorter trips within the base. The Main Post contains approximately 30 miles of paved roads and ten miles of gravel/clay unpaved roads (USAG Alaska 2017a). Roads within the project area include River Road, Kinney Road, Ketcham Road, Gaffney Road, and Meridian Road.

Gaffney Road is the main base arterial that extends from the Main Gate through to Marks Road on the eastern portion of Fort Wainwright. Gaffney Road consists of a four-lane section to Marks Road for directional traffic, dropping to two lanes and continuing east to the Badger Road Gate entrance. Posted speeds range between 20 and 35 mph. A separated pedestrian trail is also located along the north side of Gaffney Road between the Main Gate and Apple Road (USAG Alaska 2017a).

The remaining roadways of Fort Wainwright consist primarily of two-lane roads with either adjacent paved shoulders or sidewalks. Posted speeds range from 20 mph to 25 mph. The primary north-south routes are 599th Street, 600th Street, 9th Street, Whidden Road, Meridian Road, River Road, Santiago Avenue, Luzon Avenue, Apple Road, Marks Road, 102nd Street, 61th Street, 103rd Street, and Ketcham Road (USAG Alaska 2017a).

Ladd Airfield in the central area of the Main Post is bound by Gaffney Road on the north, Ketcham Road on the east, Montgomery Road on the south, and River Road/Meridian Road on the west. The Ladd Airfield serves the USARAK Aviation Task Force; the Alaska National Guard; BLM-Alaska Fire Service; and the Gray Eagle Unmanned Aircraft System 25th Aviation Regiment, Company D. The airfield has two parallel runways: the 8,552-foot north runway and the 7,800-foot south runway. Helicopters are the main type of aircraft using the airfield; however, Ladd Airfield can support all types of military aircraft (USAG Alaska 2017a).

The Alaska Railroad main line serving Fairbanks and the Main Post crosses the city north of the Chena River and enters the Main Post, paralleling Trainor Road at Trainor Gate. It crosses the Chena River, provides loops and spurs to the South Post industrial area and to the North Post

warehouse area, and connects to the Fairbanks industrial spur. The spur to Fort Wainwright does not provide passenger service (USAG Alaska 2017a).

Vehicle use of the existing Bailey Bridge is currently restricted due to structural concerns; only one passenger vehicle (less than five tons) is permitted to cross at a time. Heavier vehicles, including all military and emergency vehicles, are required to access areas north of the Chena River using the River Road Bridge, approximately two miles west of the Bailey Bridge.

3.11.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no bridge replacement activities; therefore, there would be no short-term delays or detours from construction-related traffic. Following bridge closure, all vehicular traffic (including passenger vehicles) would use the River Road Bridge to access areas north of Chena River. This would increase trip duration and length for passenger vehicles and would increase traffic volumes using the River Road Bridge and associated roadways. While such passenger vehicle detours would inconvenience residents of the Secluded Acres and other existing users of the Bailey Bridge, the No Action Alternative would have minor adverse environmental impacts related to traffic.

Preferred Alternative: Replace Bridge at Current Location

The Preferred Alternative would generate construction-related traffic from construction worker commutes to/from the project area, mobilization of construction equipment used within the project area, and truck traffic along haul routes for material/equipment delivery and hauling of fill materials from off-site sources. Construction-related traffic would access the Bailey Bridge site via the Main Gate at Gaffney Road, River Road, Ketcham Road, and Kinney Road (Figure 6). Excavated soils would be hauled to stockpile/disposal areas at the intersection of Meridian Road and Alder Avenue and off River Road, south of Fort Wainwright's landfill, using the approved haul routes (see Figure 6).

Traffic congestion impacts could result from construction-related trips that occur at the same time as peak commuter traffic. The construction-related traffic would be localized and would be temporary and sporadic, lasting two construction seasons. The anticipated increase in traffic on base roadways from construction worker commutes, hauling of construction debris and soils, and delivery of fill and construction materials is not expected to adversely affect the levels of service on local roadways. In addition, the USAG Alaska will minimize interference with public traffic on roads selected for hauling materials to and from the Bailey Bridge site and will provide flaggers, notifications, and temporary detours to reduce any short-term impacts that may occur.

During construction, passenger vehicles that would normally use the Bailey Bridge (e.g., residents and visitors to the Secluded Acres residential area or vehicles accessing recreational areas north of the river) would be subject to a temporary detour via the River Road Bridge. This would result in a minor increase of traffic utilizing the River Road Bridge and River Road and would slightly reduce traffic movements in the immediate vicinity of the Bailey Bridge

site. Such detours would be temporary, and adequate measures would be taken (e.g., signage and communication) to reduce any short-term impacts that may occur.

Following completion of construction activities, the Preferred Alternative would not generate additional traffic volumes that would decrease the levels of service on roadways within Fort Wainwright. The Preferred Alternative would allow for an alternative crossing point for all vehicles across the Chena River, and would reduce existing traffic volumes along River Road by redirecting military and heavy vehicles to the replacement bridge. The replacement bridge would have moderate beneficial impacts by allowing military and emergency vehicles more direct access the northern training areas and allowing more direct emergency vehicle access to private residential areas north of Chena River. As a result, long-term use of the replacement bridge would increase military traffic and use of roads in the vicinity of Bailey Bridge, such as Montgomery Road and Kinney Road. However, such increases are not anticipated to adversely impact road conditions and would have minor impacts on traffic. Potential realignment of the approach road between Kinney Road the bridge would cause minor impacts to the transportation network and would cause beneficial impacts to traffic safety.

Therefore, the Preferred Alternative would have minor adverse impacts on transportation and traffic, and would have minor beneficial effects.

3.12. Solid Waste and Hazardous and Toxic Materials and Waste

3.12.1. Affected Environment

Solid Waste

The northern bank of the Chena River at the existing Bailey Bridge area is within Tar Site FTWW-078 (USAG Alaska 2017c), the lateral extent of which is poorly defined. Tar seeps have been observed in the area. This area was the location of a batch processing facility and was reportedly used as a tar disposal area during the 1950s to 1960s. Due to the potential for the tar to leach, the area was sampled in June and July of 1992. The tar samples were analyzed by Toxicity Characteristic Leaching Procedure and were found to have no potential to leach hazardous chemicals to groundwater (USAG Alaska 2017c). Tar is managed as a Solid Waste pursuant to the requirements of 18 AAC 60, Solid Waste Management.

Soil and Groundwater Contamination

Groundwater in the Fort Wainwright area has relatively high, naturally occurring levels of metals, especially iron and arsenic (USAG Alaska 2013). In addition, groundwater contamination from historical U.S. Army-related industrial activities exists in the Main Post area and is commonly associated with leaking underground storage tanks, chemicals storage facilities, and chemicals dump areas. Groundwater contamination is generally localized, and there is no indication of deep groundwater pollution (USAG Alaska 2013). Intensive monitoring and remediation of the areas of contaminated groundwater are being implemented via projects under the Comprehensive Environmental Response, Compensation, and Liability Act.

The U.S. Army began its investigation of contaminated areas at Fort Wainwright in 1989. EPA listed Fort Wainwright as a site on the National Priorities List in 1990. The National Priorities List specifies national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The U.S. Army signed a Federal Facilities Agreement with EPA and the state in 1992 to address site contamination. In 2002, the U.S. Army completed construction of all systems necessary for site cleanup. The U.S. Army continues to perform ground monitoring and consider possible additional cleanup options (EPA 2019b).

In December 2018, ADEC approved the Fort Wainwright Post-Wide Work Plan Spills and Historic Releases, Fort Wainwright, Alaska (USAG Alaska 2018). The purpose of the Work Plan is to provide a framework for responding to new and historical releases at Fort Wainwright and the associated parcels under U.S. Army command. The Work Plan provides general guidelines for addressing contamination in unknown source areas. Procedures include, but are not limited to, site inspections, preliminary source evaluations, spill response activities, interim removal actions, and remedial action activities. The most current ADEC and EPA regulations and guidance criteria will be followed for activities conducted within the USAG Alaska Directorate of Public Works jurisdiction, as applicable (ADEC 2019c).

ADEC's Contaminated Sites online database does not show any hazardous or toxic material or waste sites in proximity to the Bailey Bridge that would have the potential to impact soil or water quality at the Bailey Bridge site (ADEC 2019c).

The Bailey Bridge site and surrounding area have been used for DoD purposes since the 1930s; therefore, it is possible that other unknown contamination or unexploded ordnance (UXO) or munitions may occur anywhere within the cantonment. Although the preconstruction environmental study prepared for the Bailey Bridge site (USAG Alaska, 2017c) concluded that "there is not a strong suspicion that ordnance or explosive contamination will be encountered" at the Bailey Bridge site, the report did note that an aircraft calibration stand was located approximately 800 feet downriver, which was used to calibrate aircraft weaponry by firing across the Chena River in a south-to-north direction.

Hazardous Building Materials

The following hazardous building materials were commonly used in construction during the 1940s when the Bailey Bridge was erected, and have either been confirmed present, or could potentially be present, at the Bailey Bridge site.

Lead-Based Paint (LBP): Human exposure to lead has been determined by agencies such as the Occupational Safety and Health Administration (OSHA) and the EPA to pose an adverse health risk. The DoD implemented a ban of LBP use in 1978; however, it is possible that facilities painted prior to or during 1978 may contain LBP. The Bailey Bridge was constructed in 1949 and testing has confirmed the presence of LBP, with lead concentrations in sampled paint chips detected at up to 47,000 milligrams per kilogram (mg/kg) (USACE 2019c). Painted surfaces are in poor condition, with visible peeling and flaking paint.

Polychlorinated Biphenyl (PCB)-Containing Materials: PCBs have been identified as probable human carcinogens and may also cause a variety of non-cancer health effects. Construction materials such as paints, caulking, and mastics and other adhesives, as well as ceiling tiles, acoustic boards, fireproofing materials, high-intensity discharge lamp ballast capacitors, and the capacitors of fluorescent light ballasts sometimes contain PCBs, particularly in structures built or renovated prior to 1979. Such PCB-containing materials can also contaminate adjacent wood or masonry surfaces. Testing has confirmed the presence of PCBs in paint chips collected from Bailey Bridge surfaces, with PCB concentrations detected at up to 11.5 mg/kg (USACE 2019c). Painted surfaces are in poor condition, with visible peeling and flaking paint. PCBs are regulated by the EPA under Title 40 CFR Part 761.

Wood Preservation Compounds: Chemically treated wood can contain elevated levels of hazardous chemicals (e.g., arsenic, chromium, copper, pentachlorophenol, or creosote) that could present a health risk for workers and/or exceed hazardous waste thresholds. It is unknown if wood preservation compounds are present at the Bailey Bridge, but it is considered likely given the age of the bridge.

Asbestos-Containing Materials (ACM): Inhalation of asbestos fibers is known to cause human health impacts, including lung cancer, mesothelioma, and asbestosis. Construction materials such as concrete, joint compounds, and seam sealants sometimes contain asbestos fibers, particularly in structures predating federal regulations controlling the use of ACM. The presence of ACM in the Bailey Bridge is unknown but could be possible.

ACM and ACM abatement are regulated by the EPA and OSHA. Asbestos fiber emissions into the ambient air are regulated in accordance with CAA Section 112, which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). Under NESHAP, the owner of a structure must, prior to demolition or renovation of structures with ACM, provide notice to the regulator with CAA authority (either the EPA or its state counterpart). The NESHAP regulations (40 CFR Part 61) address the demolition or renovation of structures with ACM. OSHA 1910-1001 addresses protection of workers working around asbestos; OSHA 1910-1101 addresses workers that actively remove ACM. The Asbestos Hazard Emergency Response Act, P.L. 99- 519 and P.L. 101-637, addresses worker protection for employees who work around or remediate ACM.

Hazardous Materials and Wastes Use, Handling, and Storage

Nearly all facilities across Fort Wainwright are known to use hazardous materials, including solvents, fuels, and antifreeze (USAG Alaska 2013). The USAG Alaska is also a large-quantity generator of hazardous waste that comes from training, aircraft, vehicles, and maintenance activities (USAG Alaska 2017a). No hazardous materials are currently used, handled, or stored within the Bailey Bridge site.

The USAG Alaska manages its hazardous materials and wastes in accordance with the Resource Conservation Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments, to comply with federal regulations. Per RCRA, USAG Alaska is registered with the EPA under the facility identification number AK6210022426. The USAG Alaska also complies with state regulations and employee safety standards for hazardous materials and wastes.

ADEC regulates hazardous materials and wastes in Alaska through 18 AAC 62 Hazardous Waste, and ADEC 18 AAC 60 Solid Waste Management, and 18 AAC 75, Oil and Other Hazardous Substances Pollution Control.

3.12.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no bridge replacement activities. Because there would be no ground-disturbing activities, demolition, or construction, there would be no solid waste (tar) or contaminated soils to dispose of, no potential for spills of construction materials, and no major disturbance of hazardous building materials such as LBP and PCB-containing paint.

Continued degradation of the bridge over time could lead to increased sloughing of lead- and PCB-containing paint chips into the river or onto soil, which could have moderate adverse impacts on surface water and soil quality and associated human or environmental health.

Preferred Alternative: Replace Bridge at Current Location

Solid Waste

Tar is managed as a solid waste pursuant to the requirements of 18 AAC 60, Solid Waste Management. Solid waste generated during construction and demolition would be managed and disposed of in accordance with applicable federal, state, and local regulations and guidance pertaining to solid waste disposal. Waste segregation measures would be employed during construction and demolition so that no hazardous or toxic waste will become co-mingled with solid waste.

Contaminated Soil or Groundwater

Although it is not anticipated, it is possible that previously unknown localized soil contamination or UXOs may be encountered during construction activities. Handling, transportation, and stockpiling of contaminated soil have the potential to expose construction workers to contaminants, create fugitive dust emissions with elevated levels of contaminants, or contaminate storm water runoff at excavation or stockpile locations. Pile-driving activities have the potential to create preferential pathways through sedimentary layers that could result in mobilization of contaminants from surface soils to deeper groundwater.

Garrison Policy #38, Land Use Controls/Institutional Controls, requires projects including excavation in areas of known or suspected contamination to adhere to a Work Plan approved by ADEC and EPA, coordinated through the USAG Alaska Environmental Division prior to the start of work. USAG Alaska's Environmental Stewardship Guidelines (see Appendix B) requires precautions for UXOs and field screening for petroleum products and/or other identified contaminants of concern during construction. If contaminated soils as indicated by field screening results or visual/olfactory cues are encountered, such soils would require segregation, stockpiling, and characterization, prior to disposal in accordance with State of Alaska regulations. Soils that are contaminated with petroleum, oil, and lubricant (POL) only would be

transported to and stored at the contaminated soils stockpile site (Figure 5). If soils are found to contain other (non-POL) contaminants, they would be segregated and stockpiled within the Bailey Bridge site prior to disposal offsite at an appropriately permitted hazardous waste landfill. The requirement to comply with the Work Plan and Environmental Stewardship Guidelines will be included within projection construction specifications for the proposed action and would minimize the potential for adverse impacts relating to disturbance of contaminated soils or groundwater.

With implementation of project construction specifications and adherence to applicable state, and federal regulations, impacts relating to suspected or unanticipated contamination or unexploded ordnance within the project area would be minor.

Hazardous Building Materials

Hazardous building materials such as LBP, PCB-containing paint, ACM, and wood preservation compounds can cause human health impacts if demolition or construction activities disturbs causes contaminated dust, emissions, or fibers to be ingested or inhaled. These hazardous building materials can also cause environmental impacts if paint chips or contaminated dust particles enter surface water or settle on soil, or if wastes containing these materials is not disposed of appropriately.

ACM and wood preservation compounds have not been tested for in bridge materials but could be present. Federal and state regulations require an asbestos survey to be conducted prior to any demolition activity. Project construction specifications will require that the bridge is evaluated for ACM and wood preservation compounds and that appropriate measures be included in the design of demolition activities to account for any contaminated materials present. Such measures must include requirements for appropriate handling and disposal of hazardous building materials in accordance with applicable state and federal regulations, to minimize the release of contaminants to the environment and protect worker safety.

LBP has been confirmed present on the bridge, however TCLP analysis has not yet been undertaken, which is required to determine if the paint exceeds RCRA hazardous waste criteria. Project construction specifications will require that TCLP analysis be undertaken and that appropriate measures be included in the design of demolition activities to account for the presence of LBP, including appropriate handling and disposal in accordance with applicable state and federal regulations to minimize the release of contaminants to the environment and protect worker safety.

PCB-containing paint has been confirmed present on the bridge, at concentrations that exceed the ADEC migration to groundwater cleanup level of 1.00 mg/kg, as set forth by 18 AAC 75. There is no state permitted landfill in Alaska that can accept wastes with PCBs exceeding 1.00 mg/kg. Therefore, painted surfaces of the bridge structure with PCB levels exceeding this threshold would need to be transported to a permitted landfill in one of the contiguous 48 states for disposal in accordance with state and federal regulations.

Demolition of the existing bridge would occur during winter when the river is frozen, which would prevent contaminated paint chips from directly entering surface waters; however,

additional measures would also be required to prevent paint chips and dust from settling on snow or ice. The Preferred Alternative would remove the source of lead- and PCB-containing paint flakes and would therefore prevent future sloughing of such hazardous materials into the river. The replacement bridge would not use any hazardous building materials that could create future sloughing impacts.

With adherence to applicable state, federal regulations, and appropriate measures incorporated into project design to account for contaminated materials, adverse impacts related to hazardous building materials would be moderate. Beneficial impacts of the Preferred Alternative would be moderate.

Hazardous and Toxic Materials and Wastes Use, Handling, and Storage

Construction of the Preferred Alternative would involve the use of typical construction-related materials, such as fuel, oil, lubricants, and adhesives. Improper handling or storage or accidental spills of such hazardous materials could potentially result in adverse impacts on the environment or construction personnel.

Execution of the Preferred Alternative would be subject to applicable requirements of the Construction Site Storm Water APDES permits, as well as SWPPP and Spill Prevention, Control, and Countermeasure plans. The SWPPP specifies management practices to be used to minimize the risk of accidental spills or releases, resulting in minimal pollution of soil, groundwater, or watercourses. Additionally, project construction specifications for the Preferred Alternative will require conformance with federal, state, and local, regulations, as well as USAG Alaska-specific policies and procedures.

Project construction specifications for the Preferred Alternative will require adherence with the USAG Alaska's Environmental Stewardship Guidelines, which includes requirements relating to storage and use of hazardous materials, on-site refueling activities, disposal of hazardous wastes, and prevention of spills, which would reduce the likelihood and severity of potential impacts from use of hazardous and toxic materials during construction (see Appendix B).

Military units transporting hazardous materials across the replacement bridge would also be required to comply with the USAG Alaska's Environmental Stewardship Guidelines in regard to spill prevention, remediation, and secondary containment (see Appendix B).

With adherence to relevant state and federal regulations and DoD policies and SOPs, the Preferred Alternative would have minor impacts relating to the handling, use, and storage of hazardous or toxic materials or wastes.

3.13. Human Health and Safety

3.13.1. Affected Environment

Human health and safety considers those facets of military activities and materials that potentially pose a risk to the health, safety, and well-being of the public, military personnel, civilian employees, and dependents. Safety-related impacts from seismic and geological hazards

are addressed in Section 3.5, Geology and Soils, and safety-related impacts due to hazardous materials or unexploded ordnance are addressed in Section 3.12, Solid Waste and Hazardous and Toxic Materials and Wastes. The USAG Alaska has implemented a comprehensive program to eliminate, avoid, or reduce the associated risks to its workers and the public. This program includes the following basic components:

- Complying with all applicable federal and state laws and regulations addressing health, safety, and risk management
- Developing local regulations and detailed SOPs, which further implement these laws and regulations and focus on unique risk factors and mission requirements within lands of Fort Wainwright
- Establishing a local installation safety office that has the proper resources and authority to effectively implement the USAG Alaska's health and safety program and that is properly integrated with other USAG Alaska and local civilian safety and emergency response organizations
- Providing effective, mission-focused training and guidance to all USAG Alaska personnel
- Encouraging proactive employee participation in safety and health programs and charging leaders at all levels with the responsibility for planning and conducting mission activities in a safe manner.

The USAG Alaska's health and safety program operates in compliance with the following regulations and guidance documents:

- Occupational Safety and Health Act (OSHA) of 1970 (29 U.S.C. Section 651-678) and implementing regulations at 29 CFR Part 1910, Occupational Safety and Health Standards, and 29 CFR Part 1926, Safety and Health Regulations for Construction)
- AR 40-5, Preventive Medicine
- AR 75-15, Policy for Explosive Ordnance Disposal
- AR 200-1, Environmental Protection and Enhancement
- AR 385-1, Safety Program
- AR 385-64, Army Explosives Safety Program
- Field Manual 100–14, Risk Management
- Department of the Army Pamphlet 40-501, Hearing Conservation Program
- Department of the Army Pamphlet 40-503, Industrial Hygiene Program
- DoD Directive 4715.11, Environmental and Explosives Safety Management on DoD Active and Inactive Ranges within the United States
- DoD Directive 6055.9–STD, DoD Ammunition and Explosives Safety Standards.

These regulations and guidance documents have directed the development of SOPs, which all installation users are required to follow.

3.13.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing Bailey Bridge would be permanently closed in 2020 and left in place. There would be no bridge replacement activities. No changes to emergency response times to military training and private residential areas north of the Chena River would occur, as emergency vehicles would continue to use the River Road Bridge. Impacts to human health and safety from the No Action Alternative would be moderate as response times of emergency vehicles to training areas and Secluded Acres residents would continue to be delayed. Continued degradation of the bridge over time could lead to increased sloughing of lead- and PCB-containing paint chips into the river or onto soil, which could have moderate adverse impacts on human health due to deterioration of surface water and/or soil quality.

Preferred Alternative: Replace Bridge at Current Location

Aspects of the Preferred Alternative that could present a risk to human health and safety include demolition of the existing bridge, construction of a replacement bridge, and long-term use of the bridge following construction (e.g., transportation of munitions or other hazardous items over the new bridge; civilian or military vehicles using the new bridge).

OSHA regulations require construction personnel to comply with workplace and construction/demolition safety procedures. Project construction specifications will also require adherence to SOPs and BMPs within the USAG Alaska's Environmental Stewardship Guidelines (see Appendix B) and other applicable federal and state regulations. The project construction specifications will include requirements for construction personnel to erect and maintain temporary project safety fencing around the perimeter of all work areas, thus access to the site would be limited to authorized personnel only, and no unusual risks would be created.

Execution of the Preferred Alternative would have a moderate beneficial impact on human health and safety by providing a wider bridge with improved structural integrity, thereby allowing the removal of current load restrictions, and by realigning the approach road on the southern side of the bridge, if needed, to safely accommodate military and emergency vehicles. The new bridge would allow emergency response vehicles to use a more direct route to access private residential areas north of Chena River, thereby decreasing response times and increasing safety.

Execution of the replacement bridge would allow military vehicles transporting munitions and explosives to access the northern training areas using a more direct route, thereby avoiding alternative routes through more heavily populated areas that are utilized by greater volumes of civilian and regular Main Post traffic. This would reduce risks associated with transportation of munitions and explosives.

The Preferred Alternative would also allow for an alternative crossing point for all vehicles across the Chena River in case of an emergency or in the event that the River Road Bridge is unusable.

Overall, execution of the Preferred Alternative would have minor adverse impacts to human health and safety and would have moderate beneficial impacts.

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4. CUMULATIVE IMPACTS

The CEQ regulations for implementing NEPA define cumulative effects as "the impact on the environment from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR Section 1508.7). Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time frame. The cumulative impacts analysis focuses on the combination of these effects and any resultant environmental degradation. Cumulative effects analyses include past, present, and reasonably foreseeable future actions in order to provide a view of all disturbances in a particular area compounded over time.

CEQ regulations require that cumulative effects be evaluated along with the direct and indirect effects of each alternative.

4.1. Process for Identification of Cumulative Impacts

Coordination with resource agencies and discussions surrounding the history and development of the Proposed Action are used to identify past, present, or reasonably foreseeable future actions. Within this process, the USAG Alaska defines present actions as those in detailed planning, under construction, or which have been recently initiated; and reasonably foreseeable future actions at those beyond mere speculation, but within the timeframe for analysis. The USAG Alaska typically uses five years as a time frame for the analysis due to the relatively quick changing priorities of the DoD, and the military construction schedule, which typically requires five years for development and approval of a project. For present and reasonably foreseeable actions to be considered in the cumulative analysis for the Proposed Action, the USAG Alaska has identified projects specified within the RPMP with a short-range (0- to 5-year) to mid-range (6- to 15-year) timeframe that are within geographical proximity to the project area or would potentially affect similar resources.

4.2. Identified Past, Present, and Reasonably Foreseeable Future Actions

4.2.1. Past Actions

When considering the Preferred Alternative of replacing the Bailey Bridge across the Chena River, the USAG Alaska has identified general military use of the Fort Wainwright area and general recreational use of the Chena Bend Golf Course for past actions to be analyzed in the cumulative effects section.

The past action of greatest intensity in the Fort Wainwright area was the construction and expansion of Ladd Airfield. The former U.S. Air Force airfield was designed and built in 1938, and in 1949 the existing Bailey Bridge was completed to access building materials and gravel pits north of the Chena River. In 1961, the Air Force transferred Ladd Airforce Base to the U.S.

Army, which renamed it Fort Wainwright. The U.S. Army has since expanded the base and constructed additional buildings, roads, housing, and training areas.

The Chena Road Golf Course was developed in 1964, resulting in replacement of natural vegetation with manicured landscaping typical of a golf course and construction of clubhouse and ancillary structures.

4.2.2. Present and Reasonably Foreseeable Future Actions

The RPMP identifies the following short-range (0- to 5-year timeframe) to mid-range (6- to 15-year timeframe) projects that would potentially affect similar resources or be in proximity to the Preferred Alternative or No Action Alternative:

- Short Range (0- to 5-year timeframe)
  - Replace select defense facilities in Chena North Post.
  - Improve boat launch on Chena River.
  - Use soil stockpile area for engineer training.
  - Expand aircraft fueling capacity from two to three tanks.
- Mid-Range (6- to 15-year timeframe)
  - Pave River Road.
  - Realign Montgomery Road (at Ketcham) and construct roundabout.
  - Construct roundabout at Canol and River Road.
  - Expand aircraft fueling capacity from three to six tanks.

4.3. Cumulative Impact Analysis

Table 9 summarizes the cumulative impacts for each resource area analyzed in the EA.

Table 9. Summary of Cumulative Impacts

Resource Area	Preferred Alternative: Replace Bailey Bridge at Current Location	No Action Alternative
Land Use	Minor to beneficial cumulative impacts	No cumulative impact
Air Quality	Beneficial cumulative impacts	Minor cumulative impact
Noise	Minor cumulative impact	No cumulative impact
Geological and Soil Resources	No cumulative impact	No cumulative impact
Water Resources	Minor cumulative impact	No cumulative impact

Resource Area	Preferred Alternative: Replace Bailey Bridge at Current Location	No Action Alternative
Biological Resources	Minor cumulative impact	No cumulative impact
Cultural Resources	No cumulative impact	No cumulative impact
Recreational Resources	No cumulative impact	Minor cumulative impact
Socioeconomics	No cumulative impact	No cumulative impact
Transportation and Traffic	Beneficial cumulative impact	No cumulative impact
Solid Waste and Hazardous and Toxic Materials and Waste	No cumulative impact	No cumulative impact
Health and Human Safety	Beneficial cumulative impact	No cumulative impact

4.3.1. Land Use

Land use impacts associated with replacing the Bailey Bridge were considered in the RPMP PEA, which concluded that implementation of projects identified in the RPMP would have minor to beneficial cumulative impacts on land use (USAG Alaska 2017a). Future actions at Fort Wainwright would comply with U.S. Army and federal land use guidelines. There would be no changes in U.S. Army land use designations. Adhering to the BMPs and SOPs identified in the USAG Alaska's Environmental Stewardship Guidelines for present and future actions would result in no significant cumulative impacts to land use (USAG Alaska 2017a). No other past, present, or reasonably foreseeable future actions outside of those included in the RPMP are anticipated that would impact land uses at or near the project area.

For the reasons described above, minor to beneficial cumulative land use impacts would be anticipated from the Preferred Alternative when considered in conjunction with other past, present, and reasonably foreseeable future actions.

The No Action Alternative would result in no changes to land use and therefore would not contribute to any potentially significant cumulative impacts from past, present, or future development.

4.3.2. Air Quality

The RPMP PEA found that potential future projects would not cause significant adverse impacts on air quality. Project-specific analysis, improved infrastructure, energy efficient structures, and the implementation of BMPs and SOPs listed in the USAG Alaska's Environmental Stewardship Guidelines would ensure that no significant air quality impacts would occur from such present or future projects (USAG Alaska 2017a).

The Preferred Alternative would have beneficial impacts to air quality in the long term, due to reducing vehicle miles traveled and associated tailpipe emissions and therefore would not contribute to cumulative adverse effects on long-term air quality. In the short term, the Preferred Alternative would have negligible to minor impacts on air quality in the immediate vicinity of the project area, associated with emissions from construction equipment and fugitive dust. Execution of the Preferred Alternative would not occur at the same time as any identified future projects that are within proximity to the project area; therefore, construction emissions from the Preferred Alternative would not combine with impacts from other projects to cause a cumulative effect.

The No Action Alternative would result in a slight long-term increase of emissions from passenger vehicles using the River Road Bridge as the only permanent access to areas north of Chena River. While this slight increase in emissions would not be a significant impact on its own, it has potential to combine with other increases in emissions associated with future development at Fort Wainwright. However, due to the minimal population north of the Chena River in comparison to the existing and potential future traffic volumes within Fort Wainwright, the cumulative contribution of the No Action Alternative would be minor.

4.3.3. Noise

Construction and demolition activities for multiple development projects occurring at the same time and in the same vicinity could have short-term minor cumulative effects on the noise environment.

As noted in the RPMP PEA, most installation development activities would occur at different times and different locations over several years; as a result, development activities would result in short-term, localized increased noise levels. While noise is expected to increase as a result of cumulative construction projects, it is not expected that these combined actions would result in noise levels that exceed the compatibility standards for noise zones at Fort Wainwright or the City of Fairbanks or produce occupational noise levels that exceed 75 dB for an 8-hour day (USAG Alaska 2017a).

Thus, minor cumulative noise impacts would be anticipated from the Preferred Alternative when considered in conjunction with other past, present, and reasonably foreseeable future actions.

The No Action Alternative would have no impact relating to noise and therefore would not contribute to a cumulative impact from past, present, or future development.

4.3.4. Geological and Soil Resources

Geological and soil resource impacts associated with replacing the Bailey Bridge were considered in the RPMP PEA, which concluded that implementation of the RPMP would not result in significant impacts to soils or geologic resources (USAG Alaska 2017a).

The Preferred Alternative could have potential minor impacts with respect to geology and soils; however, such impacts would be limited to the immediate vicinity of the project area such that they would not substantially combine with other off-site impacts to cause a cumulative impact.

The No Action Alternative would have no impact to geological or soil resources and therefore would not contribute to a cumulative impact from past, present, or future development.

4.3.5. Water Resources

Surface water quality in the project area has been affected by past and present projects through changes in land use and hydrologic conditions. Impacts to surface water resources and water quality from implementing the Preferred Alternative could include localized soil erosion and impacts to surface water quality from ground-disturbing construction activities. Construction BMPs provided in the USAG Alaska's Environmental Stewardship Guidelines would be implemented to minimize the significance of these impacts. Construction activities within the watershed from reasonably foreseeable future actions could cause soil erosion and sedimentation in local drainages and the inadvertent introduction of construction-related substances into the creek and river system through site runoff or on-site spills (USAG Alaska 2017a). This could contribute to mobilization of urban contaminates.

When considered together with past, present, and future actions, overall cumulative impacts on water resources would be minor under the Preferred Alternative. Construction activities at the Bailey Bridge could result in short-term impacts on surface water resources from sedimentation or construction materials, but due to the implementation of environmental control measures, would not result in substantial degradation of surface or groundwater quality or the loss of floodplains (USACE 2019a). Over the long term, the cumulative impacts would be minor because surface and groundwater resources are protected by existing federal, and state regulations, and development would avoid impacts on floodplains and other hydrologically sensitive areas to the extent practicable.

The No Action Alternative would have no changes in impacts to water resources and therefore would not contribute to any potentially significant cumulative impacts from past, present, or future development.

4.3.6. Biological Resources

Construction and demolition activities for multiple development projects occurring at the same time and in the same vicinity could have minor cumulative effects on biological resources. Past landscaping and earth-moving activities associated with construction of the Main Post and its infrastructure have altered vegetation and wildlife habitat from their historical conditions. The scale of impacts to biological resources from to the Bailey Bridge replacement would be negligible in relation to the extent of past vegetation and habitat alterations at Fort Wainwright; therefore, the Preferred Alternative would not contribute notably to cumulative impacts.

The current and reasonably foreseeable future actions identified from the RPMP are not anticipated to significantly impact biological resources in the vicinity of the project area such that significant cumulative impacts would occur when combined with the minor to moderate

biological impacts of the Preferred Alternative. All reasonably foreseeable future projects would be subject to the INRMP and its appendices, including Fish and Wildlife Management (Appendix D); Rare, Threatened and Endangered Species Management (Appendix F); and the Fort Wainwright Ecosystem Management Plan (Appendix G), which would minimize impacts of these actions on biological resources (USAG Alaska 2013a.

The Preferred Alternative is not anticipated to require vegetation removal at the construction laydown/stockpile locations; however, the project's use of stockpile locations combined with other foreseeably future projects using the same stockpile locations could result in the need for additional vegetation clearance in the future. The impacts of such additional vegetation clearance have not been quantified but could potentially be significant. However, the contribution of the Preferred Action to this cumulative impact would be minor due to the low anticipated volume of excavated soil that would be disposed of at the stockpile locations in comparison to the volume generated by other present and foreseeable future actions.

According to the RPMP PEA, the overwhelming majority of potential foreseeable projects in the project area would have no potential to impact fish resources (USAG Alaska 2017a). Impacts to fish resources from construction of the Preferred Alternative would be temporary and minor due to timing of construction activities and adherence to potential ADF&G Fish Habitat permit stipulations. None of the identified present or foreseeable future projects are anticipated to occur in proximity to, or overlap construction periods with, the Preferred Alternative; therefore, temporary impacts of the Preferred Alternative would not combine with impacts from other projects to cause a significant cumulative impact on fish migration or injury/mortality. The Preferred Alternative would result in a negligible loss of streambed habitat within the footprint of the bridge piers. Other projects identified in the RPMP, such as improvements to the Chena River boat launch, could result in a minor temporary loss of streambed fish habitat. The boat launch project would also be subject to potential ADF&G permit stipulations if habitat would be impacted by that project.

Therefore, no cumulative impacts to biological resources would be anticipated from the Preferred Alternative when considered in conjunction with other past, present, and reasonably foreseeable future actions.

The No Action Alternative would have moderate impacts to aquatic biological resources due to the sloughing of lead- and PCB-containing paint chips from continued degradation of the bridge. None of the present or reasonably foreseeable future projects identified are anticipated to cause lead or PCB contamination of the Chena River because such projects would be required to adhere to applicable federal and state regulations, as well as to USAG Alaska's Environmental Stewardship Guidelines. The No Action Alternative would have no impact on streambed fish habitat. Therefore, impacts of the Preferred Alternative would not combine with impacts of other projects to cause a cumulative impact.

4.3.7. Cultural Resources

The RPMP PEA identifies several projects within the Ladd Field NHL and Ladd Field Air Force Base Cold War Historic District, which could potentially impact those resources (USAG Alaska

2017a). However, such impacts are not anticipated to combine with the mitigated impacts of the Preferred Alternative associated with temporary use of haul routes within the NHL or historic district, to cause adverse cumulative impacts. The Preferred Alternative would therefore not contribute to any cumulative impacts on known historic resources.

Other present or reasonably foreseeable actions would also be subject to the ICRMP unanticipated discovery plan, which would minimize potential impacts from those projects to unknown archaeological resources and therefore prevent significant cumulative impacts to cultural resources in the Fort Wainwright area (USAG Alaska 2013b).

The No Action Alternative could have an adverse effect on historic properties if the historic bridge were to collapse. However, this would be localized and would not contribute to any potentially significant cumulative impacts from past, present, or future development.

4.3.8. Recreation

Impacts to recreational resources from replacement of the Bailey Bridge were considered in the RPMP PEA, which concluded that implementation of the overall RPMP would have minor beneficial impacts on recreation in the long term, and that temporary impacts to recreational resources from construction of individual projects would be less than significant and minimized through adherence to the SOPs and BMPS listed in the USAG Alaska's Environmental Stewardship Guidelines (USAG Alaska 2017a).

Temporary impacts from construction of the Preferred Alternative would include use of portions of the golf course property as a staging area and minor disruption to golf course users from construction traffic and noise. None of the identified present and reasonably foreseeable future actions are anticipated to affect the golf course or its users, therefore impacts of the Preferred Alternative would not combine with impacts of other projects to cause a cumulative impact. The Preferred Alternative would cause minor temporary disruption to recreational fishing activities in the immediate vicinity of the Bailey Bridge, however such disruption would be extremely localized and would not combine with other temporary disruptions to recreational fishing to cause a cumulative effect. The Preferred Alternative would not have any permanent impacts to recreational resources and therefore would not contribute to cumulative long-term impacts on recreation.

The No Action Alternative would have no impact on recreational resources, although the permanent closure of Bailey Bridge would require all recreational users of areas north of Chena River to use the River Road Bridge to access such resources. Other present or reasonably foreseeable future actions, such as the proposed paving of River Road and construction of a roundabout at the intersection of River Road and Canol Road, could also impact access to recreational resources north of the river. While the exact impacts of these future projects on recreational resources are unknown, it is anticipated that both projects would cause temporary delays or detours for recreational users using River Road to access areas north of the river. Due to the permanent closure of the Bailey Bridge under the No Action Alternative, recreational users would have no alternative route to access recreational resources north of the river if construction of the River Road/Canol Road roundabout or paving of River Road were to

temporarily close River Road. This cumulative impact on access to recreational areas north of the river would be temporary and could be minimized through use of construction traffic control plans and detours (USACE 2019a). The cumulative impact would be minor.

4.3.9. Socioeconomics

Socioeconomic and environmental justice impacts associated with replacing the Bailey Bridge were considered in the RPMP PEA, which concluded that implementation of projects identified in the RPMP would have no significant cumulative impacts on socioeconomics or environmental justice (USAG Alaska 2017a). When considered in conjunction with other past, present, and reasonably foreseeable future actions affecting socioeconomics in the Fort Wainwright area, the contribution of the RPMP actions to cumulative effects on socioeconomics would be minor to moderate and beneficial in that improvements carried out on the base under the RPMP contribute to beneficial cumulative effects on commercial uses in the area (USAG Alaska 2017a). No other past, present, or reasonably foreseeable future actions outside of those included in the RPMP are anticipated that would impact socioeconomics or environmental justice populations at or near the project area.

For the reasons described above, no adverse cumulative socioeconomics or environmental justice impacts would be anticipated from the Preferred Alternative when considered in conjunction with other past, present, and reasonably foreseeable future actions.

The No Action Alternative would have no impact to socioeconomics or environmental justice and therefore would not contribute to any potentially significant cumulative impacts from past, present, or future development.

4.3.10. Transportation and Traffic

Construction and demolition activities for multiple development projects occurring at the same time and in the same vicinity as the Preferred Alternative could have minor short-term cumulative effects resulting from construction-related traffic.

As noted in the RPMP PEA, most installation development activities would occur at different times and different locations over several years. As a result, development activities would result in short-term, increases in traffic volumes during construction. While traffic volumes are expected to increase as a result of cumulative construction projects, it is not expected that these combined actions would affect the level of service on on-base roadways (USAG Alaska 2017a).

In addition, the RPMP PEA concluded implementation of the RPMP would have overall long-term cumulative beneficial traffic impacts. With the proposed upgrades to Fort Wainwright roadways (i.e., road bed improvements, turn lanes, sidewalks, pedestrian improvements, and roundabouts), traffic flow on the installation would be improved, and traffic congestion would be reduced. Additional traffic volumes from cumulative development would have a minimal effect on travel times, intersection operations, and Main Post Access Control Point delays during morning and evening peak hours; however, these effects would not result in a decrease in the levels of service to the road system (USAG Alaska 2017a). Further, the Preferred Alternative

would not cause long-term adverse impacts to the traffic network, and would contribute to the overall beneficial cumulative impact to traffic by providing a secondary crossing point for military and emergency services vehicles, thereby decreasing the use of the Main Post roading network by such vehicles. There would be no adverse cumulative impacts pertaining to traffic.

The No Action Alternative would have minor impacts due to increased trip duration and length for passenger vehicles accessing areas north of the Chena River and increased traffic volumes using the River Road Bridge and associated roadways. However, implementation of other RPMP projects, as discussed above for the Preferred Alternative, would improve traffic flow and decrease congestion within Fort Wainwright; therefore, no adverse cumulative transportation impacts are anticipated.

4.3.11. Solid Waste and Hazardous and Toxic Materials and Wastes

Impacts relating to solid waste and hazardous and toxic materials and wastes from projects identified in the RPMP, including replacement of the Bailey Bridge, were considered in the RPMP PEA. The PEA concluded that implementation of the RPMP would not have a significant cumulative impact relating to solid waste and hazardous and toxic materials and waste, as all projects would be required to adhere to applicable federal and state regulations, as well as to USAG Alaska's Environmental Stewardship Guidelines.

The Preferred Alternative could have potential minor impacts with respect to solid waste and hazardous and toxic materials and wastes; however, such impacts would generally be limited to the vicinity of the project area such that they would not substantially combine with other projects to cause a cumulative impact.

The No Action Alternative would result in continued sloughing of lead- and PCB-containing paint chips into the river from continued degradation of the bridge. None of the present or reasonably foreseeable future actions identified are anticipated to cause lead or PCB contamination of the Chena River because such projects would be required to adhere to applicable federal and state regulations, as well as to USAG Alaska's Environmental Stewardship Guidelines; therefore, impacts of the Preferred Alternative would not combine with impacts of other projects to cause a cumulative impact.

4.3.12. Health and Human Safety

Impacts to human health and safety from replacement of the Bailey Bridge were considered in the RPMP PEA, which concluded that implementation of the RPMP would not have a significant cumulative impact of human health and safety. Construction of projects included in the RPMP would be conducted in accordance with relevant regulations established by the USAG Alaska, OSHA, and other federal and state agencies, and construction sites would be accessible only to workers and authorized personnel, which would minimize risks to workers and passers-by (USAG Alaska 2017a). Design and construction of new habitable facilities at Fort Wainwright would comply with requirements set forth in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*.

Temporary health and safety risks from construction of the Preferred Alternative would be managed through adherence to applicable OSHA regulations and Governmental Safety Requirements (UFGS 01 35 26) and would not combine with construction-related health and safety risks from other past, present, or foreseeable future projects to cause a significant cumulative impact. The Preferred Alternative would have a long-term beneficial impact on human health and safety through decreased emergency response times to areas north of the river, decreased use of heavily-trafficked routes through populated areas by military vehicles carrying munitions or ordnance, provision of an alternative river crossing for all vehicles in case of emergency or closure of the River Road Bridge, and a more structurally stable bridge at the Bailey Bridge crossing. If other foreseeable projects, such as paving of River Road or construction of a roundabout at the intersection of River and Canol Roads, were to cause significant delays to emergency response vehicles utilizing the River Road Bridge route, the beneficial impacts of the Preferred Alternative would serve to minimize the adverse effects from those projects. Therefore, operation of the Preferred Alternative would result in beneficial cumulative impacts on human health and safety and may reduce potential adverse impacts from other foreseeable projects.

The No Action Alternative could have moderate adverse impacts on human health due to deterioration of surface water and/or soil quality from sloughing of LBP and PCB-containing paint flakes from the bridge as it degrades over time. Such an impact would be localized and would not combine with safety impacts from other past, present, or foreseeable future projects at Fort Wainwright to cause a cumulative impact.

5. CONCLUSION

The impacts of the Preferred Alternative are less than significant when considered individually or cumulatively with past, present, or reasonably foreseeable future actions.

Table 10 presents a summary of the comparative analysis of the Preferred Alternative and No Action Alternative for each resource evaluated in this EA. A detailed discussion of potential effects is presented in Chapter 3, Affected Environment and Environmental Consequences.

Based on the analysis performed in this EA, implementation of the Preferred Alternative, in general, would have less than significant direct, indirect, and cumulative effects on the quality of the natural or human environment. A FNSI will be prepared for the proposed activity. An Environmental Impact Statement is not required for the replacement of the Bailey Bridge.

The Preferred Alternative incorporates a number of SOPs and BMPs, where appropriate to reduce and/or eliminate potential impacts. The following documents provide examples of BMPs that are ongoing and incorporated as baseline management techniques employed by the USAG Alaska for land management, including this action.

- Environmental Stewardship Guidelines (see Appendix B).
- Army Low Impact Development Technical User Guide (USACE 2013).
- Fort Wainwright Chena North District Area Development Plan (USAG Alaska 2016b) and Fort Wainwright South Post District Area Development Plan (USAG Alaska 2016c).
- Real Property Master Plan Programmatic Environmental Assessment (USAG Alaska 2017a).
- Installation Compatible Use Zone Study (USAG Alaska 2017b).
- Integrated Natural Resources Management Plan (INRMP), (USAG Alaska 2013), including the 2007 INRMP EA; and 2013 INRMP Update Record of Environmental Consideration, and appendices for Watershed and Wetlands Management, Forestry and Wildland Fire Management, Fish and Wildlife Management, Outdoor Recreation Management, Threatened and Endangered Species Management, Ecosystem Management.
- Integrated Cultural Resources Management Plan (USAG Alaska 2013b), including the 2000 ICRMP EA, and 2012 ICRMP Update Record of Environmental Consideration.
- Municipal Separate Storm Sewer System (MS4), Storm Water Management Plan (USAG Alaska 2016a).
- USAG Alaska Outdoor Recreation Regulation Supplement (USARTRAK 2018).

Permit stipulations may require specific actions to minimize adverse impacts to biological, fish, and water resources. Adverse effects to historic properties would be mitigated through NHPA Section 106 consultation and stipulations of an MOA. Mitigations are to:

- Undertake documentation of the Bailey Bridge following Historic American Engineering Record Phase II guidelines

- Report on the history, prevalence, and continued usage of Bailey Bridges in Alaska
- Produce a monograph on the Fort Wainwright Bailey Bridge

Table 10. Summary of Environmental Impacts

Resource Area	No Action Alternative	Preferred Alternative: Replace Bailey Bridge at Current Location
Land Use	No impact. Residents and recreational users of areas north of the river would be inconvenienced but land uses would not be impacted.	Minor impacts. Temporary construction impacts to Chena Bend Golf Course minimized through BMPs; no permanent impacts from land use conflicts; land use easement from ADNR required; Minor long-term beneficial impacts; Preferred Alternative is consistent with RPMP.
Air Quality	Minor impacts from long-term increase of emissions from diverted passenger vehicle traffic.	Minor impacts. Temporary construction impacts minimized through BMPs; minor impacts from short-term increase of emissions from diverted passenger vehicle traffic during construction. No permanent adverse impacts and minor beneficial impacts from reduction in vehicle miles traveled for military and emergency vehicles.
Noise	No impact.	Minor impacts. Temporary construction impacts; minor long-term adverse impacts from increased heavy vehicle traffic at Bailey Bridge; minor long-term beneficial impacts from decreased heavy vehicle traffic at River Road bridge.
Geological and Soil Resources	No impact.	Minor impacts. Potential for erosion impacts from construction minimized through permit requirements and BMPs and SOPs; potential seismic impacts minimized through industry-standard seismic design measures and recommendations of site-specific geotechnical investigation.
Water Resources	Moderate impacts to surface water quality from increased sloughing of lead- and PCB-containing paint chips into the river.	Minor to moderate impacts. Temporary construction impacts to surface water and groundwater minimized through BMPs; temporary construction impacts to storm water runoff minimized through ADEC permit requirements, SWPPP, and BMPs; potential impacts from surface water and groundwater contamination minimized through BMPs; potential impacts to storm water minimized through municipal storm water permit requirements and BMPs; minor impacts to floodplains and navigation; permits required for Clean Water Act Section 404, and River and Harbors Act Section 10.
Biological Resources	Moderate impacts to aquatic species from degradation of water quality due to increased sloughing of lead- and PCB-containing paint chips into the river.	Minor to moderate impacts to wetlands. Minor impacts to fish resources, vegetation communities, wildlife, special status wildlife, and invasive species. No impacts to special status plants. Overall impacts minimized through INRMP SOPs; potential impacts to wetlands minimized through permit requirements of Clean Water Act Section 404; impacts from increased potential for invasive species minimized through BMPs.
Cultural Resources	Potential significant adverse effect from bridge deterioration and possible collapse.	Moderate impacts. Adverse effect to historic properties from loss of historic bridge mitigated through NHPA Section 106 consultation and MOA; potential impacts to cultural resources minimized through ICRMP SOPs.
Recreational Resources	No impact.	Minor impacts. Temporary impacts to recreation permit holders minimized through communication of closures and detours with permit holders; minor temporary impacts to Chena Bend Golf Course and recreational fishing. No long term impacts.
Socioeconomics and	No impact.	No adverse impact; minor beneficial impacts. Minor temporary beneficial impacts to local and regional economy through contract award and during construction; impacts to Chena Bend Golf Course minimized through BMPs; no impacts to regional demographics or

Resource Area	No Action Alternative	Preferred Alternative: Replace Bailey Bridge at Current Location
Environmental Justice		environmental justice populations; long term minor beneficial impacts from rerouting military vehicles with munitions and explosives away from more populated areas used by civilians, families with children, and regular Main Post traffic.
Transportation and Traffic	Minor impacts due to passenger vehicles rerouted following bridge closure.	Minor adverse impacts and moderate beneficial impacts. Minor temporary impacts to passenger vehicles rerouted during construction; minor temporary impacts from congestion caused by construction vehicles; moderate beneficial impact from adding a second Chena River crossing for military and emergency services vehicles and decreasing military traffic through Main Post.
Solid Waste and Hazardous and Toxic Materials and Wastes	Moderate impacts from continued degradation of bridge and sloughing of lead- and PCB-containing paint flakes into river or onto soil.	Moderate adverse impacts and moderate beneficial impacts. Temporary impacts from construction minimized through SOPs, BMPs, SWPPP, SPCC, and project design measures.
Human Health and Safety	Moderate impacts from continued delay of emergency response time and from deterioration of water and soil quality from increased sloughing of lead- and PCB-containing paint chips.	Minor adverse impacts and moderate beneficial impacts. Temporary construction impacts minimized through SOPs; moderate long-term beneficial impacts from wider bridge with increased structural capacity for military and emergency services vehicle use, reduced risks associated with transportation of munitions and explosives, and providing an alternative crossing point for all vehicles across Chena River.
Cumulative Impacts	No significant cumulative impacts.	No significant cumulative impacts.

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APPENDIX A - AGENCY CORRESPONDENCE

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National Historic Preservation Act Section 106 coordination

On 25 February 2019, USAG Alaska requested concurrence from the Alaska State Historic Preservation Officer (SHPO) on the finding of historic properties adversely regarding the undertaking of demolition of the Bailey Bridge. Concurrence was received in a letter dated 1 March 2019. The Advisory Council on Historic Preservation was also provided an opportunity to comment which they declined on 14 March 2019. Copies of this correspondence were supplied to the regular consulting parties – the Fairbanks North Star Borough (FNSB) Historic Preservation Commission (a Certified Local Government), the Tanana-Yukon Historical Society, and the National Park Service-Alaska Region on 6 March 2019. Copies of the same correspondence were supplied to the six consulting tribes on 11 April 2019. Two tribes expressed having no further interest in this undertaking and the remaining four did not comment.

The Fort Wainwright Cultural Resources Working Group, including the SHPO, was informed of the undertaking and consulted as members of the interested public on 22 April 2019. On this occasion, the FNSB Historic Preservation Commission and the Tanana-Yukon Historical Society agreed to participate as concurring parties on the projected Memorandum of Agreement (MOA). The National Park Service-Alaska Region declined further consultation.

The FNSB Historic Preservation Commission requested a presentation of the undertaking to the full commission membership, which was done at their next regular meeting on 20 May 2019. At that time, they requested the timing of the next consultation meeting on 19 June 2019. Attendance of the FNSB Chena Riverfront Commission regular meeting allowed for questions/answers at the request of the FNSB Historic Preservation Commission on 12 June 2019.

The consulting tribes were presented information about this undertaking again at the regular meeting of garrison command and tribal leaders on 7 June 2019. They expressed no interest in further involvement regarding consulting on the undertaking.

Consultation on the MOA and agreement on the necessary mitigation for the undertaking was held on 19 June 2019 with the FNSB Historic Preservation Commission, the Tanana-Yukon Historical Society, and the SHPO. Parties attending the meeting in person then proceeded on a site visit to the bridge.

The general public was given the opportunity to consult and comment on the undertaking through a solicitation on the USAG Alaska Environmental Division webpage with a closing date for comment of 10 July 2019.

Currently, the MOA is being finalized for signature. Signature is expected in late July 2019. Mitigations stipulated in the MOA are to:

- Undertake documentation of the Bailey Bridge following Historic American Engineering Record Phase II guidelines

- Report on the history, prevalence, and continued usage of Bailey Bridges in Alaska
- Produce a monograph on the Fort Wainwright Bailey Bridge

AGENCY WORKING GROUP

On June 12, 2019, the U.S. Army Garrison Alaska held an agency working group teleconference. The purpose of the working group was to provide an overview of the Bailey Bridge replacement project and corresponding Environmental Assessment (EA), and to deconflict the agency's permitting processes once required permits were identified.

The following agencies were invited to attend:

- Alaska Department of Fish and Game
- Alaska Department of Natural Resources
- Fairbanks North Star Borough
- U.S. Army Corps of Engineers, Fairbanks Regulatory Office
- U.S. Coast Guard

Of the invited attendees, the following participated in the working group:

- Alaska Department of Fish and Game
- U.S. Army Corps of Engineers, Fairbanks Regulatory Office
- U.S. Coast Guard

The agencies not able to attend received one-on-one follow-up coordination. The SHPO was not invited to attend the agency working group as ongoing coordination was being conducted between the U.S. Army Garrison Alaska Environmental Cultural Resources Manager and the SHPO, as documented above.

The working group concluded with a path identified to complete potential permitting requirements, and to provide the opportunity for agency input on the environmental analysis documented within the EA.

APPENDIX B - ENVIRONMENTAL STEWARDSHIP GUIDELINES

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Environmental Stewardship Guidelines

General Resource Management	Overall resource management at the project planning phase considers a broad spectrum of USAG FWA resources and chains of communication.

SOPs used during project planning process and implementation of proposed project includes:

- USAG FWA would continue to follow existing chain of command procedures regarding project development.
- If it is determined that the project may not fall within the scope of this PEA, USAG FWA Environmental (NEPA) staff would determine what appropriate level of NEPA analysis should be performed prior to funds being spent on construction.
- USAG FWA contractors would continue to be supplied the Environmental Concerns for Construction and Renovation Project Package upon contract award. This package outlines environmental guidelines and construction site management issues that the contractor must adhere to during project construction and requires contractors to prepare an Environmental Protection Plan
- USAG FWA will continue management and monitoring of its lands including natural and cultural resources as outlined in the INRMP, ITAM and ICRMP programs.

BMPs used during the project planning process and implementation of proposed projects include:

- To the extent possible, alignment of new roads, access trails or utility corridors would take advantage of existing roads and pathways.
- Site fingerprinting, which involves clearing and grading only those areas necessary for building activities and equipment traffic should be used during site planning.
- BMPs for construction site waste management, control of allowable non-storm water discharges, education and awareness training, material management, minimize offsite vehicle tracking of sediments, sanitary/septic disposal, site stabilization, and structural controls to prevent erosion contained within *Storm Water Management Plan.*

Soil Resources	Soil stability is important for maintaining sustainable range use for Soldier training and for protecting surface water resources, wetlands, fisheries, vegetative cover and wildlife habitat. Soil stability can be managed through project design and construction staging, site restoration and ongoing monitoring of projects.

SOPs to avoid soil erosion include:

- During the project planning phase, USAG FWA will review project site soil types to determine: 1) constructability and suitability of soils for intended uses, 2) presence of permafrost or highly erodible soils, 3) the potential need for structures or practices to prevent erosion (i.e., grading or reshaping the ground to lesson steep slopes, shoring excavated areas).
- USAG FWA would continue to implement Dust Control Plans which includes BMPs for reducing wind erosion and promoting site stabilization during and after demolition, construction, earthmoving, excavating, stockpiling and transport activities.
- Incorporate Energy Independence and Security Act (EIISA) language for recontouring land for water retention and reduced mass flow.

BMPs to prevent or control soil erosion include:

Project Design

- Avoid permafrost and highly erodible soils whenever possible.
- To the extent possible, keep footprint disturbances within areas of existing or previously disturbed sols.

Construction Staging

- Control dust emissions during construction on site per Garrison Dust Control Plans to include: pre-grading planning, pre-grading watering, post-grading watering, chemical stabilizers, wind fencing/sheltering, wind awareness, cover haul vehicles, reduced speed limits/vehicular trips during construction.
- Follow SWPPP provisions to include: phasing construction to minimize areas of exposed soils, temporary stabilization of exposed soils, covering and/or seeding soil stockpiles, and monitoring of BMP's on a regular interval and following significant rain events.
- When working in permafrost, minimize the footprint of the disturbed area, and in areas of temporary disturbance provide vegetative cover as soon as possible following disturbance.
- Tree and vegetation removal activities would preferably occur during winter months when soils are frozen. Hand clearing or use of hydro-axe to clear vegetation located within sensitive soils during non-winter months.
- Construct soil stockpiles with gradual slopes and in a manner that reduces the potential for erosion as well as reduce the attractant for bank swallows constructing nest in the stockpiles.

Site Restoration

- Seed and fertilize, as necessary, the area immediately following construction to aid in the establishment of protective vegetative cover. Soil tackifiers, mulch, and/or erosion control blankets would be used as necessary in areas susceptible to higher wind erosion to aid in the establishment to protective vegetative cover.
- Restoration of disturbed areas by implementing industry standard BMPs and techniques as detailed by industry standard protocols.
- Monitor landscape altering projects and land use impacts to identify rehabilitation needs and/or incompatible uses. Use programs like ITAM and its core components of Range and Training Land Assessment (RTLA) and Land Rehabilitation and Maintenance (LRAM) to support mitigation of military training and training support project impacts on soils.

Operations

- Minimize impacts caused by off-road vehicle use by timing, as much as is practical, and schedule training activities to coincide with the times of the year during which the lands are more resilient. For example, snow-pack and frozen ground conditions would minimize the impacts to soils and permafrost compared to spring break-up when soils are more susceptible to erosion.
- Improve existing trails and roadways to increase the resiliency and capacity for the land to absorb traffic. Improvements would include stormwater management controls such as incorporation of vegetated swales adjacent to improved trails and roadways to manage sediments and runoff.

Surface Water and Floodplains	Section 404 of the Clean Water Act (CWA) regulated activities which directly affect surface water resources and National Pollution Discharge Elimination System (NPDES) regulates activities affecting surface water quality. Surface water quality and floodplain integrity can be managed through project design. Buffer zones reduce the velocity of storm water runoff, provide an area for the runoff to permeate the soil, contribute to ground water recharge, and act as filters to catch sediment both during construction and from ongoing operations.

Reference the following documents for **BMPs** and **SOPs** for surface water and floodplains:

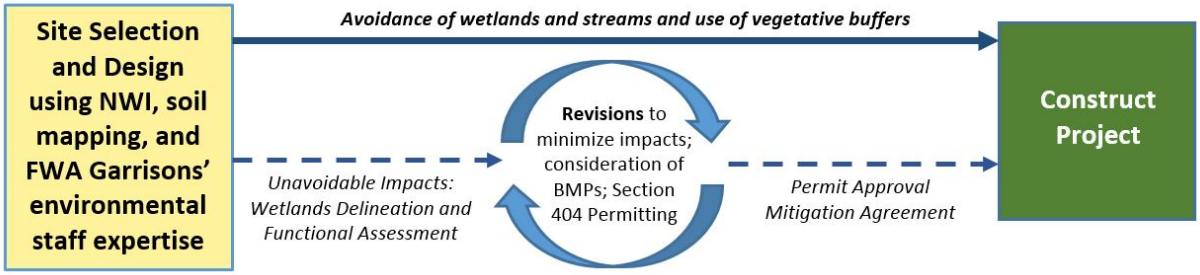
- Army Low Impact Development Technical User Guide, 4 January 2013, Office of the Assistant Chief of Staff for Installation Management
- Memorandum, Army Stormwater Management Using Low Impact Development, DAIM-OD, 21 September 2015

- BMP Effectiveness Report 18-9001-15, Fairbanks, AK, February 2006
- Silt fences, silt curtains, or other diversion or containment structures shall be installed to contain sediment and turbidity at the work site in accordance with the applicable storm water pollution prevention plan.
- Silt and sediment from excavation and fill activities may not enter waterbodies outside the project footprint.
- Where practicable, fill material must be free from fine material that is subject to erosion and suspension. Site preparation, excavation, fill placement, and construction activities must be conducted to prevent, minimize, and contain the erosion and suspension of fine material that could be carried off-site by surface runoff.
- If suspended material is evident in standing or flowing water outside the project footprint, appropriate control and containment measures must be applied. These measures may include slope stabilization, revegetation, filter fabric fences, straw bales, other effective filters or barriers, fiber matting, settling ponds, drainage control, trenches and water bars, waterproof covers over material piles and exposed soils, avoiding work during heavy precipitation, and other appropriate measures.
- Disturbed ground and exposed soil not covered with fill, structures, or appurtenances must be stabilized and revegetated in an appropriate and timely manner to minimize erosion and sedimentation, so that a durable vegetative cover is established and maintained. Project limits of authorized sites shall be clearly identified in the field (e.g., staking, flagging, silt fencing, use of buoys, existing footprint for maintenance activities, etc.) prior to clearing and construction to ensure avoidance of impacts to waters of the U.S.(including wetlands) beyond project footprints.
- Projects should incorporate stormwater management retention devices in the development of parking lots, plazas, and walkways to decrease amount of runoff and to filter out oil and other potential hazardous substances which could occur within parking runoff.

Wetland Resources	Wetland resources occur throughout USAG FWA are vital in maintaining water quality, aid in flood control, and provide wildlife habitat. These resources are also regulated by Section 404 of the Clean Water Act. Wetland impacts can be avoided through project design, during construction staging and from ongoing monitoring of operations. Temporary impacts to wetlands can be addressed through site restoration.

SOPs to be used for activities involving wetlands during project design and construction include:

- Preparation of a Finding of No Practical Alternative (FNPA) to justify unavoidable impacts to wetlands resources and submitted with the Section 404 permit.
- Project planning and the Section 404 permitting process:



WORK IN WETLANDS OR WATERS OF THE U.S. SHOULD NEVER BE DONE WITHOUT PRIOR CONSULTATION with DPW Environmental and the U.S. Army Corps of Engineers. Work in wetlands and waters of the U.S. will require authorization, acquisition of permits and the use of BMP's, of which examples are given below.

BMPs for certain projects may include:

Project Design

- Conduct a functional assessment of wetlands within the project study area to provide a means of rating wetlands and to facilitate the prioritization of impact avoidance and minimization measures. The functional assessment would be used to identify appropriate mitigation during the Section 404 permitting process to replace wetland function lost from unavoidable impacts.
- Use trenchless utility crossing technology (i.e., directional drilling) below wetlands.
- Maintain natural drainage patterns by the installation of culverts of adequate number and size to prevent flooding or excessive drainage of adjacent wetlands.
- Narrow/confine trail widths in sensitive wetland habitats or when possible, widen trails to the upland direction to avoid wetland impact.
- To the extent practicable, excavation equipment shall work from an upland site (e.g., the top of the bridge or culverted road crossing) to minimize adding fill into waters of the U.S. If it is not practicable to work from an upland site, excavation equipment must minimize disturbance to the channel or stream bank and bottom (other than the removal of accumulated sediments or debris).
- Restoration and revegetation of streambank and shoreline habitat should utilize the most up-to-date bioengineering techniques and use of biodegradable materials when feasible and practicable (i.e. Streambank Revegetation and Protection: A Guide for Alaska

(Muhlberg and Moore 1998)). Techniques may include, but are not limited to, brush layering, brush mattressing, live siltation, and use of jute matting and coir logs to stabilize soil and re-establish native vegetation.

Construction Staging

- Clearly identify project limits in the field (e.g., staking, silt fencing, use of buoys, existing footprint for maintenance activities, etc.) prior to clearing and construction to ensure avoidance of impacts to waters of the U.S. (including wetlands) beyond project footprints.
- To the extent practical, locate construction staging areas outside of wetlands.
- Conduct vegetation clearing activities during the winter months within wetland areas when soils are frozen to avoid impacts to sensitive wetland soils.
- Use a hydro-ax during vegetation clearing within wetlands to reduce impacts to hydric soils and low-lying vegetation.
- Place temporary fill in wetlands on geotextile fabric laid on top the existing wetland grade, especially during non-frozen conditions.
- Separately stockpile wetland topsoil and organic surface material such as root mats from overburden and return material to the surface of restored wetland sites.
- Disperse load of heavy equipment by working in frozen or dry ground conditions, employing mats when working in wetlands or mudflats, and using tracked rather than wheeled vehicles so that the bearing strength of the soil is not exceeded.
- In peat wetlands, conserve the natural vegetative mat (with root masses intact) systematically removing prior to construction. Store it in a manner to retain viability (usually frozen or hydrated), then replace it after re-contouring the ground following construction, with final contours within 1 foot of adjacent undisturbed soil surfaces.
- For minor utility projects where no imported bedding or backfill material are used (e.g., “plowed in” cables or small utility lines installed with ditch-witches), simple restoration to pre-work contours and appropriate native revegetation shall suffice.

Post Construction Riparian Restoration

- Stabilizing of all disturbed areas resulting from project construction using native vegetation to minimize erosion and subsequent sedimentation of wetlands and streams.
- Restore temporarily disturbed wetlands to original grades using stockpiled wetlands topsoils and plant native vegetation.

Vegetation	Vegetation provides erosion control, stormwater detention, biofiltration, habitat for wildlife and aesthetic values to a site during and after construction activities. Areas of preserved vegetation can also process higher quantities of storm water runoff than newly seeded areas, does not require time to establish, has a higher filtering capacity than newly planted vegetation, reduces storm water runoff by intercepting rainfall, promotes infiltration, lowers the water table through transpiration, provides buffers and screens against noise and visual disturbance, provides a fully developed habitat for wildlife and usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation. Retention of vegetation can be managed through project design and during construction staging. Monitoring of ongoing operations and site restoration helps maintain vegetative cover and overall health.

SOPs to be used for activities regarding vegetative cover during project design and construction include:

- USAG FWA will continue vegetation management within the Main Cantonment and Training Lands, including invasive species monitoring and management per the INRMP and ITAM. This will help prevent the spread of invasive species from routine maintenance, upgrade, and construction activities, and would serve to manage existing timber resources.
- To the extent possible, USAG FWA will continue to preserve natural vegetation (protection of desirable trees, bushes, and grasses) from damage during project development to the maximum extent practicable, particularly in floodplains, wetlands, and stream banks, steep slopes, and other areas where erosion controls would be difficult to establish, install, or maintain. This includes the restriction of vehicles to roadways and trails to the maximum extent practicable.
- Use site fingerprinting, which involves clearing and grading only those areas necessary for building activities and equipment traffic should be used during site planning and concentrate development in areas where past development has occurred.

BMPs to be used to help mitigate impacts:

Project Design

- Review ecotype mapping within the project area to determine if the project has the potential to be located within the preferred habitat of a rare plant species.
- Utilize previously disturbed areas to reduce impacts to regional native plant species and communities.
- Retain appropriately sized vegetated buffers along waterbodies, including those with essential fish habitat and anadromous streams.

Construction Staging

- Clearly mark trees and preservation areas and protect from ground (root) disturbances.
- Restrict nailing of objects (signage) to trees during building operations.
- Avoid placement of fill dirt within the limit of preserved areas and during final site cleanup, barriers around preserved areas and trees should be removed.

Vegetation Preservation Considerations

- Tree vigor: Preserve healthy trees that will be less susceptible to damage, disease, and insects.
- Tree age: Older trees are more aesthetically pleasing as long as they are healthy.
- Tree species: Preserve tree species well-suited to present and future site conditions. Preserving a mixture of evergreens and hardwoods can help to conserve energy when evergreen are preserved on the northern side of the site to protect against cold winter winds and deciduous trees are preserved on the southern side to provide shade in the summer and sunshine in the winter.
- Wildlife benefits: Choose tree species that are preferred by wildlife for food, cover, and nesting.
- Drainage patterns: Following natural contours and maintaining preconstruction drainage patterns would prevent alteration of hydrology and the potential die-off of preserved vegetation.

Site Restoration

- Revegetate areas disturbed during project construction as soon as possible with native grass or other appropriate vegetation, preferably in the same growing season as the disturbance to prevent erosion and maintain habitat integrity.
- Monitor mitigation efforts to ensure goals are reached, and initiate additional measures required to meet restoration goals.

Wildlife and Fisheries	Wildlife and fishery resources are abundant within USAG FWA garrison range and training lands. These resources provide for subsistence and recreational hunting and fishing activities and are regulated through the Migratory Bird Treaty Act (MBTA), Endangered Species Act (ESA), the Fish and Wildlife Coordination Act, Bald and Golden Eagle Protection Act, Magnuson-Stevens Fishery Conservation and Management Act, and the State Anadromous Fish Act. Wildlife and fisheries management can be considered during project design and during the timing of construction staging. Monitoring of ongoing operations and site restoration helps maintain overall sustainability and health of these resources.

SOPs to be used to maintain biodiversity and local wildlife and fisheries populations during project design, construction, and operations include:

- For those projects affecting or adjacent to surface waters, USAG FWA will refer to the State Anadromous Fish Catalogue to determine presence of anadromous streams near construction areas and all projects will conform to any conditions required by State officials, such as vegetation buffers or other appropriate measures.
- In the event that a Proposed Action could adversely affect Essential Fish Habitat, appropriate consultation with the National Marine Fisheries Service would occur, and project will conform to all conditions imposed by National Marine Fisheries Service (NMFS) officials.
- For those projects affecting anadromous steams, all design and unavoidable construction activities affecting anadromous water will be accomplished in accordance with Alaska Statues AS 16.05.871 – AS 16.05.901.
- Compliance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Act by coordination with Environmental and implementation of the INRMP to avoid instances of intentional or unintentional take of protected species and/or guidance on beginning the permitting process to take a protected bird or nest is conducted before project development can commence.
- Avoid siting, to the extent practical, projects in higher functioning habitats such as riparian areas or those containing rare or sensitive species.
- Activities that include the construction and maintenance of intake structures must include adequate fish screening devices to prevent the entrainment or capture of fish. The authorized structure, pipe, or associated fill shall not impede flood flows.

BMPs to be used to maintain biodiversity and local wildlife and fisheries populations include:

Project Design

- Culverts installed in fish bearing streams will be sized appropriately to maintain natural connectivity, stream depth and velocity.
- The natural contour of the stream should be followed for culvert installation.
- Activities that include the construction and maintenance of intake structures must include adequate fish screening devices to prevent the entrapment or capture of fish.
- Limit impacts to anadromous streams by placing pads and vault/junction boxes an appropriate distance away from waterbodies and wetlands containing anadromous fish.

Construction Sequencing

- Where required, obtain State permits to erect a fish barrier of netting, both upstream and downstream of the crossing, to prevent fish from entering the work area.

- Move stranded fish found in the dewatered channel downstream.

Site Restoration

- To the maximum extent practicable, backfill material shall consist of the excavated material and shall be returned in the same place on the vertical stratum from which it was excavated. As a contingency, use clean gravel or native cobbles for the upper 1-foot of trench backfill in all waterbodies that contain fisheries.

Land Use, Energy and Utilities	Army Regulation (AR) 210-21, *Army Ranges and Training Land Program*, and the associated *Generic Methodology for the Range and Training Land Program*, dated September 1998, guide overall range planning for establishing current requirements and utilization levels for available training assets and provides a near- and long-term project plan for training, public works, and environmental planners. Land use compatibility and availability of existing energy and utilities should be considered during project site selection and project design.

SOPs to be used during project design to avoid land use conflicts and consider energy and utility aspects of proposed projects include:

- Planning of proposed new facilities and upgrades should follow AR 210-20 (*Real Property Master Planning for Army Installations*).
- Siting of facilities and activities (including maneuver training) to avoid sensitive areas as much as possible. This includes activities that generate noise, dust, and other nuisance factors.
- Recreational access will be restricted where mission requirements are incompatible with recreational use of range and training lands using appropriate buffers, fencing, designated access restrictions or recreational use tracking procedures.
- Project planners will avoid placing permanent facilities or ground disturbing activities in sensitive habitats or ecological areas, when practicable.
- Project planners will site facilities in a manner that maximizes the use of existing utility infrastructure.
- Where increases of energy demand is likely, have project planners incorporate measures to reduce or offset emissions during project planning, construction and operations in compliance with EO 13423.

BMPs to be used during project design to avoid land use conflicts and consider energy and utility aspects of proposed projects include:

- Encourage sustainable building and development practices (e.g., implementation of the Leadership in Energy and Environmental Design rating system as a guide for projects).
- Prior to new construction, project planners should coordinate with other construction managers of new projects and notify users and operators of existing utilities if an existing utility system needs to be temporarily out of service during construction activities.
- During construction, limit the shut-off of existing utilities to off-peak usage period.

Public Access, Recreation and Subsistence	The Sikes Act has opened numerous military lands to recreation, including portions of USAG FWA Training Areas. Public access, recreation, and subsistence is considered during project design and operations to limit impacts to the military mission.

SOPs to be used to limit impacts to public access, recreation and subsistence activities during operations include:

- Continued assessment and management of subsistence resources for all users per guidelines outlined in the INRMP.
- Continued establishment of government-to-government relationships with Alaska Native tribes whose interests may be significantly affected by Army activities. This would ensure efficient and effective communication between both leadership and staff members of tribal governments and the Army.
- Continued implementation of the U.S. Army Alaska Recreation Tracking System (USARTRAK) automated check-in phone system. This would provide information regarding daily closures and should greatly simplify the public access process.
- Continued implementation of the U.S. Army Alaska Recreation Tracking System (USARTRAK)/isportsman website and telephonic system for checking in to recreate. This would provide information regarding daily closures and should greatly simplify the public access process.

BMPs to be used to limit impacts to public access, recreation and subsistence activities include:

Project Design

- Determine the placement of access gates to allow for continued recreational use and to maximize public safety.
- Determine the placement of bridges in areas that will not inhibit existing publically-used low water crossings.

Operations

- Continued implementation of recreational vehicle use policies, per the INRMP. The INRMP outlines specific actions to maintain and improve public access and recreation opportunities on Army lands.
- Continued monitoring of recreational usage of each training area through the USARTRAK phone system. This would inform USAG FWA on use patterns, which should improve management for public access and recreation.
- Continued maintenance of kiosks at all primary entrances to recreational areas on USAG FWA lands and provision of visitor maps and information. Information kiosks can help users quickly identify areas designated for recreational use, as well as the times and locations of military activities.
- Increased use of signs and other public notification measures to increase public awareness of dangers of military training.
- Continued use of advanced public notification of military training activities likely to restrict the use of Alaska Army lands for recreational, subsistence, and other uses.

Wildfire Management	Range projects and operations have the potential to cause unintentional wildfire starts. Wildfire prevention can be administrated during operations through adherence to existing management plans and agreements and management of the landscape.

SOPs to be used which avoid unintentional wildfire starts include:

- Compliance with training exercise regulations and wildfire prevention as stipulated by USAG FWA Range Regulation 350-2, *Training*, and continued update and implementation of Integrated Wildfire Management Plans developed by USAG FWA.

BMPs to be used to avoid unintentional wildfire starts include:

- Continue on-going actions to prepare the landscape for potential wildland fires (i.e., prescribed burns and thinning to restore ecosystem functions to fire and to reduce future fire severity).
- Continue to utilize the fire danger rating system to reduce the likelihood of a fire by limiting military activities when certain thresholds of wildfire risk are reached.
- Have available an Initial Attack Response Team during military training activities during high and extreme fire danger to provide a rapid initial response to potential wildfires in the area.
- Continue to implement INRMP and IWFMP.
- Prepare a burn plan and detailed parameters for when burning can take place.

Cultural Resource Management	USAG FWA-managed lands contain historic properties requiring review under Section 106 of the National Historic Preservation Act (NHPA).

SOPs to be used which prevent impacts to cultural resources include:

- Implementation of the ICRMPs which helps maintain cultural resources sustainability and provides guidance prescribed methods for compliance with cultural resources management responsibilities, including but not limited to:
    - Development and implementation of an information and education program for personnel and public citizens using USAG FWA lands in order to enhance the conservation of cultural resources on Army-managed lands.
    - Consultation with Alaska Native tribes to identify and evaluate Traditional Cultural Properties (TCPs) that may be present on military-managed lands in Interior Alaska.
    - Avoidance cultural resources during training area development and building design, utilizing information gathered from on-the-ground surveys.
    - Enforcement of the appropriate protocol for inadvertent discovery of human remains and related items per the Native American Grave Protection and Repatriation Act (NAGPRA) is such discovery is made during any activity on Army-managed lands.
    - Survey of unsurveyed areas and evaluation of resources identified during survey. Those resources determined to be NRHP-eligible will be treated according to the NHPA and other state and federal standards. This would not apply to areas deemed ineligible for survey due to threats to human health and safety.
    - Treatment of archaeological sites that are identified but not yet evaluated for eligibility for listing on the NRHP as NRHP-eligible sites; until such time that they are evaluated. Once evaluated, sites determined to be NRHP-eligible will be treated according to NHPA and the Secretary of the Interior's Standards for Archaeological Documentation and Preservation, as well as Alaska state standards for archaeology.
    - Curate archaeological and paleontological materials in accordance with 36 CFR 79 and utilizing a Memorandum of Agreement between USAG FWA and the University of Alaska Museum of the North, a museum that meets the qualifications to store Federally-owned collections.
- Apply the Programmatic Agreement regarding operations, maintenance, and development (O&M PA) activities which streamlines the review of many activities that occur regularly on USAG FWA facilities and lands.
- Apply the Programmatic Agreements or Program Alternatives that consider undertakings that involve cultural resources and are considered exempt or categorical exclusions,

requiring no further review from the USAG FWA Cultural Resources Manager (CRM) or Alaska State Historic Preservation Officer (SHPO). These include:

- Program Comment for Capehart and Wherry Era (1949-1962) Army Family Housing and Associated Structures and Landscape Features.
- Program Comment for World War II and Cold War Era (1939-1974) Ammunition Storage Facilities.
- Nationwide Programmatic Agreement for World War II Temporary Buildings.

BMPs to be used to avoid impacts to cultural resources during project design, construction and operation include:

Project Design

- Coordinate with engineers and other project planners during site planning and building design.
- Coordinate with and consult the Alaska SHPO to identify any adverse impacts and mitigation requirements.
- If adverse impacts are inevitable, consultation with stakeholders and Alaska Native tribes.

Construction

- Receive notification and launch appropriate protocols in the event of inadvertent discovery of human remains and/or cultural resources (artifacts, etc.) during construction.
- Receive notifications and respond accordingly in the event of project modification during construction.

Operations

- Coordinate with users, engineers, and other appropriate individuals regarding review needs in the event of changes of range operations or structure use.
- Receive notifications and launch appropriate protocols in the event of inadvertent discovery of human remains and/or cultural resources (artifacts, etc.) during range operations.
- Systematically monitor archaeological sites that are eligible for listing on the national Register of Historic Places (NRHP).
- Systematically inventory buildings as they age to determine eligibility for listing on the NRHP.
- Review all repairs and other projects planned for historic structures and buildings.

Noise	Noise control is regulated under the Noise Control Act of 1972. To assess military-related noise effects, the U.S. Army Center for Health Promotion and Preventive Medicine has developed noise zones which consider noise levels along with sociological considerations and compatible land uses. Noise control can be considered during both the planning and construction phases for range activities.

SOPs to be used which avoid impacts from noise during project design and planning include:

- Noise generation of the planned use of any given project would consider siting based on the Installation Noise Management Plan noise contours and compatible noise zones.
- Any activity generating a new type of noise source (i.e., new equipment or technologies) which could change existing noise contours or be in conflict with Installation Noise Management Plans would undergo USPHC noise modeling to detect any potential changes to existing noise conditions.
- Continue to maintain an active noise management program to protect present and future operational capabilities of range land training. This includes continual evaluation of noise impacts that may be produced by ongoing and proposed Army actions/activities, maintenance of a noise complaint management program and minimization of noise impacts and annoyance to the greatest extent practicable.
- Noise generation of the planned use of any given project would consider siting based on The Installation Noise Management Plan noise contours and compatible noise zones.

BMPs to be used to avoid impacts from noise during construction include:

- Adjust construction schedules within areas of sensitive noise receptors to reduce impacts.
- Ensure construction equipment with internal combustion engines have mufflers which are well maintained.
- Operate construction equipment at lower speeds and increase spaces between equipment.
- Set-up noise barriers or enclosures such as plywood or lead-vinyl curtains for particularly noisy operations near very sensitive receptors.

Human Health and Safety	USAG FWA has a proactive system to address human health and safety issues and to prevent injury or harm to Soldiers and civilians resulting from range construction projects and range operations.

SOPs to be used which avoid impacts to human health and safety include:

Project Design

- As necessary, at the earliest time after the project planning charrette, USAG FWA will perform a UXO site survey to determine the extent of the ordnance contamination to aid in the design of the range and minimize intrusive work in portions of the range which are highly contaminated with ordnance and to determine the correct ordnance response actions.
- During predesign site studies and investigations, if ordnance contamination is suspected, UXO safety support for UXO avoidance becomes mandatory during topographic surveying, geotechnical investigation, and other on-site operations that require gathering design data.
- Hazardous waste generation associated with building demolition should be identified in advance, and proper abatement planned as part of the project. These hazards include, but are not necessarily limited to asbestos, lead (primarily in paint), PCBs and glycol.
- Due to the nature and type of training conducted in the past (especially prior to 1986), unidentified contamination could be found on Army lands. All work involving the modification of facilities or excavation of any kind shall be coordinated via the USAG FWA "Work Clearance Permit" a minimum of five working days prior to mobilization to the site.
- Coordination requirements are outlined on the permit. Any potentially contaminated soil or groundwater encountered during this action shall be segregated, sampled, analyzed, and containerized in approved containers (specified in 49 CFR 178.500). Soil and groundwater shall not be removed from any part of the installation or transported off the installation, regardless of whether it is clean or contaminated, without written authorization from an appointed USAG FWA representative. Dependent on the location, a Sample and Analysis Plan (SAP) if contaminants are known or a Field Screening Plan if no known contaminants have been previously encountered is required before a dig permit can be signed off. If a SAP is required, contractors will need more than 5 days as it'll need to go to EPA and ADEC for comment and approval.
- If unidentified contaminated soils, drums, or unusual debris (i.e., unexploded ordnance, discarded military munitions, or munitions debris) are encountered at any time on or around the work site, the agency or contractor shall stop work immediately and notify the Public Works Environmental Office. Contaminated soils or groundwater shall be segregated, sampled, analyzed, and containerized for transportation, and taken off-site for disposal within 90 days of final lab results being received. If soil or groundwater is scheduled for remediation off-post, it shall be returned to the installation after treatment and certified laboratory analyses, conducted by the treatment facility, to confirm the material does not exceed a regulatory cleanup level.

- All military units using the sites will be required to possess and have available appropriate spill response materials for the types and quantities of hazardous materials they may transport and use within proximity to this work area. All spills / releases will be reported to Fort Wainwright's or Fort Richardson's Fire Department and DPW-Environmental, Spill Prevention and Response (SPAR). All appropriate remediation measures will be accomplished.
- HAZWOPER certified workers may be needed if clean-up and disposal of hazardous materials is necessary. All materials should be handled, stored and disposed of in accordance with applicable laws and regulations, including USAG FWA Department of Public Works Environmental Institutional Controls. The potential for encountering hazardous materials/substances exists, including but not limited to petroleum, oils, and lubricants (POL), POL degradation by-products, asbestos, lead based paint, PCBs and mercury. Contaminated groundwater, soils, and debris shall be segregated, sampled, analyzed, and containerized for proper disposal according to the type of contamination identified.
- Project proponents will utilize the installation's Institutional Control map to avoid known contamination when siting facilities. If known contamination cannot be avoided, established BMPs/SOPs will be followed. Project proponents will coordinate with installation Environmental Clean Up personnel in a timely fashion prior to project contract award and construction start in order to gain proper regulatory approval of work in a contaminated site, if applicable.

Construction

- During the construction, ordnance may be found in the area. Inert practice ordnance may also be encountered. If UXO contamination is encountered, work within the immediate area will cease and the Installation's Explosive Ordnance Disposal (EOD) team will be notified
- If there is a probability of UXO contamination, only UXO-qualified personnel can conduct any type of ordnance handling or disturbance work.
- All hazardous material spills would be reported to the Directorate of Public Works (DPW) Environmental Office as well as the U.S. Army Corps of Engineers or DPW project manager using the DPW Oil and Hazardous Substances Spill Notification form.
- Any project that involves excavation or movement of soils must include field screening for petroleum (plus any other identified contaminants). Excavation or movement of soils that are contaminated or suspected of contamination must have a pre-approved plan in place. Soils registering less than field screening levels indicated in Army policy are transported to the Clean Soil Stockpile. Soils screening levels higher than amounts indicated in Army policy must follow USAG FWA contaminated soil policies.
- Each project would be evaluated to determine whether an Air Quality Control Permit (AQCP) is required prior to commencing construction. An AQCP is typically required for